

SENATE ESTIMATES BRIEF

Associate Secretary Groups
Group Brief

ID: LEGACY CONTAMINATION ON THE DEFENCE ESTATE FROM USE OF FIRE FIGHTING FOAM CONTAINING PERFLUOROOCTANE SULFONATE (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA)

Key Facts

<ul style="list-style-type: none"> • Defence historically used Aqueous Film Forming Foam (AFFF) containing Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) for firefighting. • Defence has detected PFOS and PFOA contamination in groundwater and surface water at Army Aviation Centre Oakey (AACO) and RAAF Base Williamtown. • Defence is proactively investigating the extent of off site migration of groundwater contamination from the AACO and RAAF Base Williamtown in order to develop and implement appropriate management strategies. 	<ul style="list-style-type: none"> • PFOS and PFOA are currently known as emerging contaminants and the health impacts from these contaminants are not fully understood. • Despite research worldwide, few effective or viable remediation techniques have been identified.
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Key Issues

- Defence acknowledges that groundwater beneath the AACO and RAAF Base Williamtown contains perfluorooctane sulfonate (PFOS) and perfluoro octanoic acid (PFOA), which are residual from the historical use of fire-fighting foams between 1970 and the late 2000s.
- Defence will keep the community informed of our findings at the AACO and RAAF Base Williamtown.
- Defence is engaging closely with local, State and Commonwealth agencies and will continue to investigate the nature and extent of the contamination across the Defence estate.
- An interdepartmental working group is developing interim environmental assessment screening criteria to assist in management decisions on Commonwealth properties.

Financial Assistance

- Defence is working with other Commonwealth agencies to assess what support may be provided to persons whose income earning ability or businesses have been adversely affected.
- Access to drinking water has been accorded a high priority and Defence is working with QLD and NSW State agencies and Hunter Water Corporation to ensure residents continue to have access to drinking water. This is undertaken at no cost to the affected residents.

If asked: What was groundwater being tested for?

- Groundwater was being tested for PFOS and PFOA.
- These substances were historically used in fire-fighting foams as well as a variety of common household and industrial products.
- PFOS and PFOA are known as “emerging contaminants” and there has been limited research done to date, in Australia and overseas, into the possible health impacts of exposure to these contaminants.

If asked: Are these chemicals still in use?

- Defence first became aware of environmental concerns in 2003 regarding fire fighting foams that contained PFOS and PFOA and progressively

restricted their use in line with Australian National Industrial Chemicals Notification and Assessment Schemes (NICNAS) advice.

- Defence has since transitioned to alternative formulations of fire fighting foam that contain only trace levels of PFOS/PFOA.
- Additionally, Defence has improved its management and storage of existing holdings of fire fighting foam that contain PFOS and PFOA.

Oakey

- PFOS and PFOA contamination was found on base and in bore water at 42 properties near Oakey.

If asked: Is the contaminated water safe to drink and use?

- Although PFOS and PFOA are recognised as emerging contaminants, scientific studies are not conclusive about their potential to affect health. Australia does not currently have health or ecological trigger value guidelines for PFOS and PFOA. Various minimum acceptable value guidelines have been set by a number of countries but there remains a lack of a uniform approach on these guidelines.
- Defence is not an authority on potable water quality. However, as a precaution, Defence has recommended that residents refrain from drinking any water sourced from groundwater within the detection area around Oakey.

If asked: Is the town water contaminated?

- Defence understands that Toowoomba Regional Council water supply is not affected by PFOS or PFOA contamination.

If asked: What is the level of exposure to Defence members?

- Defence personnel exposure from drinking water on base is likely to be minimal given that treated town water has been used since 1997.
- Defence personnel who have concerns about exposure can contact the relevant health agencies within Defence.

If asked: What action is being taken by Defence to rectify the contamination?

- Defence will continue to investigate the ground water to understand the extent of the contamination while developing options for managing the

contamination in consultation with local, State and Commonwealth agencies.

Williamtown

- Environmental investigations at RAAF Base Williamtown in 2012 (“Stage 1”) identified contamination on base and at the boundary of the base. This led to a second program of investigations (“Stage 2”) which identified contamination in groundwater at 11 locations around RAAF Base Williamtown. Further investigations are currently underway to determine the full extent of contamination.
- On 4 August 2015 Defence provided the draft report of its Stage 2 investigations to a range of NSW government agencies.
- On 3 September 2015 the NSW Environment Protection Authority (EPA) closed some waterways near RAAF Base Williamtown for commercial and recreational fishing and commercial oyster farming.
- On 8 October 2015, the NSW EPA lifted the ban on commercial oyster farming.
- The NSW Government has now established an Expert Panel to provide informed scientific advice to the NSW Environment Protection Authority to assist in developing the NSW Government's response to the contamination issue.
- Defence is a member of the NSW Government's Williamtown Contamination Investigation Community Reference Group (CRG). The group is charged with providing a conduit for the clear flow of information between the NSW Government and the community.

If asked: Will Defence compensate Williamtown business owners?

- Defence has publicly acknowledged that compensation issues need to be addressed.
- Any claims for compensation for businesses or individuals will be handled consistently with Defence’s obligations under the Legal Services Directions.

If asked: What is Defence doing about the contaminated sites at RAAF Base Williamtown and Lake Cochran?

- Defence acknowledges the contaminated sites on base and the findings on Lake Cochran raised in the Stage 2 investigation report.
- Defence will take these into account as part of the management actions arising from the Stage 2 investigation.

If asked: What is the extent of the off-base contamination?

- I encourage concerned residents to review the advice provided by the NSW Environment Protection Agency, which also includes a map of potentially affected areas.

If asked: When did Defence know about offsite contamination?

- In 2012, PFOS and PFOA were detected in routine water monitoring for RAAF Base Williamtown. Defence contacted the NSW EPA and Hunter Water Corporation to discuss results.
- The Stage 1 environmental report was completed in March 2013 and identified the potential contamination risks.
- In response to the Stage 1 report, a Stage 2 Environmental Investigation was commissioned in April 2014.
- The Stage 2 Environmental Investigation Draft Report was given to the NSW EPA and Hunter Water on 4 August 2015 for comment before publishing it as a part of Defence's community consultation.

If asked: Is the contaminated water safe to drink and use?

The NSW Department of Health has, as a precaution, recommended that residents in the potentially affected area avoid drinking or preparing food using bore water, eating fish, prawns or wild oysters caught from Upper Tilligerry Creek, Fullerton Cove or drains, consuming eggs from backyard chickens, or drinking milk from goats and cows .

- All enquiries related to this precautionary advice should be directed to NSW Health.

If asked: What impact does the contamination have on local industries?

- The Commonwealth Government is concerned about the impact this contamination may have on local industries, including the fishing industry.
- The Federal Government has sought urgent advice from other agencies to ensure that public health risk assessments are completed as soon as possible.
- This urgent advice will inform future directions and provide certainty to the public and to local industries who utilise local waterways.
- Defence is continuing its environmental investigations into the nature, scope and extent of the contamination. Until these investigations are complete, the impacts on local industries cannot be fully understood.

If asked: When did Defence notify the NSW Government of the PFOS/PFOA contamination?

- Defence contacted the NSW EPA and Hunter Water about the PFOS/PFOA contamination in 2012.
- Defence was provided preliminary unverified advice in May 2015, which was shared with Hunter Water in June 2015, that PFOS/PFOA contaminated ground water was found off base.
- This was not confirmed until Defence received the technically verified results in early August 2015 as part of a State 2 Environmental Investigation Draft Report.

If asked: What is the level of exposure to Defence members?

- Defence personnel exposure from drinking water is likely to be minimal given that treated town water is used on base.
- Defence personnel who have concerns about exposure can contact the relevant health agencies within Defence.

If asked: What action is being taken by Defence to rectify the contamination?

- Defence will continue to investigate the ground water to understand the extent of the contamination while developing options for managing the contamination in consultation with local, State and Federal agencies.
- Defence will continue to engage with the community and its leaders as we work through this issue.

If asked: Is the child care centre on RAAF Base Williamtown affected by the contamination?

- Initial testing of soil around the child care centre on base showed that there had been no soil contamination in the immediate surrounds.
- Parents concerned about the health of their children are encouraged to contact their local health care providers.
- Defence conducted additional soil sampling at the child care centre at the request of the owner. The results are still being finalised.

If asked: Is the water at the Salt Ash Public School, NSW, contaminated?

- The school does not use bore water for drinking; bore water is in the main used for the watering of gardens.
- Testing of the water sample collected from the school's bore in October 2015 revealed concentration of PFOS in the water sample exceeds the Provisional Health Advisory (PHA) guidelines developed in 2009 by the US Environmental Protection Agency Office of Water. With no Australian standard in place, Defence is using these guidelines as an interim measure.
- The reported PFOA concentrations were below the PHA guidelines for human drinking water.
- The school's principal was advised of these results by departmental officers on 20 October 2015 and was provided with a written summary. Defence has also offered to conduct testing of the school's rainwater tanks.

- NSW Health is the most appropriate agency to provide information on health investigations and information on the potential impacts of these chemicals on human health.

Other bases

- Due to the persistent nature of PFOS and PFOA contamination (i.e. that it takes decades to break down) particularly in groundwater, Defence anticipates that where significant contamination is identified, it will be necessary to assess properties adjacent to its estate.
- In order to determine other areas possibly affected by PFOS and PFOA contamination, Defence is undertaking a review of its estate and historical practices. This will determine which properties require further investigation and assessment.
- Defence has engaged a toxicology and health risk assessment expert, Dr Roger Drew, to provide advice in developing the scope for human health risk assessment, specifically in response to the Williamtown and Oakey contamination issues. This assessment will also inform Defence's response to PFOS/PFOA contamination nationally.
- Defence has undertaken an assessment of known/likely historical long term use of legacy AFFF products on bases, and use of ground and surface water for drinking on and off base. This will inform a longer term plan to conduct detailed analysis of other bases.

ADF Platforms and Logistics Issues

- Defence is undertaking audits of platforms, in particular those associated with Navy, to understand issues associated with use of legacy AFFF products. This activity is being managed through the AFFF Working Group.
- Additionally, Land Systems Division (LSD) has worked with the AFFF Working Group, to identify and remove all stocks of 3M Light Water from all LSD supplied Defence facilities. In September 2013, Defence became aware that AFFF containing 3M Light Water also contained the potentially harmful substances PFOS and PFOA.

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BACKGROUND

- Australia does not currently have health or ecological standards for PFOS and PFOA, Defence has adopted recently published United States Environment Protection Authority guidelines.
- PFOS and PFOA are currently known as emerging contaminants and the health impacts from these contaminants are not fully understood. To date there has been limited research done in Australia or overseas, into all of the possible health impacts of these chemicals.
- In particular, limited knowledge is available regarding the cumulative impacts on humans as a consequence of consumption of products derived from animals or crops which have been affected by these contaminants.

Oakey Army Aviation Centre

- The Army Aviation Centre Oakey is located approximately three kilometres north of the township of Oakey in southeast Queensland. Army uses the 850 acre property and its satellite properties for aviation training. The areas immediately surrounding the base are primarily used for agricultural and rural residential purposes.
- Defence is undertaking a long-term environmental investigation and assessment of the groundwater beneath the base and surrounds. It is anticipated the investigation and any subsequent management actions may take several years to implement.
- From mid-2015 to mid-2016, the investigation involves a hydrogeological assessment and a human health and ecological risk assessment.
- Defence has commenced a hydrogeological investigation to further understand the nature and extent of the groundwater impacts. This involves:
 - periodic sampling and testing of ground and surface water
 - targeted soil sampling
 - installing groundwater monitoring wells at key locations
 - hydrogeological modelling.
- To inform the human health and ecological risk assessment, selected flora and fauna will be tested. This includes testing animals and crops that are part of the human food chain, as well as some that are not. This testing will be undertaken based on the technical requirements of the investigation.
- In July 2015 Defence received a Freedom of Information (FOI) request (387/14/15) for the release of the *Environmental issues associated with Defence use of Aqueous Film Forming Foam (AFFF)*” by Sonia Colville and Nicole McCarron, *Environmental Stewardship, EH&R Branch, Corporate Services and Infrastructure Group, Department of Defence, May 2003*. The decision maker agreed to release the report in full.
- Defence facilitated a program of blood testing of up to 100 individuals who have drunk contaminated groundwater near Oakey. This was at a contracted cost of \$83,545.00 as reported on AusTender (CN3029002). To date, \$64,845 has been expended on 75 tests.
- The contracted pathology company sent individuals the results of their tests in the week beginning 14 September 2015. People have been advised to contact their health provider if they have any concerns about their results.
- Defence has also provided drinking water for people near Oakey who were reliant on contaminated groundwater for drinking water.

- A website has been established to provide information relating to the investigation project <http://www.defence.gov.au/id/Oakey/default.asp>.

RAAF Base Williamtown

- RAAF Williamtown is located approximately 15 km north-east of Newcastle, New South Wales and comprises approximately 823 hectares. RAAF Williamtown incorporates the operations of Newcastle's domestic airport. The base is generally surrounded by rural and semi-rural property. The Commonwealth has acquired land around RAAF Williamtown to act as a buffer zone between the base and privately owned properties.
- Defence is undertaking a long-term environmental investigation and assessment of the groundwater beneath the RAAF Base Williamtown site. The purpose of the investigation is to understand how the groundwater may have been impacted by the historical use of fire-fighting foams between 1970 and the late 2000s.
- The Stage 1 (desktop) environmental investigation commenced in 2012 and identified the requirement to undertake further investigations.
- The Stage 2 environmental investigation commenced in April 2014 and took samples of groundwater, surface water, soil, sediments and vegetation on and off the base. Aquatic and marine fauna samples were taken at some locations off the base.
- On 3 August 2015 Defence received the technically verified draft report of the Stage 2 environmental investigation, which confirmed off site contaminated water. Defence provided Hunter Water Corporation with preliminary data. On 4 August 2015 Defence provided the draft report - key NSW agency stakeholders including the NSW Environment Protection Authority.
- On 3 September 2015 the NSW Environment Protection Authority, as a precautionary measure, closed some waterways near RAAF Base Williamtown to commercial and recreational fishing and commercial oyster harvesting for a period of 1 month. On 2 October 2015, the fishing closure as it relates to all species of fish was extended until 31 October 2015, and the oyster harvest was re-opened as it was determined that oysters from the Tilligerry Creek Harvest Area do not present a food safety risk
- Defence received the final report of the Stage 2 investigations on 14 September 2015. This was publicly released on 15 September 2015.
- Defence is committed to regularly updating the community throughout the environmental investigation process. Community information sessions, direct mail and information sheets will occur as new information is identified. The first community information session occurred on Wednesday 16 September 2015. Defence has agreed to be part of a community consultation forum being established by the NSW Department of Premier and Cabinet to engage with the community around Williamtown on this matter.
- Defence continues to liaise with other Federal and State government departments in relation to the possible health and environmental effects of these compounds, recognising that those Federal and State agencies have statutory and policy responsibilities in these areas.
- Site investigations and assessments are continuing to identify the extent of the impacted area.
- A website has been established to provide information relating to the investigation project <http://www.defence.gov.au/id/williamtown/Default.asp>

RAAF Base Williamtown timeline:

- 2003 – Defence released a specification for the supply and testing of foam concentrates to control and extinguish hydrocarbon fires.
- 2004 – AFFF use at RAAF Base Williamtown was restricted to critical uses only, not in general training.
- 2004 – Defence commissioned trials of alternative AFFF products.
- 2006 – The report on the trial of alternative AFFF products suggested Defence move to Ansulite.
- 2007 - Defence issued environmental guidelines for the management of the fire fighting AFFF products.
- 2008 - Defence released the Aqueous Film Forming Foam (AFFF) Procurement and Usage Interim Policy. This policy aims to reduce the risk of environmental impacts arising from AFFF use, storage, handling and disposal within Defence. It noted Ansulite as the preferred product.
- 2009 – The first Australian laboratory received independent technical accreditation to be competent to consistently identify PFOS and PFOA in samples.
- 2009 – Defence commissioned CRC Care to conduct on site environmental trials to identify PFOS and PFOA contamination.
- 2011 – Transition to the Ansulite AFFF product at RAAF Base Williamtown was finalised on completion of the scheduled maintenance program.
- 2011 – Defence included PFOS and PFOA in the ongoing base monitoring program.
- 2012 – PFOS and PFOA were detected in routine water monitoring for RAAF Base Williamtown. Defence contacted the NSW Environment Protection Authority and Hunter Water Corporation to discuss results.
- 2013 – Stage 1 (Desktop) Environmental Investigation Report completed. The report identified the requirement to undertake further investigations.
- 2014 – Stage 2 Environmental Investigation commenced.
- 2015 – Defence received the technically verified draft report for the Stage 2 Environmental Investigation, which confirmed off site contaminated water.
- 2015 – Defence provided Hunter Water Corporation with preliminary data. The draft report was subsequently provided to key NSW agency stakeholders.
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