Sampling Results

The sampling results identified:

- Of the 107 groundwater samples, 23 on-base and seven off-base samples exceeded the HBGVs.
- Of the 51 surface water samples, nine on-base and two off-base samples exceeded the HBGVs.
- PFAS was detected in soil and sediment samples, collected on and off-base, at low concentrations. Of the 238 soil samples collected, one exceeded the HBGV. Of the 65 sediment samples collected, one exceeded the HBGVs.
- PFAS detections on-base indicate that surface water runoff from source areas has resulted in PFAS being transported through the surface water network.

Next Steps

The DSI identified ways in which people and the environment are potentially exposed to PFAS. A Human Health Risk Assessment (HHRA) and an Ecological Risk Assessment (ERA) will be undertaken to further assess the potential exposure risks identified in the DSI.

This HHRA and ERA will include additional targeted sampling of surface water, groundwater, home-grown produce and biota (fish and invertebrates).

The HHRA and ERA are expected to begin in the first-half of 2020 and will involve:

- Estimating PFAS exposure under various scenarios, and comparing these to health-based guidance values and tolerable daily intake levels; and
- Identifying and assessing the local water-based and land-based ecosystems that are at risk of exposure to PFAS.

A PFAS Management Area Plan (PMAP) will also be developed using the findings of the detailed environmental investigation. The PMAP will recommend actions to manage and reduce potential risks of PFAS exposure for the community surrounding the Base.

Government Guidance

The Environmental Health Standing Committee (enHealth) of the Australian Health Protection Principal Committee (AHPPC) has released guidance statements to help assess public health risks when PFAS have been released into the environment. In July 2019, the statements were updated to reflect the most current evidence relating to PFAS.

The Expert Health Panel for PFAS found that although the scientific evidence in humans is limited, reviews and scientific research to date have provided fairly consistent reports of an association with several health effects.

The health effects reported in these associations are generally small and within normal ranges for the whole population. There is also limited to no evidence of human disease or other clinically significant harm resulting from PFAS exposure at this time.

As precaution, enHealth recommends exposure to PFAS be minimised wherever possible whilst further research is undertaken on the potential health effects of PFAS exposure.

If you live or work in a PFAS contaminated area, your state or territory health department can provide you with local advice on how to minimise exposure to PFAS.

For more information, contact the Commonwealth Department of Health.

Phone: 1800 941 180

Web: www.health.gov.au/pfas

Contact Information

Phone 1800 931 972 (business hours)

Email Singleton.Defence@aecom.com

Website www.defence.gov.au/Environment/PFAS/singleton

Media enquiries should be directed to Defence Media on (02) 6127 1999 or media@defence.gov.au.

About the Investigation

In July 2018, the Department of Defence (Defence) commenced an environmental investigation into the presence of per- and poly-fluoroalkyl substances (PFAS) on and around Singleton Military Area (the Base).

The investigation will identify whether the use of these foams has resulted in PFAS exposure to humans, animals and the environment, and will help develop strategies to minimise exposure, should these be required.

As part of the environmental investigation, a Detailed Site Investigation (DSI) Report has been completed. The findings of the Report are outlined in this factsheet.

The DSI Report is available at:
www.defence.gov.au/environment/pfas/Singleton/

Detailed Site Investigation (DSI)

The DSI involved sampling and laboratory analysis of groundwater, surface water, soil, concrete and sediment to:

- Further evaluate the extent of PFAS sources within the Investigation Area, both on-base and off-base;
- Determine if there are PFAS sources that are not related to the Base;
- Provide an updated understanding of how PFAS is moving in the environment; and
- Assess whether there are potential pathways for people or the environment to be exposed to PFAS.

Key Findings of the DSI

The DSI found:

- There are five main PFAS source areas on-base, where legacy foam has been used. The on-base source areas are shown in the map over the page;
- Groundwater flows in a northerly/ north westerly direction from the Base;
- There are three distinct aquifers in the Investigation Area: the shallow groundwater unit, the deep groundwater unit (regional aquifer) and the alluvial groundwater unit;
- The majority of PFAS detected in groundwater was found within the shallow groundwater unit.
- Low level concentrations of PFAS were detected in some groundwater samples from the deep groundwater unit below the Base;
- PFAS was detected in groundwater, surface water, sediment and shallow soil samples close to the northern boundary of the Base. This PFAS likely migrated from source areas on-base through drains and surface water flow during times of flooding; and
- There are several potential off-base PFAS sources in the surrounding area. It is likely that the PFAS detected further from the Base boundary originated from non-Defence sources.

There are currently no recommendations for residents in the Investigation Area to change how they use groundwater or surface water. All sampling results have been provided to the NSW Government for assessment.

Sampling Guidelines

The DSI sampling results were compared to the guideline values published in the PFAS National Environmental Management Plan.

Health Based Guidance Values have been developed for drinking water and recreational water use (i.e. swimming). Guidance values have also been developed for direct contact with soil. These include values for commercial or industrial land, residential land and public open space. The residential land guidance values also consider home grown vegetables.

PFAS concentrations below the guidance values do not present a significant exposure risk to humans or the environment. Concentrations above the guidance values may present an exposure risk if exposure is ongoing.

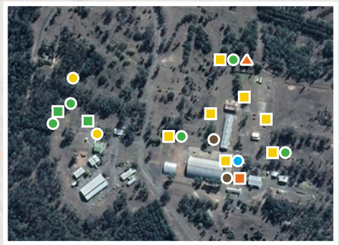
The same guidance values are used at all site investigations across Australia. Concentrations above the guidance values may present an exposure risk if exposure is ongoing.

Concentrations of PFAS in the samples collected during the DSI were compared to these guidance values. Where concentrations exceeded the guidelines, further assessment is required to understand whether there is an unacceptable risk of exposure to PFAS for people or the environment in the Investigation Area.

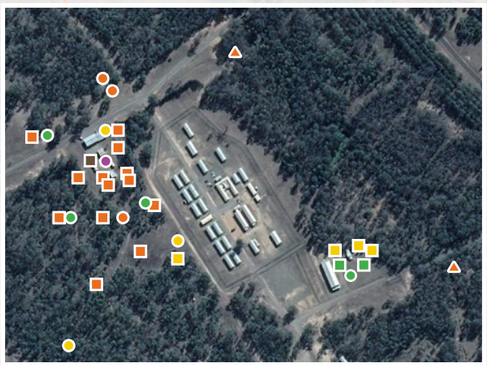
Australian Government
Department of Defence

Singleton Military Area Environmental Investigation – 2019 Detailed Site Investigation – Water and Soil Sampling Results

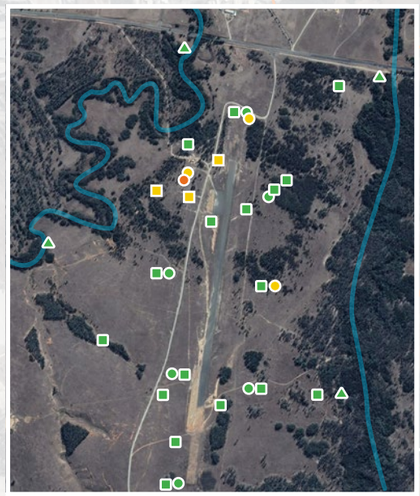
Fuel storage and maintenance facility (DNSDC Compound)
Key pathway- Doughboy Hollow Creek



Fire station and fire training pits



Dochra Airfield
Key pathway- Mudies Creek and Emigrant Creek



PUTTY RD
ARMY CAMP RD
NEWINGTON LANE
HUNTER RIVER
WYLIES FLAT
HUNTER RIVER
DOUGHBOY HOLLOW CREEK
WHITTINGHAM
MOUNT THORLEY
SINGLETON MILITARY AREA (SMA)
NEW ENGLAND HWY
PUTTY RD
BROKE RD
MITCHELL LINE OF RD
MUDIES CREEK
EMIGRANT CREEK

Legend

- Investigation Area
- SMA Property Boundary
- Rail Line

Groundwater sample results - PFOS+ PFHxS

- Less than the Limit of Reporting (< LOR)
- > LOR to 0.07 µg/L (micrograms per litre)
- > 0.07 µg/L – 0.7 µg/L
- > 0.7 µg/L – 10 µg/L
- > 10 µg/L – 50 µg/L
- > 50 µg/L

Surface water sample results - PFOS+ PFHxS

- < LOR
- > LOR to 0.07 µg/L
- > 0.07 µg/L – 0.7 µg/L
- > 0.7 µg/L – 10 µg/L

Soil sample results - PFOS+ PFHxS

- < LOR
- > LOR to 0.009 mg/Kg
- > 0.009 mg/Kg – 1 mg/Kg
- >1 mg/Kg – 20 mg/Kg

N
1km

Note, some samples are not listed here due to privacy options.

Prepared by AECOM