Woodside Barracks

PFAS Investigations and Human Health and Ecological Risk Assessments

Overview

In November 2020, Defence commenced environmental investigations to better understand per- and poly-fluoroalkyl substances (PFAS) contamination on and around Woodside Barracks, resulting from historical use of firefighting foams at the Barracks.

The investigations included sampling of groundwater, soil, surface water, sediment and fruit. The highest PFAS concentrations were found to be in areas where firefighting foams were previously used or stored. These are referred to as source areas.

At Woodside Barracks, there are two main source areas, which include a former fire station and former fire training area. Both areas ceased operation in the 1990s.

The PFAS sampling results were then used to assess potential exposure risks to human health and the environment.

This factsheet outlines the key findings of the investigations and associated Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA).

What are PFAS?

PFAS are manufactured chemicals that have been used in Australia and globally in many common household products and specialty applications.

Legacy firefighting foams containing PFAS have historically been used worldwide by both civilian and military authorities because they are effective in fighting liquid fuel fires.

The movement of PFAS from source areas into the environment has become a concern because these chemicals can accumulate and persist in humans, animals and the environment.

Project timeline

- **On-Barracks Detailed Site Investigation (DSI)**
  February 2018 – March 2019
- **On- and Off-Barracks Investigation & Sampling Events**
  November 2020 – July 2023
- **Human Health and Ecological Risk Assessments**
  June 2023 – August 2024
- **Inform Environment Protection Authority South Australia (EPA SA) and the community of assessment findings**
  September 2024
  WE ARE HERE
- **Further Investigation and Monitoring**
  Early to mid-2025
- **Remediation Options Assessment**
  Dependent on further investigation
- **Inform EPA SA and the community of proposed remediation activities (if required)**
  Late 2025
- **Remediation and Management**
  Dependent on further investigation

Site investigation update

The on-Barracks sampling found that PFAS is moving away from the source areas and across the Barracks boundary via surface water, and through the flow of groundwater.

The off-Barracks sampling identified PFAS within surface water and groundwater at concentrations above the current Australian drinking water and ecological values. Consequently, Defence completed a HHRA and ERA to further understand potential exposure risks to humans and the environment.

Number of samples collected and analysed

GROUNDWATER 	Groundwater is water beneath the earth's surface. It often supplies bores, wells or springs.	**243** samples collected from **37** monitoring locations.
SURFACE WATER 	Surface water is water that collects on the ground and can be in the form of creeks, rivers, lakes, wetlands, and more.	**147** samples collected from **46** monitoring locations.
SOIL 	Soil consists of inorganic particles and organic matter. Samples are taken from the soil surface and subsurface.	**376** samples collected from **201** locations.
SEDIMENT 	Sediment is made of broken down remains of rocks, minerals, plants and animals that is moved and deposited to a new location.	**137** samples collected from **41** monitoring locations.
FRUIT 	Samples were collected from the edible portion of fruiting plants.	**53** samples collected from **13** different fruit types.

How are PFAS exposure risks to people assessed?

Food Standards Australia and New Zealand (FSANZ) have determined how much PFAS a person can be exposed to every day of their lifetime without long-term risk to their health. This is known as the Tolerable Daily Intake (TDI).

Risks to human health are assessed by calculating how much PFAS people are exposed to each day from different sources, based on the concentrations of PFAS that could be taken in by the body. This amount taken in is then compared to the TDI.

Where the amount taken in is lower than the TDI, the risk is considered to be low and acceptable.

Where the amount taken in is higher than the TDI, the risk is considered to be elevated. This does not mean that adverse health effects will occur, however, measures to reduce PFAS exposure may be recommended.

Human Health Risk Assessment

The health risk to nearby residents and agricultural workers from PFAS contamination was assessed for the following exposure scenarios to determine the likelihood of exceeding the TDI:

- contact with surface soil
- drinking water sourced from private bores
- bore water used for domestic purposes (e.g., cooking, cleaning, showering/bathing)
- recreational use (e.g., swimming)
- consumption of home-grown fruit and vegetables watered with surface water and/or bore water
- consumption of home-grown beef and/or eggs where livestock are drinking surface water and/or bore water.

The HHRA found that drinking contaminated bore water may pose an elevated risk to nearby residents when combined with other exposure scenarios (as listed above). However, the bores where PFAS was found are not currently used as a source of drinking water.

All other exposure scenarios listed above were found to present a low and acceptable risk to human health.

Bore water quality testing

The South Australian Government advises that bore water quality should be tested prior to domestic use.

Scan the QR code or visit the South Australian Health website to learn more: www.sahealth.sa.gov.au

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Ecological Risk Assessment

Risks to the environment were assessed by comparing the sampling results of two local waterways to current Australian ecological guideline values.

The outcomes of the ERA and the risks to the environment are summarised in the table below.

✅ **Low and acceptable exposure risk**

⚠️ **Potentially elevated exposure risk**

Ecosystem	On-Barracks	Off-Barracks	Assessment
Mitchell Creek	✅	✅	Low and acceptable direct toxicity risks were inferred for Mitchell Creek.
Inverbrackie Creek	Not located on the Barracks	⚠️	Risks to fish, water birds, amphibians and aquatic plants and invertebrates are uncertain and potentially unacceptable. Further assessment and monitoring is required.

Next steps

Over the next 12 months, Defence will:

- undertake further investigations;
- continue monitoring of PFAS in groundwater and surface water;
- further refine the understanding of risk to human health and the environment; and
- undertake additional assessment to understand if remediation or management of PFAS is required (dependent on further investigations).

Keeping the community updated

Defence will continue to keep the community informed about the management and monitoring of PFAS on and around Woodside Barracks.

Looking for more information?

Scan the QR code below to find out more about Defence's PFAS Investigation and Management Program or visit: www.defence.gov.au/pfas/

Alternatively, you can contact:

1800 333 362

pfas.enquiry@defence.gov.au

Media enquiries

Media enquiries should be directed to Defence Media via email at: media@defence.gov.au

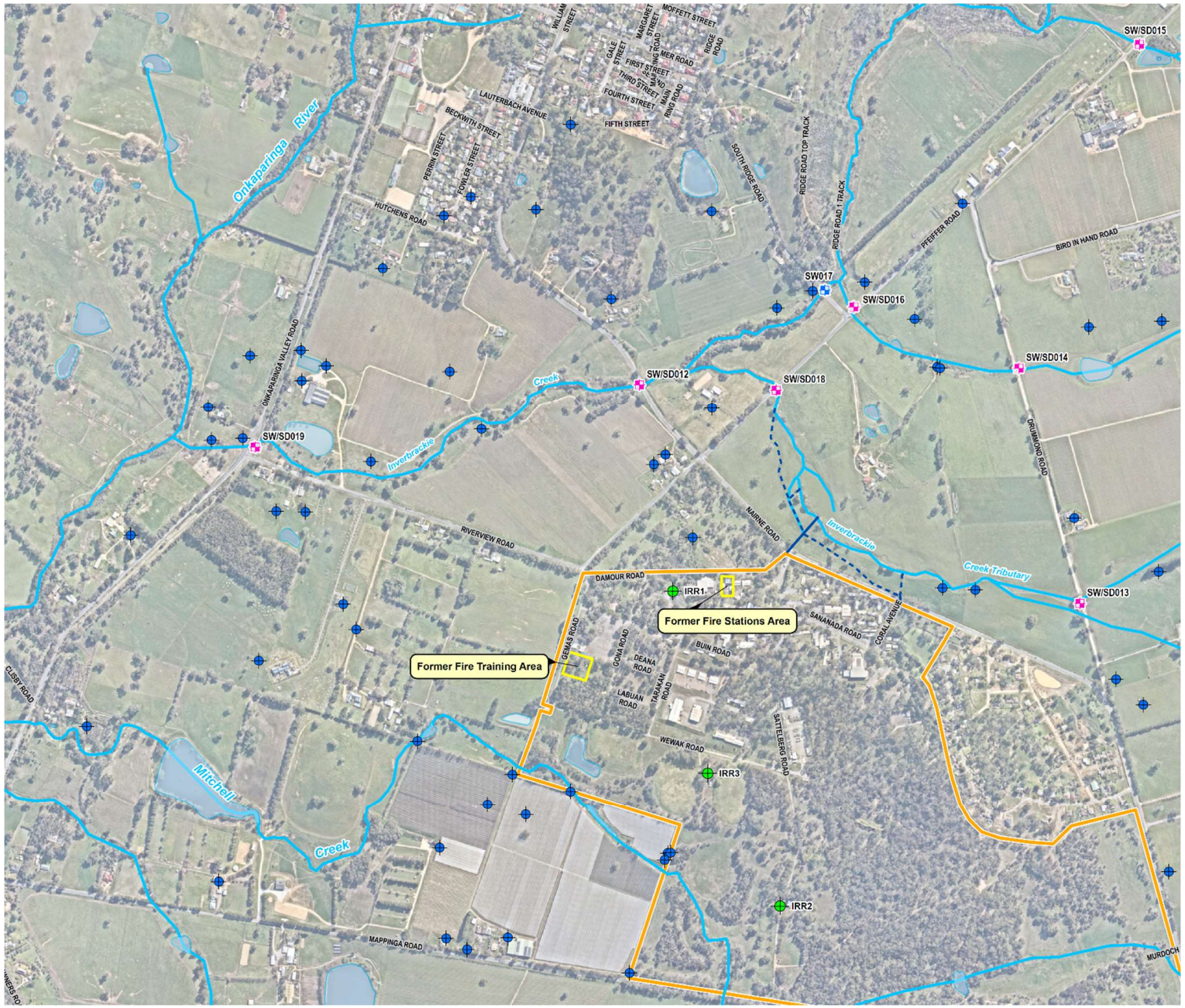
Translating and Interpreting Service (TIS National)

For translation assistance, TIS National provides interpreting services 24 hours a day via telephone from anywhere in Australia for the cost of a local call*.

For more information contact 131 450 or visit: https://www.tisnational.gov.au/

**Calls from mobile phones may attract a higher rate.*

Woodside Barracks & Off-Barracks Investigation Area



LEGEND

- Property Boundary Woodside Barracks
- PFAS Source Area
- Stormwater Overland Flow
- Stormwater Underground Culvert
- Watercourse
- Waterbody
- On-Site Registered Bore
- Off-site Registered Bore
- Surface Water Sample
- Surface Water/Sediment Sample