



Australian Government
Department of Defence
Estate and Infrastructure Group

Community Walk-In Session

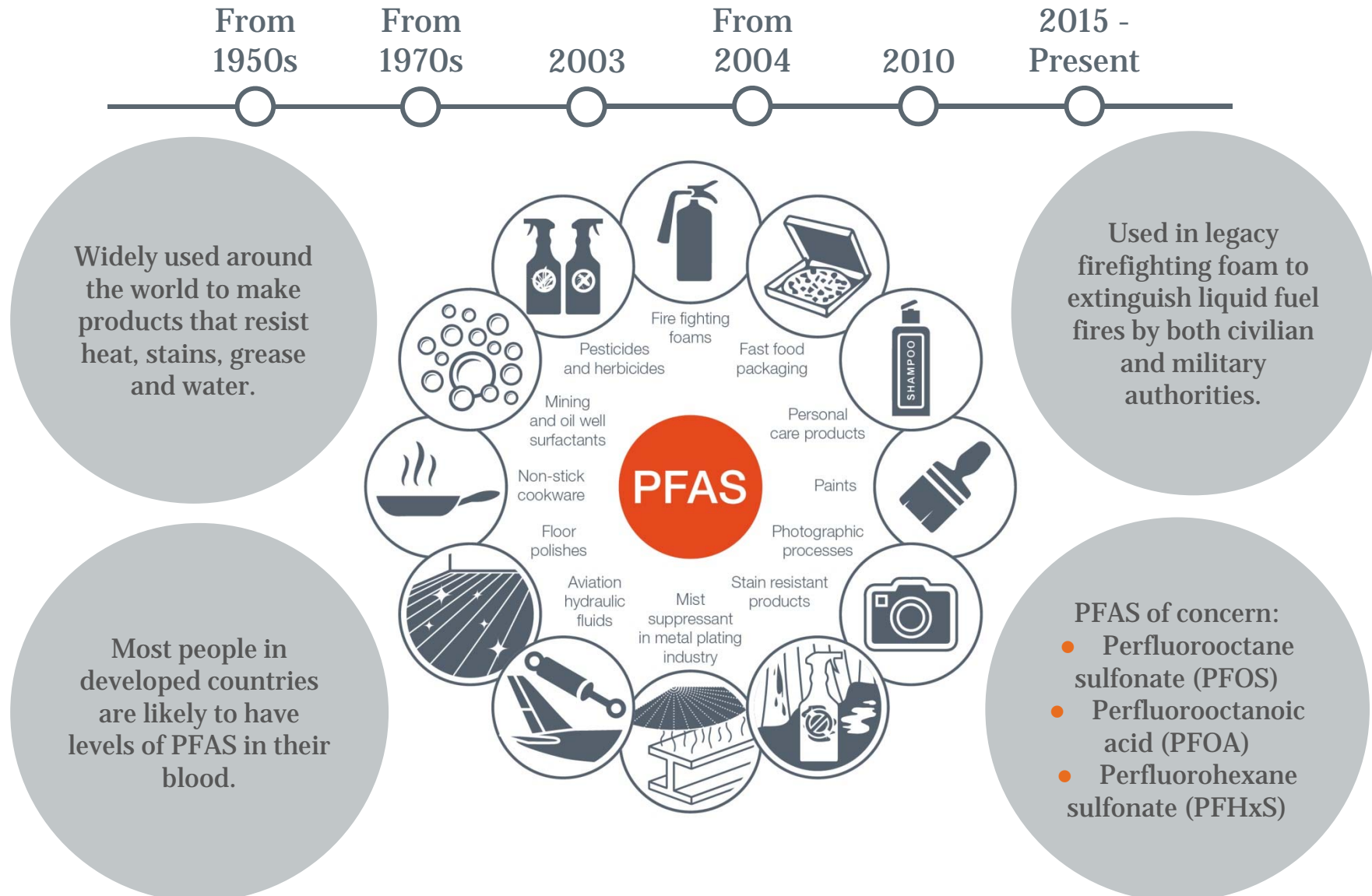
2018 Ecological Risk Assessment Groundwater and Surface Water Monitoring

Army Aviation Centre Oakey

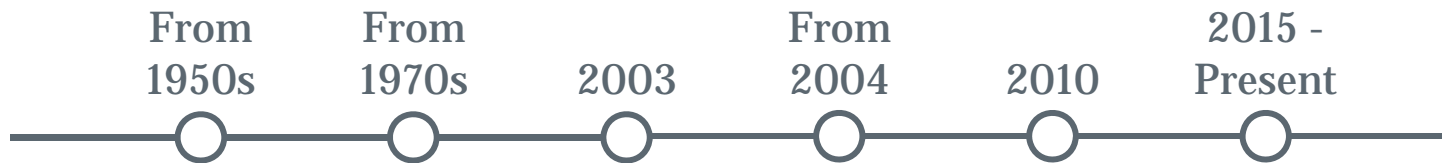
16 October 2018



PFAS Investigation and Management Program



PFAS Investigation and Management Program



**From
1970s**

PFAS was used in legacy firefighting foam to extinguish liquid fuel fires by both civilian and military authorities.

2003

Defence and other users became aware that PFOS/PFOA was an emerging persistent organic pollutant.

**From
2004**

Defence introduced a new foam and commenced phasing out use of the old foams for both training and emergencies.

PFAS Investigation and Management Program

From
1950s

From
1970s

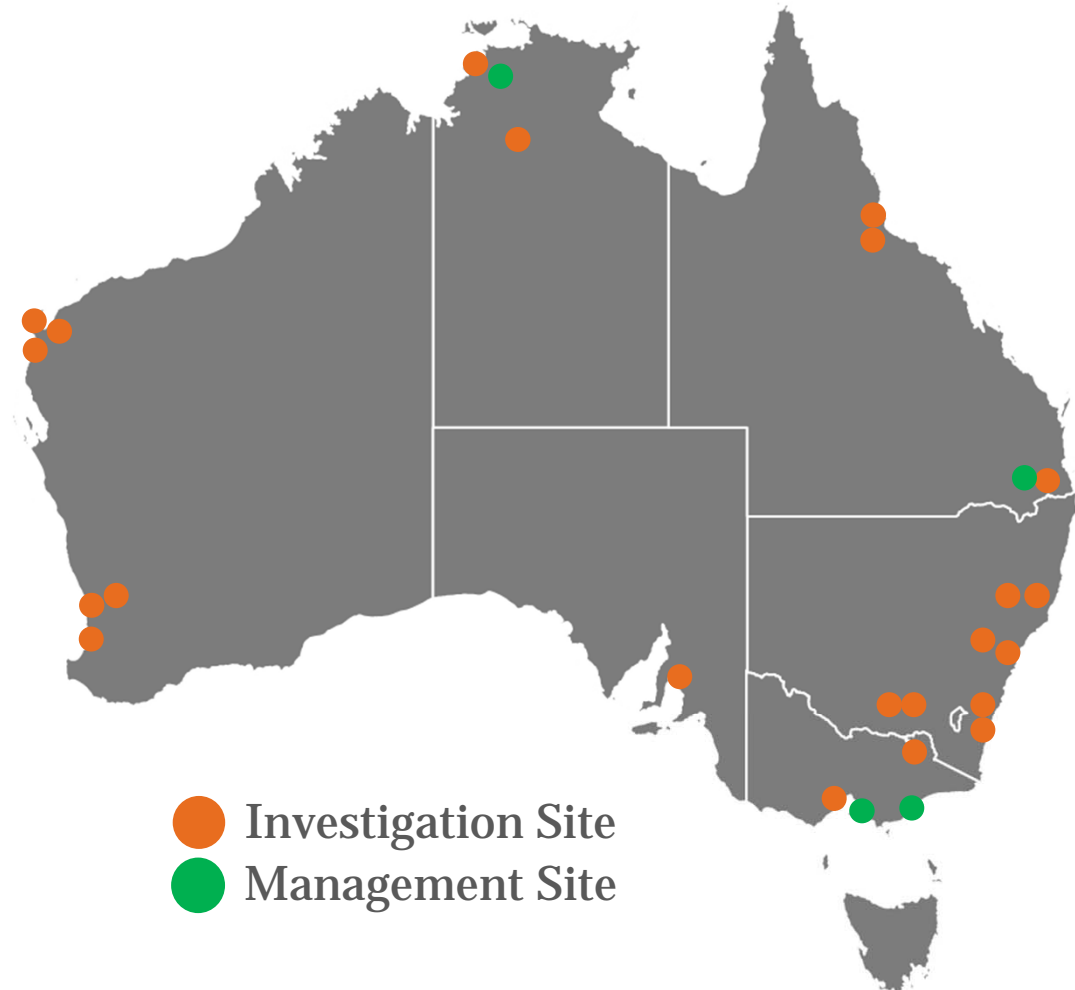
2003

From
2004

2010

2015 -
Present

- In 2010, Defence commenced the first PFAS environmental investigation in Oakey.
- In 2015 the PFAS Investigation and Management Program commenced.
- Defence has commenced 26 detailed environmental investigations, four of which have now been completed and transitioned to management sites.



● Investigation Site
● Management Site

Health Advice

“

There is currently no consistent evidence that exposure to PFOS and PFOA causes adverse human health effects. Because these chemicals persist in humans and the environment, enHealth recommends that human exposure to these chemicals is minimised as a precaution. ”

The Environmental Health Standing Committee (enHealth)

- Defence relies on the advice of Australian health authorities.
- In May 2018, enHealth's advice was reaffirmed by an independent Expert Health Panel which was established by the Department of Health.

The Broader Context – Other Government Programs



Mental Health and
Counselling
Services &
Wellness Program



Voluntary
Blood
Testing



Expert Health
Panel for PFAS



Epidemiological
Study

Investigation Update

- Defence has completed the environmental investigation into PFAS at and round Army Aviation Centre Oakey (AACO).
- The outcomes of the investigation are being used to develop a PFAS Management Area Plan (PMAP) at AACO.



2018 Ecological Risk Assessment



2018 Ecological Risk Assessment (ERA)

The 2018 ERA builds on the 2016 Preliminary ERA and the findings collected from previous investigation stages.

The 2018 ERA assessed the potential for:

- PFAS to pose unacceptable exposure risks to ecological receptors, including plants and animals.
- Wider ecosystem impacts from the accumulation of PFAS in land and water-based organisms

2018 Ecological Risk Assessment

✓ What it can tell us

- Potential for adverse effects on terrestrial (land-based) and aquatic (water-based) wildlife species that live on Base and within the Management Area
- The potential for adverse effects to occur as a result of direct exposure.
- The potential for adverse effects to occur due to bioaccumulation of PFAS in food sources

✗ What it can't tell us

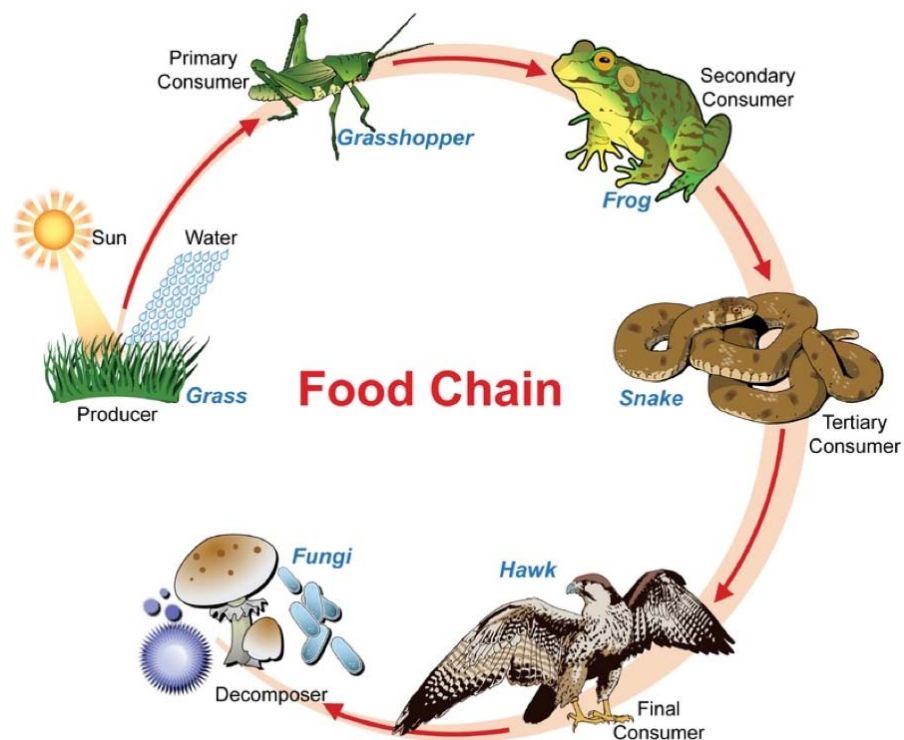
- Potential for adverse effects on domestic animals, including livestock
- Potential impacts on every type of animal in the habitats on Base and within the Management Area
- The specific nature of any potential adverse effects.

Field Investigations

Sample type	Samples collected
Soil	534
Sediment	122
Surface water	121
Terrestrial and aquatic biota	406
Total samples collected	1,183

Risk Assessment

- **Direct exposure** to PFAS was assessed for animals through incidental ingestion of soil, sediment and surface water.
- **Dietary exposures via bioaccumulation of PFAS** in food sources were assessed for 11 indicative species, across different levels of the food chain.



Outcomes – 2018 Ecological Risk Assessment

- There is potential for unacceptable risks to native plants and animals within the Management Area
- This is driven by:
 - Discharge of PFAS-impacted surface water from the Base into drainage channels and Oakey Creek
 - Bioaccumulation of PFAS in aquatic and land-based organisms, and the risks associated with these organisms being a food source for other animals.



Interim Response Management



Town water connections



- As part of a long-term and precautionary measure for the supply of drinking water, Defence funded the Oakey Reticulated Town Water Connections Project
- This involved connecting 36 properties within the Oakey Management Area, to the reticulated town water supply system.

Interim Response Management Activities



- On-Base Water Treatment Plant
 - Installed in September 2017
 - More than 31 million litres of water treated
 - New Water Treatment Plant expected to be installed on-Base by late 2019



- Onsite Open Drain Maintenance Works
 - Excavated sediment from almost two kilometres of drainage lines
- Removal of Source Area

Groundwater and Surface Water Sampling 2017-18



Groundwater and Surface Water Monitoring: July 2017 to May 2018

- Undertaken to provide current information on the distribution of PFAS in groundwater and surface water in the Management Area
- The sampling program involved collecting:
 - 146 groundwater samples, from monitoring wells, bores, taps and tanks
 - 7 surface water samples from Oakey Creek and Doctor Creek.

Groundwater and Surface Water Monitoring: July 2017 to May 2018

- Results broadly consistent with the groundwater results in the 2017 Environmental Site Assessment (ESA)
- PFAS is transported from AACO through groundwater and surface water
- Migrates from Oakey Creek into underlying groundwater (then flows west)
- PFAS impacts closest to the AACO's southern boundary are likely related to transport of PFAS along stormwater drains

PFAS Management Area Plan

Aim:

To manage and reduce the risks of PFAS exposure and/or migration as a result of Defence's activities

Plan considerations:

The development of the PMAP considers:

- Key source areas
- Pathways
- Exposure Risks
- Available treatment technologies

The forthcoming PMAP will support the existing response management activities as part of its recommendations for the management of the site.

Next steps



Finalise PFAS Management Area Plan (PMAP)

The PMAP will guide Defence's actions to manage known sources of contamination, reduce PFAS migration, and manage identified exposure risks to the community or environment.



Finalise Ongoing Monitoring Plan (OMP)

The OMP will form part of the PMAP, detailing details proposed sampling, to identify changes in PFAS location and concentrations in the Management Area

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Thank you

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