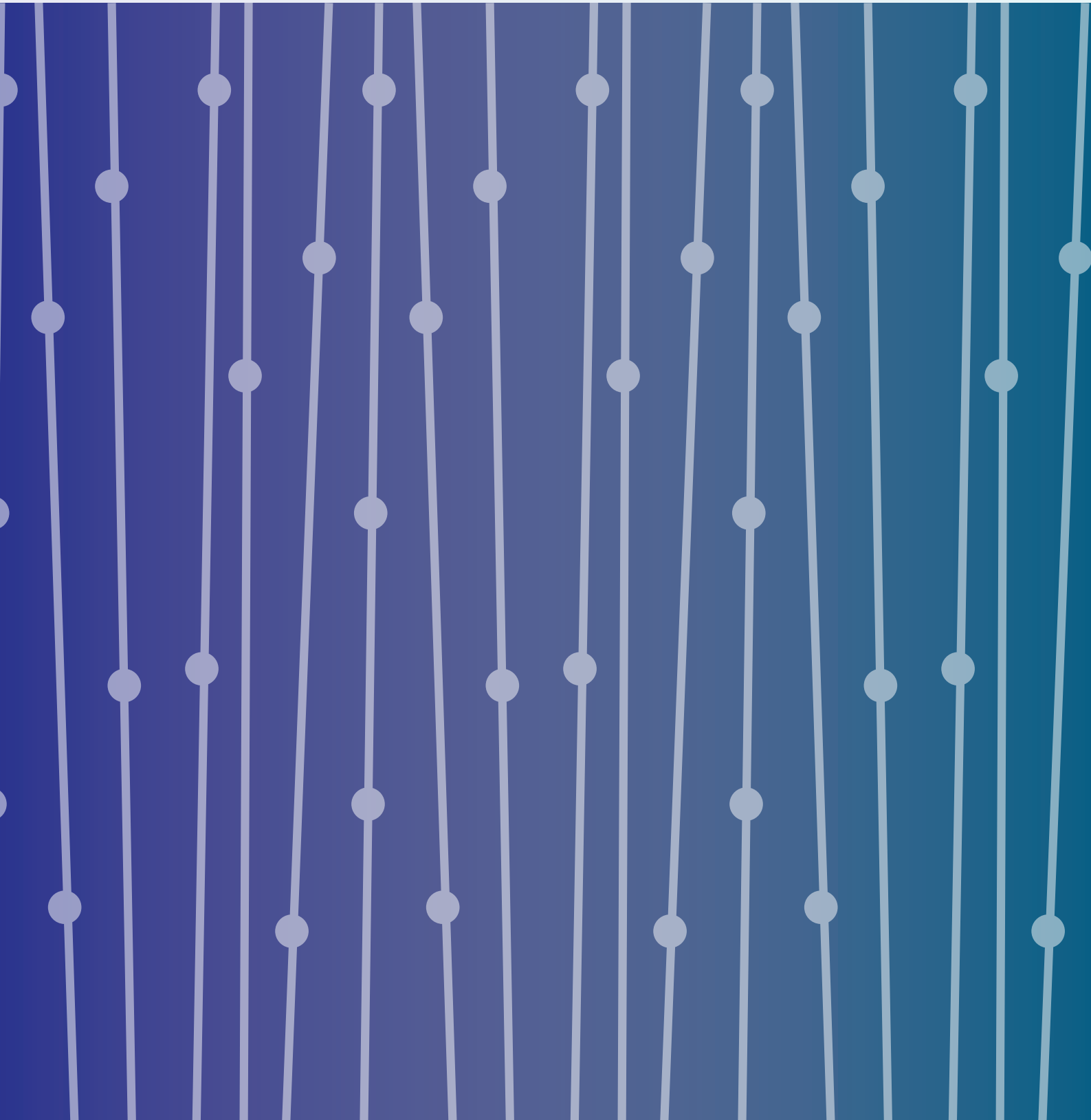
PFAS at Parafield Airport

November 2018



Summary

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- As a precaution, further monitoring is being undertaken beyond the airport boundary. A survey of a small number of residents will be conducted in parts of Mawson Lakes and Parafield Gardens directly adjacent the airport. No other suburbs are affected.
- The only way to access this groundwater is through use of a well or bore, noting the groundwater is considered too salty to drink.
- If you are not using a well or bore on your property, there should be no cause for concern.
- If are using a groundwater bore, information can be provided on options for further investigation. Please call the PFAS Hotline on 1800 531 899.
- SA Health's advice states: "In urban settings and where mains water is available, the use of shallow bore water is not recommended."
- Tap water from SA Water mains is PERFECTLY SAFE and not related to this investigation. You should continue to use as normal.

An Australian Government independent expert health panel concluded in May this year that: "There is mostly limited, or in some cases no evidence, that human exposure to PFAS is linked with human disease."

Introduction

Parafield Airport has prepared this document to inform the community about the presence of per- and poly- fluorinated alkyl substances (PFAS) at the airport.

This forms part of our ongoing commitment to engage with relevant stakeholders regarding assessment and management of PFAS. This document provides general information on PFAS, summarises test results and describes proposed future actions.

History of PFAS Use at Parafield Airport

Firefighting services were provided by former commonwealth agencies at Parafield Airport until 1986. Since that time, fire fighting services have been provided externally by the Metropolitan Fire Service.

Firefighting foam used at the airport by aviation rescue firefighting services since the early 1970s contained perfluorinated compounds (PFC). The use of this foam at Parafield Airport was discontinued more than 30 years ago in 1986 when there ceased to be an active fire fighting service based at Parafield Airport.

Parafield Airport Ltd (PAL) took over operations of Parafield Airport in 1998 in a leasehold arrangement with the Australian Government. While PAL has never been responsible for fire fighting services, it is pro-actively managing and coordinating the response to PFAS-related investigations based on guidance from Federal and State regulators, including the Environment Protection Authority (EPA).

The firefighting foams historically used at Parafield and other airports contained PFAS and included commercial products such as 3M LightWaterTM and AnsuliteTM. These products were used for both operational and training purposes at Parafield until 1986.

Foams containing PFAS have been stored and/or used at the former fire training grounds, located to the south and west of Parafield Airport's runways and taxiways, and at the old fire station on the northern boundary.

What is PFAS?

Per- and poly- fluorinated alkyl substances (PFAS) are manufactured chemicals that are used to make products resistant to heat, stains, grease and water.

PFAS have been widely used for more than 50 years in many consumer and industrial products, including carpets, cookware, clothing, food packaging, pesticides, stain repellents, firefighting foams, mist suppressants and coatings.

PFAS are stable chemicals that are resistant to physical, chemical and biological degradation. Because of these properties, PFAS last for a long time and they can be found in humans, animals and throughout the environment in Australia and other parts of the world.

There are many types of PFAS. The PFAS most commonly encountered in the environment and in wildlife are perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS). These are also the most studied PFAS due to their frequent occurrence in the environment, persistence and potential for bioaccumulation.

PFAS molecules are made up of a carbon chain with attached fluorine atoms, and a hydrophilic (water soluble) group at one end. The hydrophilic headgroups make PFAS very soluble in water. Consequently, PFAS can move from soil to surface water or groundwater and then migrate to creeks, rivers and lakes. PFAS can also be taken up by organisms in contaminated areas and be transferred through the food chain.

Due to widespread historical PFAS use, there are now PFAS contaminated sites in many parts of Australia and around the world. In some cases, PFAS from these sites have migrated to surface water, groundwater and/or adjoining land. PFAS can also be released into the environment from landfill sites where PFAS-containing products are disposed of, and through sewer discharges.

‘Groundwater’ is the water found underground in the cracks and spaces within soil, sand and rock. It moves slowly through the subsurface and may flow into surface water bodies.

‘Surface water’ is water that collects on the surface of the ground. This includes water in creeks, rivers, dams, lakes. It also includes water that temporarily pools or flows along the ground or in a drain during or after rainfall events. In general, surface water flows towards lower lying areas.

Health Effects of PFAS

While there is no consistent evidence that PFAS exposure causes adverse human health impacts or illness, research in this area is ongoing.

In May 2018, an independent expert health panel established by the Australian Government concluded there is mostly limited, or in some cases no evidence, that human exposure to PFAS is linked with human disease.

Food Standards Australia New Zealand (FSANZ) conducted a hazard assessment of PFOS, PFOA and Perfluorohexane sulfonate (PFHxS) and concluded that there is currently no consistent evidence that these chemicals cause any adverse health effects in humans, including people highly exposed occupationally. This conclusion is consistent with other international evaluations.

SA Health has indicated that exposure to high levels of PFAS may have adverse effects on human health. Due to widespread global contamination from these compounds, there is a corresponding widespread low-level exposure among the general population in Australia and worldwide. This exposure has not been shown to cause health problems.

Studies of human populations that have been exposed to PFAS at their workplace or in the environment have not provided definitive or consistent results. Possible links between PFAS exposure and some health effects have been reported in some studies, but other studies have not identified any effects.



PFAS in the Environment

In the environment, PFAS have been shown to have adverse effects on some plants and animals, including fish. Studies on fish and animals have identified effects on reproductive, developmental and other systems. The concentrations at which effects have been observed varies between different types and species of organisms.

PFAS can accumulate in the bodies of animals, particularly those that eat fish such as dolphins, whales, seals, sea birds and polar bears. Because of the persistence of PFAS, exposure can occur in the environment over long time periods, and concentrations can increase in animals higher up the food chain.

Australian Regulatory Guidance

The PFAS National Environment Management Plan (NEMP) provides guidance on the assessment and management of sites contaminated by PFAS. The PFAS NEMP was released in February 2018 and was developed by the Heads of EPAs Australia and New Zealand (HEPA) and the Australian Government Department of Environment and Energy. The Commonwealth, State and Territory Environment Ministers have endorsed the PFAS NEMP.

The PFAS NEMP includes environmental guideline values that should be used to assess risks posed by PFAS. Guideline values have been developed for different aspects of the environment (such as soil and water) and for a range of situations (such as an industrial yard or a residential block). Where concentrations are below the guideline values, risks for that scenario are considered low and acceptable.

The guideline values have been calculated to be highly protective and include a considerable margin of safety.

This means that a test result higher than a guideline value does not mean that exposure or risk is above acceptable levels. Rather, the result indicates that further investigation is warranted.

The table below summarises selected health-based guidance values for key PFAS (PFOS+PFHxS) in water. The PFAS NEMP also includes guidance values for PFOA. At Parafield Airport, PFOA concentrations have typically been below the guideline levels and have not warranted further assessment.

The values across are those relevant to the airport or surrounds.

Exposure scenario	Exposure pathways	Health-based guidance value for PFOS+PFHxS
Drinking water	Assumes ingestion of up to 2 litres of water every day	0.07 micrograms (µg/L) per litre (equivalent to less than 1/2 a drop in an Olympic size swimming pool)
Recreational water	Assumes a person may swim every day of the year and ingest up to 0.2 litres of water each time they swim	0.7 micrograms (µg/L) per litre

Note: The recreational water value (0.7 µg/L) has been recently reviewed. A revised number of 2.0 µg/L has been proposed and released for public consultation by the National Health and Medical Research Council.

Is Mains Tap Water OK to drink?

YES – PERFECTLY SAFE TO DRINK.

Continue to use as normal.

If you don't have a groundwater extraction bore on your property:

There should be no cause for concern.

If you are using a groundwater extraction bore on your property:

Information can be provided on options for further investigation. Call the PFAS Hotline on 1800 531 899.

The only way to access this groundwater is through use of a well or bore, noting that the groundwater is considered too salty to drink.

NOTE: SA Health recommends against use of shallow bore water where mains water is available.

Groundwater PFOS + PFHxS

- Non detect
- Below FSANZ DW (0.07µg/L)
- Below FSANZ recreational (0.7µg/L)
- Below enRisks derived incidental contact (7µg/L)
- Exceeds 7µg/L
- Proposed new on– and off-airport well locations

Red text for well IDs indicates analytical results for Sep 2018

PFAS Investigation and Monitoring

As part of its ongoing environmental management and monitoring of the airport in accordance with the Airports Act and regulations, Parafield Airport is assessing and monitoring PFAS contamination on airport property. As part of this process, a Project Control Group (PCG) has been established to review this issue in detail. The PCG consists of:

- Parafield Airport Ltd
- Commonwealth Department of Infrastructure, Regional Development and Cities (DIRDC)
- EPA South Australia
- Airservices Australia
- SA Health
- SA Water
- Salisbury Council

The airport is also working closely with other relevant stakeholders including:

- Other airport tenants
- Community stakeholders

To date, testing of groundwater and surface water has been conducted on and around the airport as part of our monitoring requirements and obligations. The results of investigations conducted by Parafield Airport are summarised in the sections below.

Groundwater

Groundwater monitoring wells have been installed and tested in locations on and down gradient of identified potential PFAS source areas. Wells have also been installed at locations along the down gradient (south and west) airport boundary to identify what concentrations may be migrating beyond the boundary. The following map shows PFAS concentrations in groundwater wells adjacent the airport boundary.

PFOS+PFHxS concentrations have been identified in some groundwater samples above health-based guidance values in some locations. As previously noted, a test result higher than a guideline value does not mean the exposure or risk is above unacceptable levels. Rather, it indicates that further investigation is warranted.

The airport is working with other relevant stakeholders to confirm groundwater usage in the surrounding area and is continuing to undertake groundwater monitoring.

Surface Water

Surface water testing has been conducted at a number of locations within and outside the airport for many years as part of our regulatory obligations. Since 2016, PFAS testing has been included in this monitoring program.

The testing locations have been selected to assess conditions upstream and downstream of the airport, and at points where surface water or stormwater drainage discharges from the airport into adjacent waterways.

The concentrations detected in surface water to date have all been well below the relevant current health and ecological guideline values.

Salisbury Council has also tested the water entering and exiting its managed aquifer recovery system at Parafield Airport and again, PFAS concentrations were well below the current drinking water guideline.

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Links

Parafield Airport

PFAS NEMP

Australian Department of Health

EPA South Australia

SA Health

SA Water

For further information – contact:

PFAS Hotline on 1800 531 899


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