

Response provided to journalist  
23 June 2016

**Questions:**

- Defence said in December, 2015, that: "Contaminated water that is extracted during de-watering activities required for construction works is treated to levels below the screening criteria and injected into the ground" - However, documents obtained by the Herald reveal that no treatment of groundwater took place until after the establishment of a Water Treatment Plant on site, in November, and later in 2015/January 2016. Has Defence purposefully misled the public on this issue and if so, why? Why wasn't there a water treatment plant established on site before JSF-related construction began in 2015, given that Defence knew of the likelihood of encountering contaminated groundwater, as well as the risk of cross-contamination due to the migration of contaminants as a direct result of large-volume de-watering?
- What did Defence do to guard against the migration of contaminants due to changes in the aquifer due to construction-related dewatering activities?
- Maps tracking the inferred groundwater PFOS plume shows a significant growth in that inferred plume between September and November - can Defence say this was not due directly to construction-related dewatering?
- Why did Defence aggressively pursue the JSF-related expansion despite the known risks of mobilising contaminants within the aquifer and before establishing an on-site, task-specific Water Treatment Plant?
- What measures were taken to guard against the risk of workers coming into contact with excavated groundwater with elevated PFOS levels?
- Internal documents reveal that dozens of men were exposed to groundwater with elevated PFOS levels - what sort of response has Defence provided to those workers? Have those workers been offered compensation, blood tests, health-related support, or advice - if so, by who, and if not, why not?
- Why weren't those workers protected with the same PPE gear now required by workers coming into contact with similarly contaminated groundwater?
- As late as November, there were about 100 spears installed in three sides of the storage tank (formerly known as the AFFF tank), a known contamination hotspot, dewatering at around 24L/sec with PFOS concentrations between 1 and 5 ug/L - this water was not being treated before being disposed of on-site, thus the contaminated water was being spread around the site - why was this practise allowed to take place, perpetuating an already well-known contamination issue affecting neighbours and the wider community?
- PFOS test results from hotspots came in at 3900 ug/L for 'PFOS and 26 for PFOA which was visible "due to the foaming effects and visible bubbles" - how is it that this water was extracted from the underground aquifer before a water treatment plant was operating to deal with it?
- Why was there no groundwater management plan devised until September 2015, months after construction-related dewatering of groundwater had started taking place?
- Records show that, as at October 13, 2015, dewatering had taken place at 20 separate locations across the base, which was not being tested, but was transferred to Lake Cochran, which was drawn down onto adjacent grass area to soak away and create capacity for dewatering flows - why was this allowed?

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- What measures were taken to ensure the heavily contaminated water from Lake Cochran did not become mixed with surface water during periods of rainfall and make its way off-site affecting neighbouring properties?
- What measures were taken to ensure the contaminants did not leach into the groundwater from Lake Cochran given that it is an unlined holding pond?
- How is it that work had to be suspended when high levels of PFOS and PFOA were found in an area in front of the Air Traffic Control Tower and Fire Station while the project determined “the best option to treat any contaminated groundwater encountered” as at September? Why were measure not already in place given the expert advice received by Defence in numerous reports outlining the likelihood of that eventuality?
- Why was it that the EPA was not allowed on-site until after the new WTP was in place - was this an attempt by Defence to cover up the fact that no groundwater had been treated up to that date?
- Why were the goal posts moved so drastically between January 2015 and January 2016? Maps dated January 16 show the need to treat water with PFOs levels between 02.-2 ug/L, which includes 12 areas immediately north of the future ATCT development, south of the taxiway - where 12 months prior dewatering took place in nearby locations without daily testing for PFOS and without any treatment requirements or plans in place?
- WHAT safe guards are now in place to ensure the continued dewatering at the site does not further mobilise contaminants within the aquifer due to changes to the gradient, flow, and migration of PFOS from upgradient?
- Why did Defence aggressively pursue the JSF-related expansion despite the fact the Stage 2 investigation report was not complete, and despite the fact the stage 1 environment report was completed in March 2013 and identified those precise potential contamination risks? Why was the expansion not put on hold until these issues could be resolved?
- Why wasn't daily testing for PFOs required as part of the dewatering permit process prior to 2016?

**Response:**

**New Air Combat Capability Project**

The largest capital works project currently underway at RAAF Base Williamtown is the development of facilities and infrastructure for the New Air Combat Capability Project. All facilities and infrastructure works currently being undertaken are subject to an Environmental Health and

Safety Management Plan that details the contractor's methodology for managing all environmental, health and safety matters as related to the works. This includes contaminated soil and ground water encountered during the conduct of the works.

**Dewatering Activities**

The main construction activity requiring dewatering activities relate to civil earthworks. These earthworks mainly involve the stripping of topsoil to get down to stable ground suitable for construction. Excavation for these works is typically down to 300mm only.

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The project's Environmental Impact Assessment – contamination assessment, which was prepared in the planning phase of the project, noted the level for PFOS and PFOA contamination within or adjacent to the Joint Strike Fighter (JSF) precinct.

There were no published national or Defence criteria available at the time of writing this assessment. Therefore, the Minnesota Department of Health acceptance criteria were adopted.

All soil samples, and all but one water sample, taken from the JSF precinct during the planning of the project were below these criteria.

JSF related construction activities, including soil and water testing at RAAF Williamtown commenced in April 2015.

Defence Contamination Directive #8 - interim screening criteria for PFOS, PFOA, 6:2 FTS (DCD#8) was adopted by the project when it was released in May 2015. Defence uses the screening criteria under this directive to determine where elevated PFOS and PFOA are present, and

based on these findings, where further investigations may be required.

As a result, the project implemented additional management and treatment processes including the procurement and establishment of an onsite water treatment plant.

In areas where testing found PFOS and / or PFOA concentrations above the adopted level of acceptance, works were not undertaken until the onsite water treatment plant was operational.

**Testing, Modelling and Management of Contaminants**

The project has engaged specialist environmental consultants to conduct soil and water testing across the JSF project area.

The consultants conducted pump tests at locations within the JSF precinct to assess dewatering requirements and infiltration rates.

Based on this data and modelling the project was advised that there is no potential for the current short-term dewatering and infiltration works to exacerbate the potential for offsite PFC migration.

The Inferred Groundwater PFOS Distribution map does not track contamination movement across the base. It is an inferred visualisation of contamination based on the available data. Changes between the September 2015 and November 2015 were due to the addition of new

sampling data, which provided a clearer picture of PFOS concentrations within the construction footprint.

In the areas where the groundwater PFOS concentrations is found to exceed the DCD #8 Drinking Water interim screening criteria, specialist contractors have been engaged to treat groundwater encountered in these areas.

The ground water is treated to drinking water screening level and then re-injected into the environment.

Soil testing ahead of bulk earthworks in the Joint Strike Fighter precinct and south-east runway area has identified very low level PFOS / PFOA contamination in 85% of soil samples.

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Where PFOS/PFOA is detected in soil across these areas, the concentrations are all below the human health – residential and the ecological (terrestrial) interim screening criteria as set out in DCD #8.

In line with current agreements between Defence and the NSW EPA, soil with low PFOS/PFOA concentrations will be removed from site as general solid waste.

If soil contains higher concentrations of PFOS/PFOA than permitted by the NSW EPA, the soil will be stockpiled on site, ensuring the material is appropriately contained so as to prevent leaching into the surrounding area.

Defence will also assess whether further remediation of this stockpiled soil is required.

Current works also include mechanisms and earthwork practices such as dust suppression to prevent contamination from the new aircraft parking and aprons, car parking and roof surfaces from entering stormwater.

Water used for dust suppression is sourced from town water and groundwater. Where groundwater is used, it is extracted from locations on the Base where testing has shown the levels of PFOS/PFOA to be below Defence's adopted screening limits.

No water used for dust suppression is discharged into existing stormwater or sewerage systems.

#### Stormwater Management

As part of the overall design process undertaken for the New Air Combat Capability Facilities Project at RAAF Base Williamtown, extensive modelling was completed on the proposed stormwater design to ensure flooding downstream of the Base would not be exacerbated.

The stormwater design is based on detaining water on base and then slowly releasing this water into existing drains over the following days as the water subsides. The stormwater design also accounts for up to 100 year storm events, which are larger than the most recent rains.

The stormwater design was developed in consultation with, and agreed to by the Port Stephens Council.

Defence has also provided funds to the Port Stephens Council to upgrade stormwater infrastructure downstream of the Base to remove a bottleneck and assist with the flow of water out of Moors Drain. This work has been completed by the Port Stephens Council.

Construction of the on-base stormwater detention infrastructure is leading the construction of other on base works in order to ensure that flooding is not exacerbated during the construction period. The two largest, of the six, on base stormwater detention basins have been completed.

#### Containment of Existing Stormwater

In addition, but separate to the current construction project, Defence continues to investigate other opportunities to prevent localised contamination spreading by the use of either physical barriers or chemical binding additives to contain stormwater.

#### Remediation Trials

As a matter of priority, Defence is continuing to explore and pilot potential remediation and containment options, in consultation with industry and overseas counterparts. Remediation technologies are emerging with continuing research.

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Defence is also continuing to trial remediation options for testing PFOS and PFOA. Three of the techniques currently being trialled are:

- Solidification, which is where chemicals are introduced into the soil that form a concrete like matrix and seek to trap PFOS/PFOA;
- Ex Situ stabilisation, which is similar to solidification except the soil is removed and mixed with chemicals that bind with the PFOS/PFOA to prevent any further leeching of the chemicals; and
- Foam separation, which is where air is introduced into water to create foam that traps the PFOS/PFOA and the foam is scraped off and treated.

Defence is continuing to monitor Australian and international industry progress in the area of water treatment.

Water Treatment Plant for Lake Cochran, RAAF Base Williamtown

Defence is funding the operation of a \$9 million water treatment plant to treat water leaving Lake Cochran at RAAF Base Williamtown, to ensure that PFOS and PFOA levels are below the adopted drinking water screening criteria in accordance with DCD #8 Drinking Water interim screening criteria.

It is expected the plant will be operational in September 2016. The installation of the plant is an interim step while Defence continues to investigate long-term remediation options for Lake Cochran.

NSW EPA Site Visits

The first NSW EPA site visit occurred on 11 December 2015, The original date was planned for October 2015, however, the NSW EPA requested this visit be deferred due to conflicting priorities.

A second site visit was undertaken by the NSW EPA in February 2016.

Safety of Project Workers

Defence considers the safety of workers working on its sites to be of the utmost importance.

Occupational exposure limits and controls have been included in the Environmental Health and Safety Management Plan and communicated to the project's workforce through the Project Safety Committee and regular toolbox meetings.

All encountered groundwater is tested in advance of construction works under the guidance of the project's environmental consultants. Work does not commence in these areas until testing confirms the PFOS/PFOA groundwater concentration to enable appropriate measures to be taken.

Where PFOS/PFOA concentrations exceed exposure limits, additional PPE requirements are used. Additionally, the project has an 'unexpected find process' within its Environment Health and Safety Management Plan that immediately stops works when unforeseen contamination is encountered.

ADF Personnel Safety

The health and safety of ADF members is a primary concern of Defence.

Defence understands that the primary pathway for uptake into the body is from eating food and drinking water containing these compounds.

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Given the duration and extent of legacy fire fighting foam used over a number of sites, there is no accurate way to assess the exact number of Defence personnel involved in fire fighting training or incidents who may have been exposed to PFOS and PFOA.

Defence promotes the health of the ADF by conducting individual periodic health assessments for its members.

Defence provides risk information to personnel in two ways: through work health and safety policy and the delivery of specific job or trade training, supported by safe work procedures.

Defence members who wish to discuss health issues related to PFOS/PFOA should speak to their local ADF health provider or health practitioner.

Current ADF personnel who suspect that they may have been exposed to PFOS/PFOA can also access the Defence Exposure Evaluation Scheme (DEES). The scheme will register reported exposures. In addition, further information regarding the substances and exposure is provided in the form of fact sheets.

DEES is open to current and former employees of the Department of Defence, Australian Defence Force (ADF) cadets, and former ADF employees who suspect that they have been exposed to a hazardous chemical.

Former ADF members who have a diagnosed health condition which they believe is associated with their past exposure to PFOS/PFOA contained in legacy formulations of fire fighting foams can also lodge a claim with the Department of Veterans' Affairs.

Defence Engagement with the Williamstown Community

Defence has been undertaking, and will continue to undertake, engagement with the community to provide the community with an opportunity to obtain further information relevant to the issue of PFOS/PFOA and the presence of these chemicals in the Williamstown area.

Defence has held regular meetings with the community to ensure residents, businesses and local stakeholders are kept fully informed of developments regarding the investigations, and to listen to community and work with them to allay concerns. For example, a community

information session was held with the Williamstown community on 16 September 2015 and walk-in sessions were held on 6 April 2016.

Defence is also a member of the CRG and has attended all formal meetings and community information sessions organised by the group since 1 October 2015.

Background:

Defence has established a national website to facilitate access to information regarding its PFOS and PFOA investigation program:

<http://www.defence.gov.au/id/PFOSPFOA/Default.asp>

Defence has also established a national telephone number: 1800 365 414 and email address: [PFCDefenceCoordination@golder.com.au](mailto:PFCDefenceCoordination@golder.com.au)