# Swartz Barracks

## November 2024 - monitoring, investigation and water assistance update

## Overview

In October 2018, Defence completed detailed investigations into per- and poly-fluoroalkyl substances (PFAS) contamination on and around the Swartz Barracks.

Defence also completed a human health and ecological risk assessment to understand the risk of PFAS exposure for people living, working and undertaking recreational activities within the area.

The investigations found that PFAS are mostly found in areas where firefighting foams were previously used, stored or disposed of. These are referred to as source areas. At Swartz Barracks, the main source areas include the current and previous fire training grounds and aqueous film forming foam storage areas.

Defence used the findings from the investigations to develop a PFAS management area plan. This plan outlines actions to manage and reduce the risk of PFAS exposure for the community living and working at Swartz Barracks and surrounding areas.

Defence continues to work collaboratively with Queensland Health and the Queensland Department of Environment, Science and Innovation.

### What are PFAS?

PFAS are manufactured chemicals that have been used globally in many household, commercial and industrial products, including legacy firefighting foams. These foams 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 is a concern because these chemicals can accumulate and persist in humans, animals and the environment. Defence monitors PFAS on and around Swartz Barracks to understand PFAS movement and contamination levels.

- **Early site and off-site assessments and investigations**
  *2010-2017*
- **Detailed updates to the environmental site assessment, human health and ecological risk assessment**
  *October 2018*
- **Water treatment plants commissioned for groundwater from the former fire station and the current fire training facility**
  *2017-2019*
- **PFAS management area plan published**
  *July 2019*
- **Sewage treatment plant, storm water and wastewater infrastructure upgrades**
  *2017-2019*
- **Remediation action plans prepared**
  *2019-Ongoing*
- **Ongoing monitoring commenced**
  *2019*
- **Remediation activities commenced**
  *2021-Ongoing*
- **Groundwater treatment plant reconfiguration**
  *2022*
- **PFAS migration assessment**
  *2019-2023*
- **Western boundary groundwater investigations**
  *October 2024*
  **WE ARE HERE**
- **Ongoing monitoring to measure changes in contaminated areas**
  *Ongoing*
- **Remediation of four source areas**
  *2025—2026*
- **Commence update of the PFAS management area plan and ongoing monitoring plan**
  *2025*
- **Water assistance program**
  *Commenced 2017, extended to 30 November 2026*

# Remediation activities

Defence is remediating and managing the known source areas of PFAS contamination and groundwater at Swartz Barracks. The aim of remediation is to minimise PFAS leaving the base. Over time, this will reduce PFAS on and around Swartz Barracks.

## Soil remediation

Eight PFAS source areas located across the base have been identified. Below is a status summary of completed and ongoing soil remediation activities at Swartz Barracks.

| PFAS source area | Soil remediation action |
|---|---|
| Former fire training ground | Complete – soil stabilisation |
| Former fire station and foam training area | Commencing 2025 - capping |
| Former fuel compound and hot refuel area | Commencing 2025 - off-base disposal of concrete bunds |
| Aqueous film forming foam (AFFF) storage and de-canting area | Commencing 2025 - soil stabilisation |
| Hot refuel area and AFFF settling tank | Commencing 2025 - soil stabilisation |
| AFFF settling tank | Requires further investigation due to structural issues |
| AFFF settling tank and AFFF storage tank | No samples exceeded the nominated PFAS criteria during the soil characterisation works—no remediation recommended. |
| Current fire training area | Reported the lowest potential PFAS discharge of all source areas—no remediation recommended. |

In 2021, Defence completed soil remediation works at the former fire training ground. While it is not possible to remove all PFAS from the environment, around 8,930 tonnes of contaminated soil has been treated from this area.

The works included excavation of contaminated soils, remediation of soils, placement of a geo-fabric layer (see image opposite), and reinstatement of surface finish of grass.

Remediation activities for four source areas are due to commence early-mid 2025.

*Soil remediation - installation of geo-fabric marker layer*

## Groundwater remediation – treatment plant

Defence operates a groundwater treatment plant on the eastern side of Swartz Barracks, south of the fire station. This plant removes more than 1,000 g of PFAS per year from groundwater to reduce the amount of PFAS leaving the base. To date, the plant has treated more than 300 million litres of PFAS contaminated groundwater.

## Revisiting our approach to groundwater remediation

Defence completed a PFAS migration assessment in December 2023 to understand the rate at which PFAS is moving from the base through surface water and groundwater. The assessment found that PFAS is leaving the base through surface water and groundwater primarily beneath the western boundary.

Defence recently completed an investigation into the groundwater on the western boundary, which involved the installation of an additional 17 monitoring wells. The additional data from these wells will help inform remediation actions and help Defence to understand the movement of PFAS in groundwater.

The results from the September 2024 sampling of these wells found that PFAS migration primarily occurs in the top part of the water table that sits at approximately 15 to 30 m below ground level.

The highest concentrations of PFAS remain in the monitoring wells directly west of the hot refuel area and former fire station on the base. Defence plans to remediate the soil at each site to reduce the amount of PFAS leaving the areas.

In addition to soil remediation work, Defence will assess potential options to remediate PFAS concentrations in groundwater, with a remediation action plan based on the results of the groundwater investigations due to be finalised in 2025.

## Ongoing monitoring

Ongoing monitoring is important to understand if there are new risks to the community. Defence samples sediment and water twice per year in April and October. This sampling helps Defence understand any changes to where PFAS are found, and the levels of contamination in the environment.

*Surface water auto-sampler*

In 2018 Defence started ongoing monitoring on and around Swartz Barracks. In the long term, this sampling also helps Defence, regulators and the community understand if remediation actions to reduce PFAS have been effective. It also identifies where more investigation or remediation may need to be undertaken.

The monitoring plan is reviewed regularly and Defence updates the monitoring frequency and/or locations of sampling as required in consultation with the QLD Department of Environment, Science and Innovation.

### Monitoring overview

| Sample type | Where | When |
|---|---|---|
| On-base groundwater | Swartz Barracks | 6 monthly |
| Off-base groundwater, including selected residential bores | Across the management area, and surrounding area | 6 monthly |
| On-base surface water and sediment | Doctor Creek and drains | Annually |
| Off-base surface water and sediment | Oakey Creek and Westbrook Creek | Annually |

## Monitoring results

### April 2024 sampling

In April 2024, Defence undertook routine sampling of surface water, groundwater and sediment, on and around Swartz Barracks.

| Sample type | Number of samples |
|---|---|
| Groundwater | 89 samples collected on and off base, including residential bores. |
| Surface water | 19 samples collected from Oakey Creek, Westbrook Creek and Doctor Creek. |
| Sediment | 22 samples collected from Oakey Creek, Westbrook Creek and Doctor Creek. |

Based on the samples collected, the levels of PFAS contamination in surface water, groundwater and sediment were consistent with previous results.

Since 2023, PFAS has consistently been detected at a single groundwater location outside the western extent of the known plume. The results from this location are below the current Australian Drinking Water Guidelines. Defence will continue to monitor this location to identify if any action needs to be taken.

This detection is consistent with Defence modelling, which suggested there would be gradual downgradient movement of the PFAS plume to the west of the base.

The findings of sampling undertaken to date do not suggest a change in potential exposure risks for the community within the current management area.

### October 2024 sampling

Defence undertook sampling on and around Swartz Barracks in October 2024.

The results are currently being reviewed by Defence. Residents whose properties were sampled will be notified when results are finalised. The results will also be included in a future Ongoing Monitoring Report, which will be published on the Defence website.

## Continued community support

Defence continues to ensure eligible Oakey residents have a sustainable drinking water supply. Defence has funded Toowoomba Regional Council to connect 36 eligible properties to town water. Defence currently pays the water bills for these properties, and is committed to continuing this payment assistance until the end of 2025. Defence will review the extension of this support next year.

To support eligible property owners that could not be connected to the Toowoomba Regional Council water supply network, Defence delivers rainwater tank upgrades and provides water top ups.

This involves assessing, upgrading, and installing rainwater tanks and where required, additional roof catchment to assure the long-term drinking water needs for eligible property owners.

## Next steps

Over the next 12 months, Defence will:

- commence remediation of the remaining four source area
- continue to remove PFAS from groundwater within Swartz Barracks
- use the results from the western boundary groundwater investigations to determine remediation approaches for groundwater leaving Swartz Barracks
- continue monitoring on and around Swartz Barracks to further understand any changes in PFAS concentrations that may appear over time
- continue to keep the community informed about the management and ongoing monitoring of PFAS on and around Swartz Barracks
- continue to provide water assistance to the community.

## Further information

### New project contact details

From July 2024 we have new contact details. Please use the new details below to contact Defence:


defence.oakey@ghd.com


1800 333 362


0412 959 342


www.defence.gov.au/pfas/

### Health enquiries

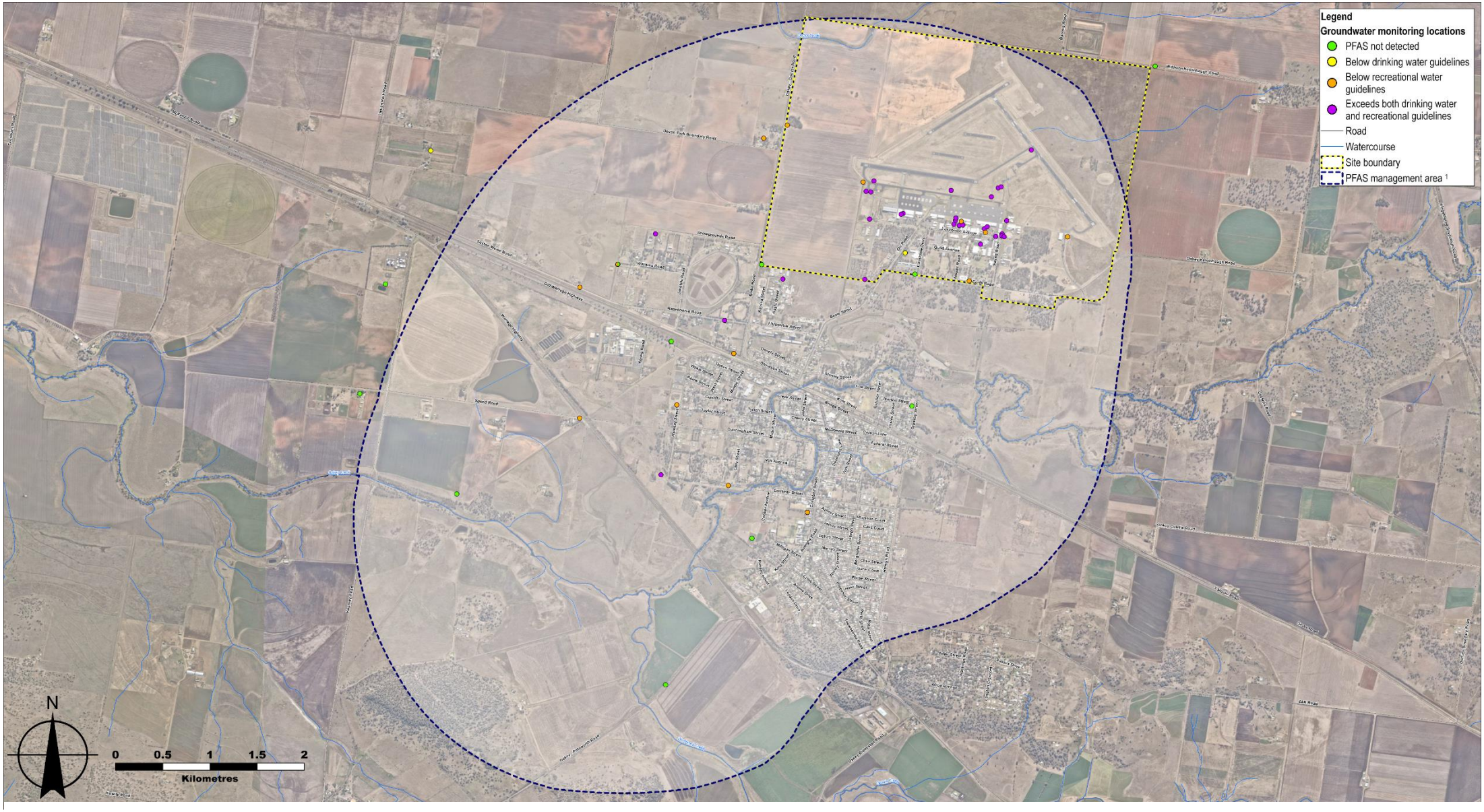
Health related enquiries should be directed to the Department of Health and Aged Care on 1800 941 180 or health.PFAS@health.gov.au

### Translation assistance

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: www.tisnational.gov.au

*Calls from mobile phones may attract a higher rate.




# Swartz Barracks groundwater sampling results – April 2024