Background to the Investigation

In March 2017, Defence engaged an independent environmental consultant, CH2M, to conduct a detailed environmental investigation into the presence of per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, RAAF Base Amberley (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.

What is PFAS?

PFAS are manufactured chemicals used in products that resist heat, oil, stains and water.

PFAS have been used in Australia and around the world in many common household products and specialty applications, including non-stick cookware, stain protection applications, food packaging and some industrial processes.

As a result, most people living in developed nations have some PFAS in their body.

Legacy firefighting foam containing perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as active ingredients was used at Defence bases, including at RAAF Base Amberley, for emergency firefighting situations and training. Perfluorohexane Sulfonate (PFHxS) is also commonly found in the legacy firefighting foam as an impurity in the manufacturing process. PFOS, PFOA and PFHxS belong to the PFAS group of chemicals.

In 2004 Defence commenced phasing out its use of legacy firefighting foam containing PFOS and PFOA as active ingredients and transitioned to a more environmentally safe product.

The release of PFAS into the environment has become a concern, because we’ve learned these chemicals can persist in humans, animals and the environment. There was little understanding of impacts for PFAS at the time of use of legacy firefighting foam and as such this is a legacy issue for Defence.

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:

Stage 1: Preliminary Site Investigation

Stage 2: Detailed Site Investigation

Stage 3: Human Health and Ecological Risk Assessment (if required)

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 legacy firefighting use and storage to identify where and when legacy firefighting foam was used (sources), how PFAS moves in the environment (migration pathways) and people, animals and the environment that may be exposed to PFAS (receivers).

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). Targeted preliminary soil and surface water sampling was undertaken to develop the Sampling Analysis and Quality Plan for the second stage of the investigation, the Detailed Site Investigation (DSI).

**Initial Investigation Area**

An initial Investigation Area (below) has been identified which defines the current extent of the investigation, focused on potential human and ecology receptors.

The boundary of the Investigation Area at this point in time is indicative only.

This initial Investigation Area is expected to expand or contract in some areas as the investigation progresses and additional data becomes available.
Stage 2: Detailed Site Investigation (DSI)

The DSI is currently being conducted and will involve sampling of soil, sediment, surface water and groundwater on-base and in the surrounding region to collect information and better understand how PFAS moves through the environment.

Groundwater sampling will take place outside of the initial investigation area where there are existing bores and monitoring wells.

A detailed report will be prepared and shared with relevant government and regulatory bodies as well as the community. The DSI is expected to be completed in the first half of 2018.

Water Use Survey

As part of the DSI, 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, it would be appreciated if you could please complete the Water Use Survey and indicate if you would like your bore water tested, if this is applicable to you.

For additional information on the Survey please contact the Investigation Project Team or visit the Investigation website.

Current activities

Sampling of soil, sediment, surface water and groundwater has commenced at RAAF Base Amberley with off-base sampling to commence soon. Sediment, surface water, and soil samples will be collected from the Bremer River, Warrill Creek and surface water dams.

Sampling activities outside of the base will take place in business hours (8am to 6pm). Nearby residents will be notified in advance of the sampling activity taking place.

Existing and new groundwater wells will be sampled. New groundwater monitoring wells require a drill-rig to be used that will produce some short-term noise as well as some vibrations. Noise levels will fluctuate, starting and stopping intermittently.

Once groundwater wells are drilled, they are fitted with a plastic casing to secure the sides and then finished with a secure cap that is flush with the ground (preferred) or a protruding cover, where there is the likelihood of losing the monitoring well (e.g. in long grass). Any water coming up through the groundwater wells and bore holes will be collected and removed.

From these monitoring wells, groundwater samples will be collected for analysis of potential PFAS presence.

Rigorous quality control and record keeping procedures are in place to ensure the appropriate quality of soil, sediment, surface water and groundwater samples are collected and transferred to the laboratory for analysis.
Stage 3: Human Health and Ecological Risk Assessment

If required, a more detailed Human Health and Ecological Risk Assessment will be conducted to evaluate potential risks to the human population and ecology, and inform actions to mitigate risks. The findings from the DSI will inform the decision to conduct a Human Health and Ecological Risk Assessment.

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.

Further information can be found at the Commonwealth Department of Health has established a PFAS webpage and community hotline:

1800 941 180


Contact the Investigation Project Team

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