



RAAF Base Townsville – Detailed Site Investigation Findings

PFAS Investigation and Management Program

About the Investigation

In March 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 Townsville - as a result of the historical use of legacy firefighting foams at the Base.

The investigation will identify whether the use of these foams has resulted in exposure risks to human health or ecosystems, and will help develop strategies to minimise exposure, should these be required.



The Townsville Investigation Area

Investigation update

The first stage of the investigation, the Preliminary Site Investigation, was completed in June 2017.

The second stage of the investigation, the Detailed Site Investigation, commenced in June 2017 and has now been completed. The Detailed Site Investigation involved sampling of soil, sediment, surface water and groundwater to collect information to better understand how PFAS moves through the environment.

A detailed report including the sampling results has been prepared and provided to relevant government agencies, regulatory bodies and the local community. The report can be found at:

www.defence.gov.au/environment/pfas/Townsville/publications.asp

Detailed Site Investigation Sampling

The table below outlines the number of samples collected in the Investigation Area.

Sample Type	On-Base	Off-Base
Soil	149	48
Sediment	16	33
Surface water	11	33
Groundwater	74	96
Total samples	250	210

Summary of findings

- PFOS was the most commonly detected PFAS, which is consistent with the historical use of firefighting foam.
- PFAS has been detected in groundwater on- and off-Base in exceedance of the drinking water and recreational human-health guidance values.
- PFAS has been detected in soil. No soil samples were in exceedance of the human-health guidance values, except for two locations on-Base.
- It is likely elevated concentrations of PFAS in groundwater, at a distance from the Base, were transported there by surface water. This surface water then infiltrated to groundwater in the underlying aquifer.
- PFAS was detected in surface water and sediment on- and off-Base at concentrations in exceedance of the nominated guidelines. This indicates PFAS is being transported by surface water and sediment from the Base into the Townsville Town Common Conservation





Park, Louisa Creek, Three Mile Creek and Mundy Creek catchments.



Surface water flow into Mundy Creek

- Surface water and sediment samples collected upstream of the Base indicate a background source(s) of PFAS exist in the upper catchments of Louisa and Peewee Creeks and in the middle reaches of the Bohle River. This suggests the Base is not the only source of PFAS to the surrounding environment.

Water Use Survey

A Water Use Survey was distributed to approximately 2,500 residents and businesses in the Investigation Area to help understand the use of groundwater and identify the presence and use of groundwater bores.

The findings of the Water Use Survey were used to inform the Detailed Site Investigation. To date 164 completed surveys have been received, and 28 groundwater bores were identified through the Survey.

Residential groundwater bores have been identified in the suburbs of Garbutt, Belgian Gardens, Rowes Bay, West End and Pallarenda, with groundwater use mostly limited to the irrigation of lawns and some minor use for gardens including those with vegetables.

No groundwater was identified as being used for drinking purposes, plumbed into dwellings or structures (e.g. sheds), stored temporarily in tanks or used to fill swimming pools or spas.

Next steps

The key conclusions and recommendations in the Detailed Site Investigation report are detailed below:

- Conduct additional environmental sampling in the investigation area and report this information in an addendum to the Detailed Site Investigation report. Additional investigations include wet season groundwater, surface water and sediment monitoring.
- Undertake a Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA). These investigations include additional sampling of marine and semi-aquatic plants and animals in the areas surrounding the Base.
- Develop a PFAS Management Area Plan (PMAP) to identify areas requiring management and/or remediation, and requirements for further investigations if necessary to support these activities.



The Townsville Town Common Conservation Park





Management options

Defence continues to engage with industry experts both nationally and internationally and is working collaboratively with the Queensland Government to identify the best management and remediation options for PFAS.

Potential management and remediation options are determined by site-specific factors, including hydrogeology, the type of contamination, and access. The environmental investigation currently underway at RAAF Base Townsville will provide Defence with significant site-specific information. At the end of the investigation, Defence will use the findings to develop a PFAS Management Area Plan that is tailored to the unique conditions of the site.

Initial Fish Consumption Assessment

As part of the investigation, Defence has caught fish in the Bohle River, Townsville Town Common, Louisa, Mundy and Three Mile Creeks. Based on the PFAS results in these fish samples, Queensland Health conducted an initial assessment to determine safe amounts of fish from these areas that could be consumed by recreational fishers, including adults and children. Based on this initial data, Queensland Health concluded that there is no evidence of an immediate human health PFAS exposure risk from the consumption of fish caught by recreational fishers in the Investigation Area.

Queensland Health has advised that fishers within the Investigation Area should follow existing Food Standards Australia New Zealand (FSANZ) guidance on fish consumption which are protective of exposure to other substances, specifically mercury.

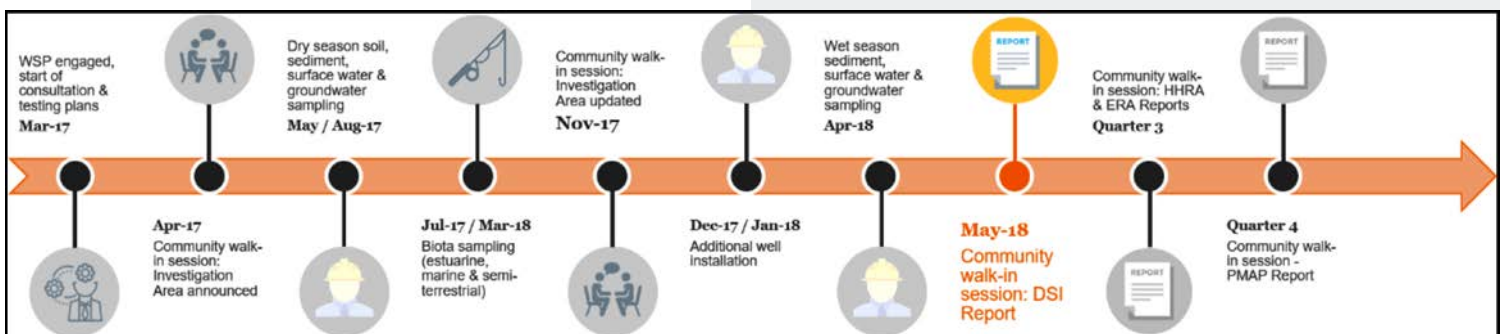
The FSANZ guidelines recommend 2 to 3 serves per week of 75 g of most fish for children up to 6 years, and 2 to 3 serves per week of 150 g for the rest of the population. Queensland Health notes that this advice includes all fish consumed, including wild caught, store purchased, farmed and tinned fish.

As a result of the sample results, Defence has commenced a Human Health Risk Assessment to understand the potential exposure risk to people including consumption of fish from the Investigation Area. The Human Health Risk Assessment report is expected to be released in the third quarter of 2018.

Supply of alternative drinking water

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

All properties within the Investigation Area are understood to have access to reticulated mains water. As a result, no properties at this stage have been identified as using bore water for drinking.





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.

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 PFAS webpage and community hotline established by the Commonwealth Department of Health.

Phone: 1800 941 180

Web: <http://www.health.gov.au/pfas>

Contact the Investigation Team



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www.defence.gov.au/environment/pfas/Townsville



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