Response Provided to Journalist
23 November 2018

The Department of Defence is conducting a detailed environmental investigation into the nature and extent of per- and poly-fluoroalkyl substances (PFAS) at, and in proximity to, RAAF Base Amberley due to the historical use of firefighting foams containing PFAS as active ingredients.

The investigation will identify whether the use of the foams resulted in PFAS exposure for humans, animals and the environment, and, if required, help develop strategies to minimise exposure,

As part of the environmental investigation, a Detailed Site Investigation (DSI) was completed. The DSI involved sampling of soil, sediment, surface and ground water to collect information and better understand how PFAS moves through the environment. A total of 428 samples were collected during the DSI.

The samples were compared against the drinking water and recreational water Health-Based Guidance Values (HBGVs). The PFAS National Environmental Management Plan (PFAS NEMP, 2018) provides HBGVs for perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS), and PFOA, for drinking water and recreational water based on the Food Standards Australia New Zealand (FSANZ) Tolerable Daily Intakes (TDIs). Further detail on these values is provided in Section 10.1-10.2.2 of the DSI report (from page 97).

PFAS was detected at seven groundwater sampling locations. Concentrations were below drinking water and recreational water guidelines, with the exception of one monitoring well located east of the base, close to Warrill Creek. At this monitoring well, PFOS + PFHxS exceeded the drinking water guidelines, but was below recreational use guidelines.

Surface water was also sampled from 11 off-base water storages (farm dams and tanks). PFAS concentrations were below the recreational water HBGVs in all samples. Types of PFAS, PFOS + PFHxS concentrations were above the drinking water HBGVs (0.07 µg/L) in four samples (highest concentration of 0.14 µg/L). Water from these storages is not used for drinking. Further detail on the off-base investigation results is provided in Section 12.6 of the DSI Report (page 150).

The Water Use Survey refers to 20 locations where groundwater or surface water could potentially be used for irrigation or watering. However, not all bores, pumps or storages were able to be sampled due to access issues, bores no longer there, or pumps not working or no longer used (Section 11.5.1 of the DSI Report describes these).

Sampling conducted during the DSI helped to identify 13 major confirmed primary source areas shown on Figure 3 of the DSI Executive Summary (see below).

The major source areas include confirmed fire training areas, hangars and the Base sewage treatment plant. The major source areas are:

- A - Former Top Side Aviation Fire Training Area (FTA) and current FTA Pad
- B - Hangar 410 (Building 410) and Former Landfill
- C - Frogs Hollow Former Fire Training School Location
- G - Former FTA and Operations Testing Area
- J - Former FTA and Operations Testing Area
- M - Former Fuel Farm 1 and Triple Interceptor Pit
- N - Fire Station, FTA training
- U - 38 Squadron Hangar
- W - Fire Fighting Training School
- X - Former Structural and Open Pit FTA
- Y - Former Secondary Fire Training Area
- DD - HS748 Former FTA on Disused Runway
- D - Sewage Treatment Plant

The list of all confirmed source areas is also provided in Table 13-3 on page 186 of the DSI Report. The concentration of PFAS at the source areas is indicated on Figure 3, with the maximum reported PFOS concentration in soil depicted for each area.

Soil sample results of the former sports ovals can be found on page 144 within Table 12-11.

Groundwater sampling results of the Triple Interceptor Pits at the Engine Test Cell Facilities 1 and 2 can be found on page 146 within Table 12-12.

Figures 17h to 17k of the DSI Report show PFAS concentrations in groundwater compared to guideline values, including in monitoring wells on-Base and adjacent to the Bremer River and Warrill

Creek. Concentrations of PFAS above guideline levels are present in a number of monitoring wells adjacent to these waterways.

The Department of Health established an Expert Health Panel (the Panel) to advise the Australian Government on the potential health impacts associated with PFAS exposure and identify priority areas for further research. The Panel's findings support the previous Environmental Health Standing Committee's (enHealth) advice in 2016 that there is no consistent evidence exposure to PFAS causes adverse human health effects.

As PFAS substances persist in humans and the environment, enHealth recommends human exposure is minimised as a precaution.

A Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA) are currently underway and expected to be completed in the first quarter of 2019. The aim of these risk assessments is to better understand the potential PFAS exposure risks for people, animals and the environment within the Investigation Area.

An assessment of exposure risks is conducted by comparing the potential intake of PFAS from exposure pathways (such as ingestion of PFAS impacted water) with the adopted tolerable daily intake. Developed by FSANZ, the TDI is the level of a chemical a person can be exposed to every day of their life without appreciable risk to their health. The PFAS TDI is specifically used for conducting assessments at contaminated sites to assess exposure risks.

Where potential exposures are calculated to be below the TDI, it can be concluded exposures are "'low and acceptable'. Where potential exposures are calculated to be above the TDI, exposures to PFAS have the potential to be 'elevated'.

Preliminary HHRA findings were presented to the community at the recent Amberley Community Information Session on 14 November 2018. Preliminary findings indicate low and acceptable exposure risks associated with incidental contact with soil, sediment, surface water and groundwater, swimming in waterways and consumption of home-grown fruit and vegetables. Potentially elevated exposure risks have been identified in some areas associated with consuming eggs from domestic chickens and fish caught from Warrill Creek or the Bremer River. These samples were collected in April 2018. The preliminary findings will be confirmed following the completion of the HHRA.

In April 2018, as part of the HHRA, initial testing for PFAS was conducted on seafood (mullet, catfish and eel) in the Bremer River and Warrill Creek. The results of this testing were provided to Queensland Health.

Based on an assessment of the results, Queensland Health advised the community in June 2018 not to consume fish caught in the Investigation Area. This advice applies to fish caught in the Bremer River and Warrill Creek near RAAF Base Amberley.

This interim advice currently remains in place and is a precautionary approach to minimise potential PFAS exposure until further testing and analysis is completed.

Further sampling of other species of more popular edible fish has been carried out in October 2018. The sample data is currently being analysed and as per standard practice will be provided to the relevant Queensland authorities for review. Where data gaps are identified, more sampling will be carried out to fill those gaps. The findings of the sampling will be presented as part of the HHRA Report.

Potential management measures will be developed at the completion of the detailed environmental investigation via a PFAS Management Area Plan (PMAP), expected in the second quarter of 2019. PMAP will aim to address potential PFAS exposure risks identified in the investigation and outline a plan for ongoing monitoring of PFAS.

Defence is committed to responsible environmental management and will continue to engage with the local community on the investigation and management of PFAS contamination at and around RAAF Base Amberley.