Australian Government
Department of Defence

RAAF Base East Sale - Human Health and Ecological Risk Assessment

PFAS Investigation and Management Program

About the Investigation

In May 2016, Defence commenced a detailed environmental investigation to identify the nature and extent of per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, RAAF Base East Sale as a result of the historical use of legacy firefighting foams at the Base.

The investigation assessed whether the use of these foams has resulted in exposure to people, animals and the environment, and will help develop strategies to minimise exposure, should these be required.

Investigation Update

Community Walk-in Session
May 2016

Preliminary Sampling & Water Use Survey
May 2016 – Jun 2016

Preliminary Site Investigation Complete
Oct 2016

Community Walk-in Session
Oct 2016 & Dec 2016

Detailed Site Investigation Complete
Jun 2017

Community Walk-in Session
Jun 2017

Interim Human Health and Ecological Risk Assessment Complete
Dec 2017

Community Walk-in Session
Dec 2017

Final Human Health and Ecological Risk Assessment Complete
Aug 2018

WE ARE HERE

PFAS Management Area Plan (PMAP)
Aug 2018

*Dates may be subject to rescheduling

The first stage of the investigation, the Preliminary Site Investigation (PSI), was completed with outcomes provided to the local community in October 2016.

The second stage of the investigation, the Detailed Site Investigation (DSI), commenced in September 2016 and was finalised in June 2017. The DSI involved sampling of soil, sediment, surface water, ground water and grass to collect information to better understand how PFAS moves through the environment.

Summary of the Detailed Site Investigation findings

- Low concentrations of PFAS were detected in soil on-base. Concentrations in soil off-base were many times lower than the adopted human health screening criteria for a residential setting.
- Elevated concentrations of PFAS were identified in on-base shallow groundwater and drainage line surface waters. Lower concentrations in groundwater and surface water were identified off-base.
- The main pathway for off-base migration of PFAS is via surface water drainage features, and, to a lesser extent, groundwater.

The PSI and DSI reports are available on the RAAF Base East Sale investigation website.

Human Health and Ecological Risk Assessment

Based on the data collected in the DSI, Defence commenced a Human Health and Ecological Risk Assessment (HHERA) in October 2017. The aim of the HHERA was to better understand the risk of PFAS exposure to people, animals and the environment from Defence's historical use of legacy firefighting foams at the Base.

The HHERA has been delivered in two stages. The first stage was released in December 2017 and provided interim guidance regarding risks of exposure to PFAS associated with most pathways and activities within the Investigation Area. The second and final stage addresses data and information gaps outlined in the Interim HHERA. This factsheet outlines the findings of both stages. The complete HHERA can be downloaded from the RAAF Base East Sale investigation website.

HHERA Key Findings

The table below summarises the exposure risks identified in the final HHERA. The risk categories are defined as:

No detect

This means that there is no PFAS or the level of PFAS is too small for laboratories to reliably detect.

Low and acceptable exposure risk

This means that exposure is below the relevant guidelines, according to conservative estimates.

Potentially elevated exposure risk

This means that exposure may exceed the relevant guidelines, according to conservative estimates.

Exposure risk varies with circumstances

Scenarios in this category contain specific advice for different circumstances.

	Potential Exposure Scenarios
No detect	Drinking town water (on-base and off-base)
Low and acceptable exposure risk	Consuming milk, meat or offal from livestock raised off-base
	Consuming milk, meat or offal from livestock raised on Defence-owned grazing land and sold into the commercial market
	Livestock health (on-base and off-base)
	Contact with soil, groundwater or drain water *(e.g. gardening, intrusive or construction works on-base or off-base)*
	Consuming home-grown fruit and vegetables grown off-base, or in sensitive use areas on-base
	Consuming chicken eggs raised off-base
	Land ecosystems on-base and off-base
	Recreational water use in the Heart Morass (people and pets)
	Consuming fish caught in the Lower Latrobe
	River sold into the commercial market
Potentially elevated exposure risk	Consuming recreationally hunted or caught duck, fish and eels from the Heart Morass *Follow the Victoria EPA precautionary advice on consumption of recreationally hunted and caught duck, fish and eels from the Heart Morass.*
	Aquatic ecosystems
Exposure risk varies with circumstances	Consuming recreationally caught fish or eels from the Lower Latrobe River *For recreational fishing from the Lower Latrobe River, estimated exposure is low and acceptable for all species except for carp and eel. The exposure risk for eel is low and acceptable if consumption is limited to one serve per month. The exposure risk for carp is low and acceptable if consumption is limited to 1 serve per week.*
	Consuming fish caught in the Heart Morass sold into the commercial market *There is a low and acceptable exposure risk associated with consuming commercially caught fish from the Heart Morass with the exception of fish caught from a limited area near the Eastern Main Drain outlet.*
	Personal consumption of home grown milk, meat or offal from livestock raised on Defence owned grazing land *Frequent eating (e.g. more than once a week) of livestock raised on Defence owned grazing land may present an elevated exposure risk.*

EPA Victoria Advice

As a precaution the EPA has released advice regarding the consumption of some species. For further information, visit the EPA website at www.epa.vic.gov.au.

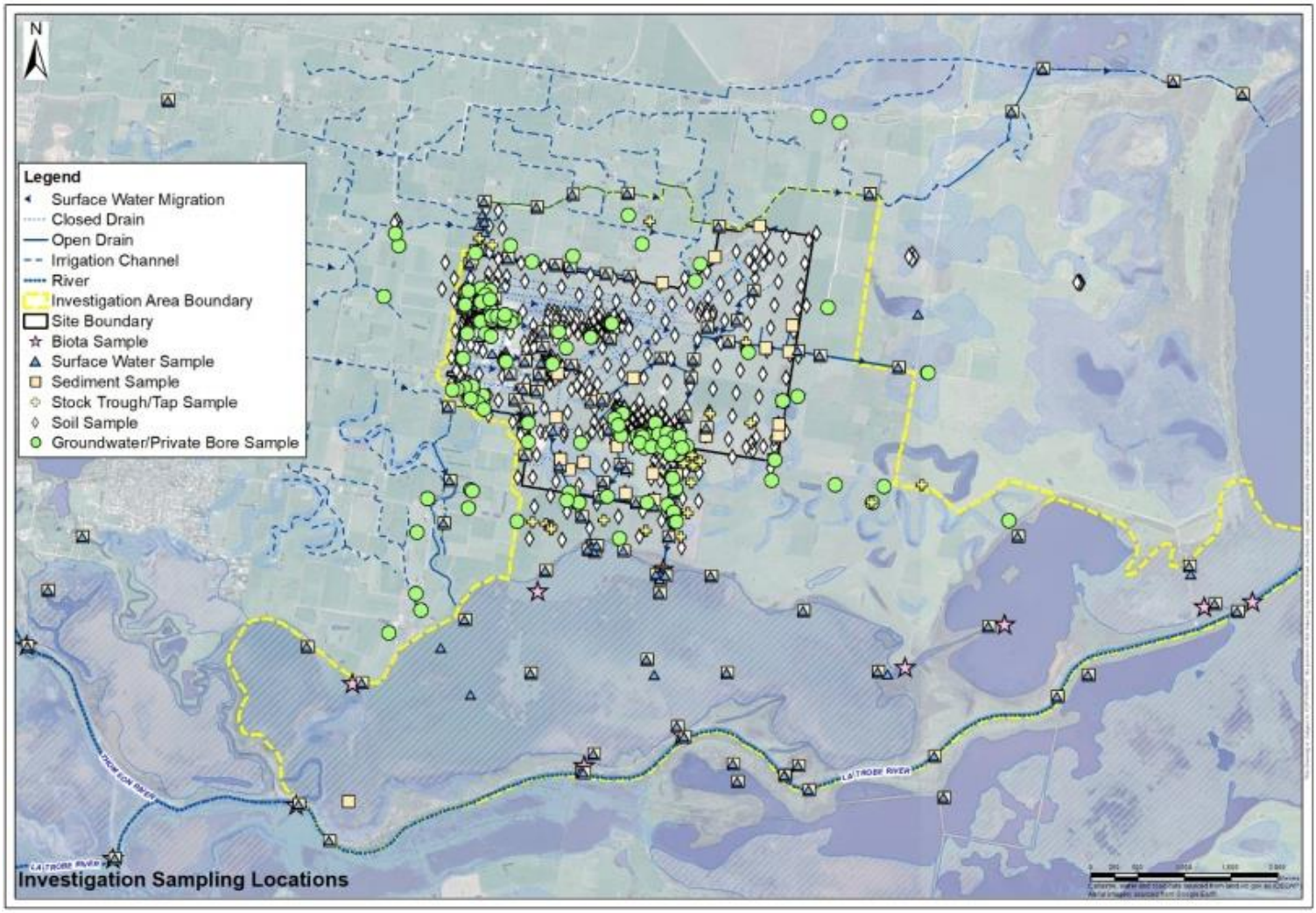
Investigation Sampling

East Sale Sampling Points		
Sample Type	**No. On-Base**	**No. Off-Base**
Soil	386	67
Groundwater	89	76
Drinking water	1	4
Surface water	49	83
Sediment	67	84
Grass	17	24
Aquatic plants and animals (Fish, eels, ducks, plants, invertebrates)	16	135
Cattle blood serum	23	0

To provide data for completion of the risk assessment Defence undertook extensive sampling of soil, water, grass, aquatic plants and animals (including cattle blood serum, and fish and ducks from The Heart Morass and Lower Latrobe River) and analysis of these samples to see if they contained PFAS.

Investigation Sampling Locations

The map below shows the locations of samples taken during the investigation and the boundary of the Investigation Area. The results of the HHERA will be used to establish a Management Area which will cover the locations for ongoing monitoring and management.



Next steps

The HHERA has provided Defence a greater understanding of the risk of PFAS exposure to people, plants and animals.

The HHERA has been developed in consultation with the EPA Victoria, other Victorian Government agencies and the independent Environmental Site Auditor to assist in developing management measures.

The outcomes of the detailed environmental investigation will be used to develop a plan for the management of PFAS contamination.

This plan will be known as a PFAS Management Area Plan or 'PMAP'.

The PMAP will further guide Defence's actions to manage known sources of contamination, migration, as well as the identified exposure risks to the community or environment. Implementation of the PMAP includes an ongoing monitoring plan, which will continue to monitor and assess potential changes in the nature and extent of PFAS impacts as a precautionary measure.

Government Guidance

Advice about human health issues must come from appropriate authorities such as State and/or local health authorities and practitioners. Defence has provided the HHERA to the respective authorities.

Defence relies on health advice from the Australian Government's Environmental Health Standing Committee (enHealth). According to enHealth, there is currently no consistent evidence that exposure to PFAS causes adverse human health effects.

However, because these substances persist in humans and the environment, enHealth recommends that human exposure is minimised as a precaution.

Keeping the community informed

The measured concentrations of PFAS identified during the investigations have been provided to property owners where sampling was completed.

Defence will continue to keep the community informed on the progress of the investigation and the implementation of the PFAS Management Area Plan. As well as community information sessions, updates will be provided through the project website, factsheets and newsletters as new information becomes available.

Contact Information

RAAF Base East Sale Investigation Hotline

Phone 1800 365 414
Email PFASDefenceCoordination@golder.com.au
Website http://www.defence.gov.au/environment/pfas/EastSale/
Post RAAF Base East Sale Environmental Investigation Project
PO Box 165 Collins Street West Post Shop Melbourne VIC 8007

Media enquiries should be directed to Defence Media on (02) 6127 1999 or media@defence.gov.au

Useful Links

Department of Health
Phone 1800 941 1800
Website www.health.gov.au/PFAS

Environment Protection Authority Victoria
Phone 1300 372 842
Website http://www.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria

Food Standards Australia and New Zealand (FSANZ)
Website http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-pfas.htm