



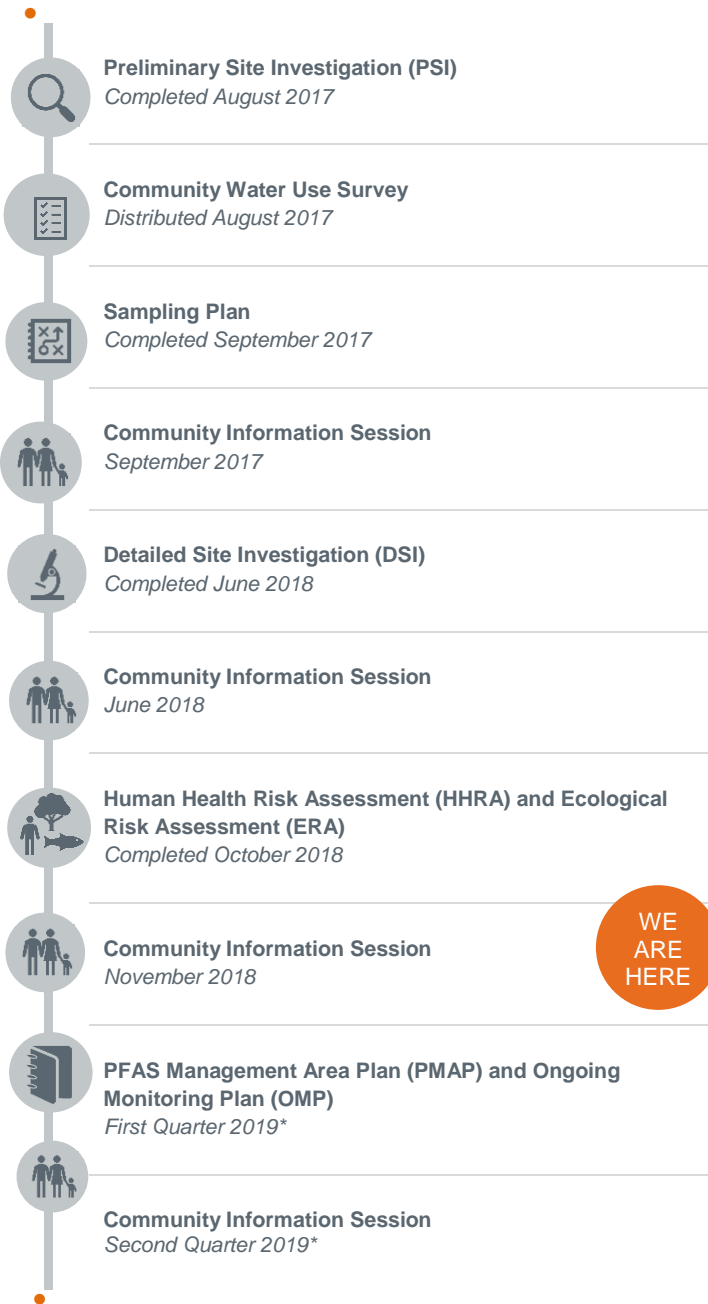
RAAF Base Richmond – Human Health Risk Assessment Findings

PFAS Investigation & Management Program

Investigation Background

In May 2017, 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 Richmond (the Base) as a result of the historical use of legacy firefighting foams.

The purpose of the investigation is to identify whether the use of these foams has resulted in PFAS exposure to people, animals and/or the environment, and to develop strategies to minimise exposure, if required.



WE ARE HERE

*Dates subject to change

Human Health Risk Assessment

As part of the environmental investigation, a Human Health Risk Assessment (HHRA) has been completed.

The aim of the HHRA is to provide a better understanding of the potential exposure risks of PFAS to people within the 'HHRA Study Area'.

This assessment follows the completion of the first two stages of the investigation, the Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI).

Scope

The HHRA assessed the potential for key groups of people to be exposed to PFAS, detected in groundwater, surface water, soil, sediments, and home-grown produce including, fruit, vegetables, eggs and beef and finfish within the HHRA Study Area.

The following exposure pathways were assessed:

- Eating home-grown plant produce (e.g. fruits and vegetables) irrigated with groundwater or surface water, containing detectable PFAS, or grown in soil historically irrigated with groundwater, or flooded with water containing detectable PFAS;
- Eating home-grown animal produce (e.g. poultry eggs and red meat) where animals drink groundwater, or surface water with detectable PFAS, or eating plants irrigated with groundwater or surface water, or grown in soil historically irrigated with groundwater, or flooded water with detectable PFAS;
- Eating finfish from local waterways; and
- Unintentionally ingesting or skin contact with surface water, sediment and/or soil, with detectable PFAS.
- Unintentionally ingesting and/or skin contact with detectable PFAS in soil, or inhaling soil derived dust, from off-Base activities;

Methodology

The HHRA was carried out in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 and other relevant Australian guidelines. The NEPM was established by Commonwealth legislation and incorporates into the laws of each of the States and Territories, to provide a nationally consistent approach in the assessment of site contamination.



Representative Groups of people within the HHRA Study Area

The HHRA assessed the following representative groups of people within the HHRA Study Area, who may be exposed to PFAS:

- Residents, including adults, children and infants;
- Horticultural and agricultural workers;
- Recreational users of publicly accessible surface water including, the Hawkesbury River and tributaries;
- Recreational users of publicly accessible open spaces including, parks and sporting fields; and
- Council workers who may carry out activities such as maintenance work on service pits, which extend below the groundwater table and surface water drainage networks.

Sampling

The HHRA involved collecting and analysing 'biota' (ie plant and animal) samples, and analysing sampling results from the PSI and DSI.

Table 1 Samples collected for the HHRA

SAMPLE TYPE	SAMPLES COLLECTED
Groundwater	36
Surface water	57
Soil	103
Sediment	36
Biota, including fruit, vegetable, poultry eggs, finfish and grass (fodder)	76
Total samples collected	308

How was exposure risks assessed?

The assessment of exposure risks was conducted by comparing the potential intake of PFAS from exposure pathways (such as ingestion of PFAS impacted water) with the adopted Tolerable Daily Intake (TDI).

Developed by Food Standards Australia New Zealand (FSANZ), the TDI is the level of a chemical that a person can be exposed to every day of their entire lifetime 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 is concluded that exposures are "low and acceptable". Where potential exposures are calculated to be above the TDI, exposures to PFAS have the potential to be "elevated". As a result, risk mitigation or management measures may be required.

An exposure risk exists if all of the following are present:

- PFAS source/s;
- Pathway/s for the PFAS to move along; and
- Way/s for the PFAS to reach a person.

Key findings of the HHRA

The HHRA found that PFAS exposure risks within the investigation area are generally low and acceptable. A small group of people, who live within the HHRA Study Area, may have potential for elevated PFAS exposure if they eat high quantities of homegrown eggs or homegrown red meat, or recreationally caught finfish (when PFAS impacted eggs or meat are also consumed).

Table 2 HHRA Key Findings

Assessed Exposure Risk	
Low and acceptable exposure risk	Unintentionally ingesting, touching or inhaling dust from soil, during outdoor activities.
	Inhaling dust from soil tracked back into the home.
	Unintentionally ingesting or skin contact with water, during outdoor agricultural or horticultural use, maintenance activities or recreational activities.
	Unintentionally ingesting or skin contact with sediment, during outdoor activities.
	Eating home-grown green vegetables irrigated with water containing detectable PFAS, or that have been grown in soil that has been irrigated, or flooded with water containing detectable PFAS.
	Eating finfish from local waterways (e.g. the Hawkesbury River) by recreational fishers who do not live in the HHRA Study Area.
Potentially elevated exposure risk	People who live in the Study Area and eat large quantities of finfish caught from local waterways and, either home-grown eggs or home-grown red meat.
	People who live in the Study Area and eat a large proportion of home-grown from poultry, which eat soil or drink water containing detectable PFAS.
	People who live in the Study Area and eat a large proportion of home-grown red meat from cattle, which drink water containing detectable PFAS from Bakers Lagoon and surrounding surface water networks.

If you have any concerns about your dietary intake, please contact NSW EPA on 131 555.





Next Steps

A PFAS Management Area Plan (PMAP) will now be developed and is expected to be completed in early 2019. The PMAP will outline activities that Defence will carry out to manage and reduce the risks of PFAS exposure, where required, within the Study Area.

The PMAP will prioritise the implementation of practical solutions to prevent or minimise PFAS migrating from the Base. It is likely that this will include:

- Reducing the PFAS contamination source; and/or
- Blocking or diverting the contamination from the Base to the wider community.

Developing the PMAP involves a review of the sources of the contamination and the key ways it is migrating into the wider community. It will also include a comparison and evaluation of a range of available PFAS management activities to identify possible options for the site.

As part of the PMAP, an Ongoing Monitoring Plan (OMP) is being prepared which outlines the sampling program that will be undertaken by Defence to monitor and track the PFAS contamination over the coming years.

Keeping the Community Informed

Defence is committed to regularly updating the community about ongoing monitoring. As new information becomes available, updates will be provided through the project website, community information sessions, newsletters and information sheets.

Contact

Phone: 1800 789 291 freecall (business hours)

Web: www.defence.gov.au/environment/pfas/ Richmond/

Email: richmond.defence@aecom.com

Media enquiries should be directed to Defence

Media Operations on (02) 6127 1999 or

media@defence.gov.au.

Government Agencies

Defence is cooperating in the investigation and management of PFAS contamination with a number of Commonwealth and NSW Government Agencies. These agencies include:

- Commonwealth Department of Health:
1800 941 180
- NSW Health: 1300 066 055
- NSW EPA: 131 555
- NSW Department of Primary Industries:
 - Fisheries: 1300 550 474
 - Agriculture: 1800 808 095
- NSW Food Authority Helpline: 1300 552 40

