



Robertson Barracks Investigation Update

PFAS Investigation and Management Program

Background to the Investigation

In June 2017, Defence engaged an environmental consultant (Senversa) to conduct a detailed environmental investigation into the presence of per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, Robertson Barracks (the Base).

The objective of the environmental investigation is to identify the nature and extent of PFAS in the environment from the use of legacy fire-fighting foam at the Base and any potential risks to people or the environment.

The understanding of these potential risks will assist in developing mitigation strategies to minimise exposure.

This investigation is part of Defence's review of a number of its properties around Australia that used legacy fire-fighting foams containing perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as active ingredients. Perfluorohexane Sulfonate (PFHxS) was also commonly found in the legacy foams as an impurity in the manufacturing process.

About per- and poly-fluoroalkyl substances (PFAS)

PFOS, PFOA and PFHxS belong to a group of chemicals known as PFAS.

Legacy firefighting foams containing PFOS and PFOA as active ingredients were once used extensively worldwide and within Australia because of their effectiveness in fighting liquid fuel fires.

In 2004 Defence commenced phasing out its use of legacy firefighting foams containing PFOS and PFOA as active ingredients. The firefighting foam now used by Defence is a more environmentally safe product.

PFAS were also used across Australia and internationally in a range of common household products and specialty applications, including in the manufacture of non-stick cookware; fabric, furniture and carpet stain protection applications; food packaging and in some industrial

processes. As a result, most people living in the developed world will have levels of PFAS in their body.

PFAS are emerging as a concern around the world because they are persistent in the environment.



Common sources of PFAS

Environmental Investigation Activities

All detailed environmental investigations are undertaken by experienced environmental services providers in accordance with the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (NEPM).

There are three main stages to an investigation:



Investigation Stages





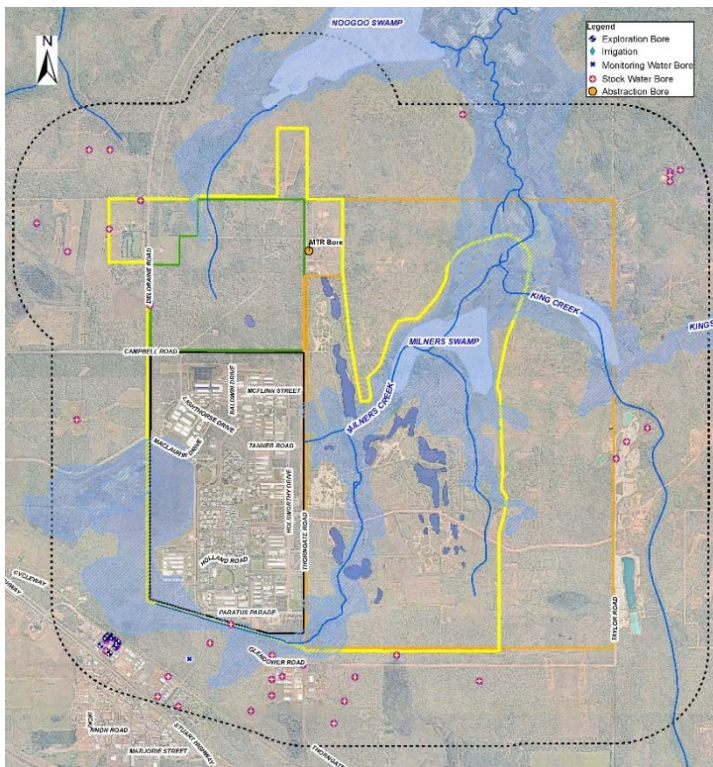
Stage 1: Preliminary Site Investigation (PSI)

The first stage of the investigation, the Preliminary Site Investigation (PSI), has now been completed. This stage involved the historical review of AFFF use at the Base to identify on-base sources, develop an understanding of PFAS migration pathways and identify potential receptors.

- Sources:** where and when legacy AFFF was used
- Pathways:** how PFAS moves in the environment
- Receptors:** people, animals and the environment that may be exposed to PFAS

The findings of the PSI have been used to develop a conceptual site model, to guide understanding of sources of PFAS and their potential pathways to human receptors (people) and to prioritise works for stage two of the investigation, the Detailed Site Investigation (DSI).

Initial Investigation Area



Map of initial investigation area (base boundary in black)

The Investigation Area defines the current extent of the investigation, focussed on potential human and ecology receptors.

This area is expected to contract in areas where delineation is achieved (a pathway between source and receptor is not found), whilst potentially also expanding in areas where risk is unacceptable.

Stage 2: Detailed Site Investigation (DSI)

The DSI will involve sampling on-base and in the surrounding region.

A detailed report will be prepared and shared with relevant government and regulatory bodies as well as the community. This will also be made available to the public.

If required, a more detailed Human Health and Ecological Risk Assessment may be conducted to evaluate potential risks to the human population and ecology, and inform actions to mitigate risks.

Water Use Survey

As part of the detailed site investigation, information will be collected through a water use survey to find out more about water use near the Base. The voluntary survey aims to collect information about how bore and surface water is used and will determine if additional sampling needs to be conducted as part of the investigations.

If you live within the investigation area, please complete the water use survey and indicate if you would like your bore water tested, if this is applicable to you.

Open • Water use survey opens 28 September 2017

Close • Water use survey closes end of December 2017

Results • Water use survey results early 2018

Sampling and testing





Sampling and testing for the investigation will involve the collection of soil, sediment, surface water, groundwater, plant and animals on and off the base. Sampling activities outside of the base will be limited to business hours (8am to 6pm) and community members surrounding the work will be consulted in advance.

Soil samples will be taken and groundwater monitoring wells will be installed. To do this a drill-rig will be used. The drill-rig will produce some short-term noise that is not damaging to hearing, as well as some vibration that will not damage buildings.

Boreholes will be made using a small drill-rig and completed either using a cover that is flush with the ground (preferred) or a protruding cover, where there's the likelihood of losing the monitoring well (e.g. in long grass).



Drill rig used to develop boreholes

From these monitoring wells, groundwater samples will be collected for analysis of potential PFAS presence. Sediment, surface water, plant and animal samples will also be collected from drainage channels and creeks leading into and outside the base as well as from the surrounding creeks, particularly Milners Creek which flows north towards Kings Creek and Shoal Bay.



Ground-water monitoring wells, flush mount (top) and protruding (below)





Supply of alternative drinking water

As a precaution, Defence is providing bottled water to residents who fulfil certain criteria within the investigation area surrounding the base. Please contact the Project Team for further information.

Government Guidance

The Environmental Health Standing Committee (enHealth) of the Australian Health Protection Principal Committee (AHPPC) has released guidance statements relating to human health.

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.

The Commonwealth Department of Health released final Health Based Guidance Values (HBGVs) for PFAS on 3 April 2017.

Defence will adopt the final HBGVs in all its environmental investigations including at Robertson Barracks.

Keeping the community informed

Defence is committed to regularly updating the community throughout the investigation. As well as community information sessions, updates are provided through the project website, direct mail and information sheets as new information becomes available.

Useful Links

The Australian Government Department of Health has established a PFAS webpage:





<http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-pfas.htm>

Department of Health PFAS hotline: 1800 941 180

Health Based Guidance Values:

<http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-pfas-hbgv.htm>

Contact the Investigation Project Team

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