



RAAF Base Darwin PFAS Management Area Plan

PFAS Investigation and Management Program

RAAF Base Darwin Investigation Update

The Department of Defence has completed a detailed environmental investigation, to better understand the nature and extent of per- and poly-fluoroalkyl substances (PFAS), resulting from historical use of fire fighting foams on, and in the vicinity of, RAAF Base Darwin.

The outcomes from the investigation are being used to develop a PFAS Management Area Plan (PMAP) for the Darwin Management Area.

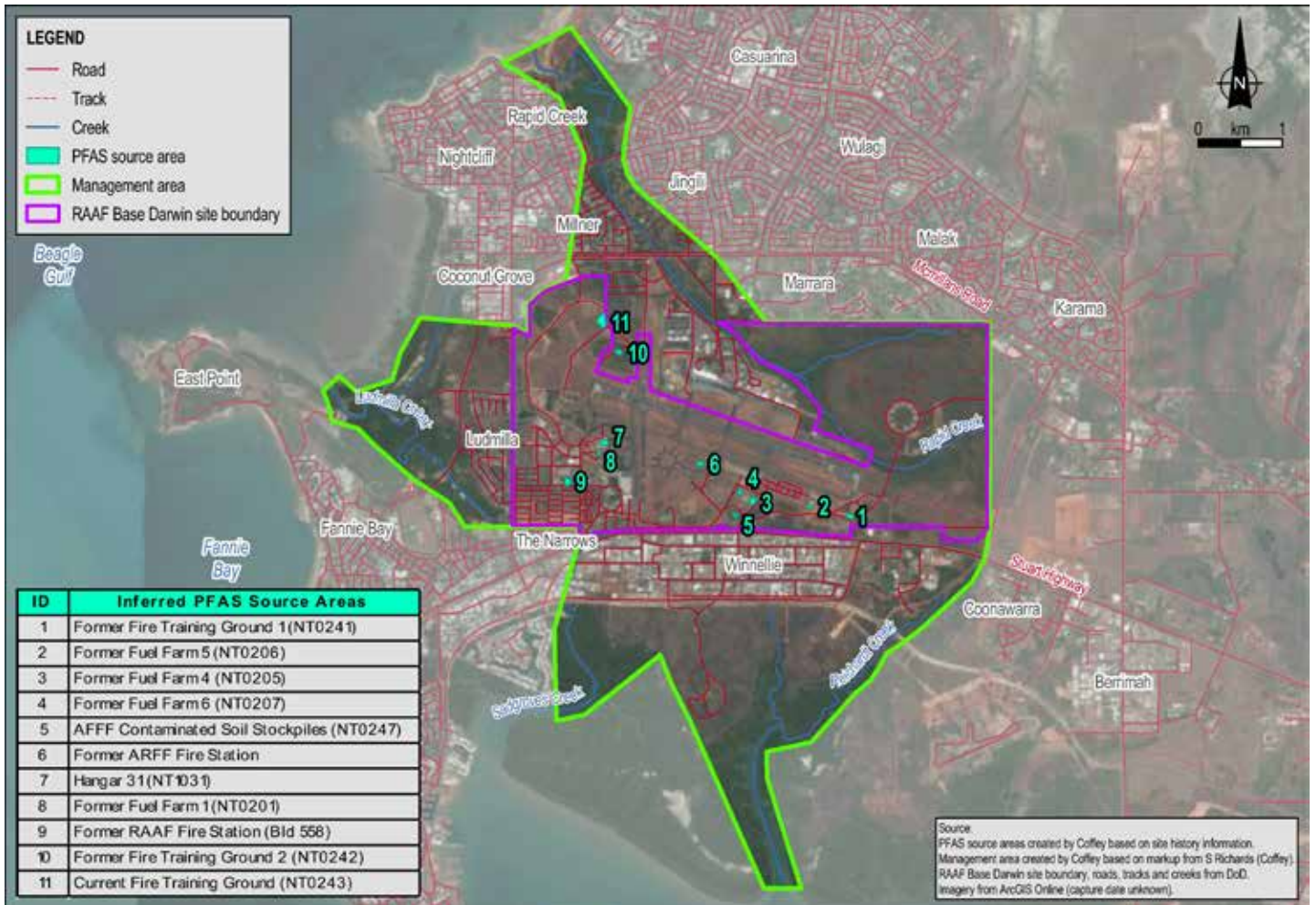
PFAS Management Area Plan

The PMAP will inform the activities Defence will undertake to manage and reduce the risks of PFAS exposure on, and around, the Base. The PMAP will describe options to control the movement of PFAS contaminated soil and water as well as manage identified exposure-risks to PFAS, within the Management Area. The Plan also contains details of on-going monitoring of groundwater, creeks and fish, to measure the effectiveness of risk management actions or assess changes over time.

The Management Area includes:

- Soils in selected areas of RAAF Base Darwin;
- Parts of Rapid Creek and Ludmilla Creek;
- Groundwater containing PFAS in the suburb of Ludmilla;
- Groundwater under Darwin International Airport; and
- Surrounding areas that may receive surface water or groundwater from contaminated areas.

Figure 1: Management Area and PFAS Source Areas





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The PMAP will prioritise the implementation of practical solutions to prevent or minimise PFAS migrating from the Base. Developing the PMAP involved a review of the sources of the contamination and the key ways it is migrating into the wider community. It also included a comparison and evaluation of a range of available PFAS management actions, to identify possible options for the site. The review of management options involved:

- Assessing the amount of PFAS at each of the source areas and the apparent movement of PFAS to nearby creeks or groundwater;
- Summarising specific human and environmental exposure-risks and associated pathways, which had been identified in the Human Health Risk Assessment and Ecological Risk Assessments;
- Reviewing options available to reduce the exposure-risks and assessing the technical, logistical, social and financial limitations of each approach; and
- Identifying the management options that present a high likelihood of environmental improvement.

Migration estimates identified that the removal of any single PFAS source area would not have a great impact on reducing the amount of PFAS ending up in nearby creeks and waterways.

This is because PFAS is moving through the environment in a number of different directions from numerous source areas, and the mass of PFAS that has already left the source areas is now spread across the broader area. RAAF Base Darwin contains multiple PFAS source areas that are not readily accessible for mass removal of PFAS as they are operating facilities, such as the Ordinance Loading Aprons and taxiway adjacent to the former ARFF Fire Station.

It would however be possible to implement administrative controls to prevent uncontrolled soil movement, and may be possible to intercept the movement of PFAS by pumping groundwater or injecting adsorbents, until removing the source areas can feasibly be undertaken.

Immediate and short term management options

Management actions to control existing exposure-risks are:

- Support to NT Environment Protection Authority (NT EPA) and NT Department of Health (NT Health) to assist them in providing dietary advice related to regular consumption of fish, molluscs and crustaceans in Rapid Creek and Ludmilla Creek (completed).
- Controls to be implemented on construction excavation and waste water management, to reduce direct contact exposure in specific source areas on-Base, including:
 - Former Fuel Farm 4 and 6;
 - Former ARFF Fire Station; and
 - Current Fire Training Area.

Management actions to control potential future increases in risks are:

- Administrative controls to be implemented to ensure disturbance of PFAS-impacted soil from source areas

does not increase movement of PFAS or result in additional exposure pathways.

- Routine inspections of the existing soil stockpile, on-Base, will be done to ensure the cover remains intact. Inspections will be conducted to check that the cover is not degraded or damaged and is not being affected by plant growth.

Longer term actions to remove or stop contamination from the key source areas are:

- Capping soil by placing a physical cover (such as a clay or membrane) on contaminated soil where surface water run-off or ecological exposure is a key pathway.
- Sealing of infrastructure, where legacy firefighting foam application has affected concrete surfaces for example Hangar 31 and the current Fire Training Ground.
- Excavation and containment or treatment of contaminated soils from dominant source areas.

Ongoing Monitoring Plan

As part of the PMAP, an Ongoing Monitoring Plan (OMP) has been developed, outlining the sampling program that will be undertaken by Defence to monitor and track the PFAS contamination over the coming years. The OMP will be reviewed regularly and data will be provided to NT EPA and NT Health. Locations of the monitoring are identified in Figure 2. An annual report will compile all Defence and publically available data to facilitate a review of the management controls and the impact of management actions.



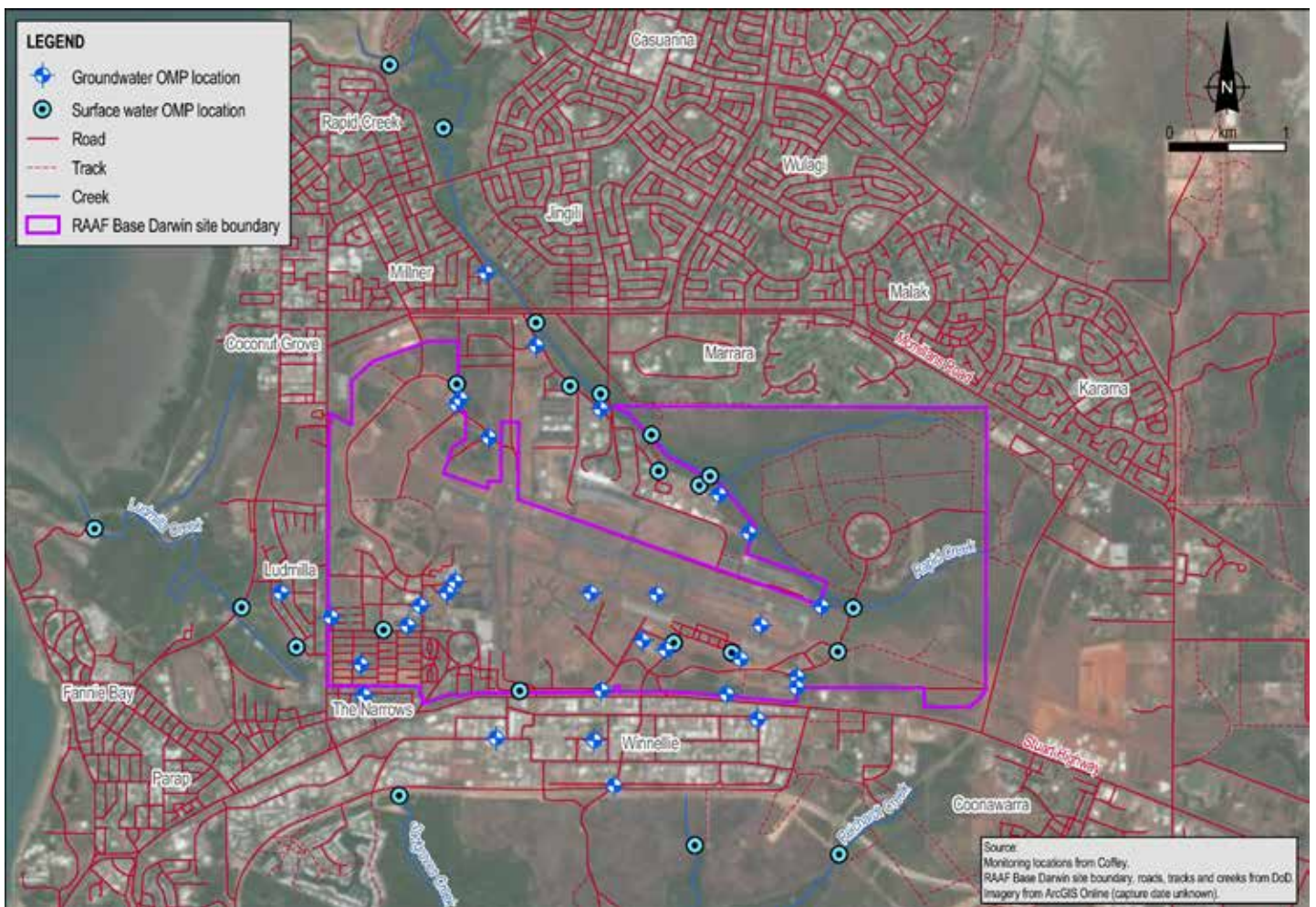


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Action	Location	Interval
Inspection of physical and administrative controls to confirm they remain effective	On-Base	Twice yearly • Start of Dry Season, April • Mid Dry Season, July
Surface water monitoring in Rapid Creek, Ludmilla Creek, Sadgroves and Reichardt creeks	Off-Base	Twice yearly • End of Wet Season, late March • End of Dry Season, October
Surface water monitoring in drains located on-Base	On-Base	Twice during Wet season • First flush, nominally early December • End of Wet Season, late March
Groundwater monitoring in source areas and off-Base to assess the movement of contamination and changes in risk profile	On-Base and off-Base	Twice yearly • End of Wet Season, late March • End of Dry Season, October
Biota testing of target fish in Rapid Creek and Ludmilla Creek to confirm relevance of risk management advice by NT Health	Off-Base	Annually

Figure 2: Proposed groundwater and surface water monitoring locations

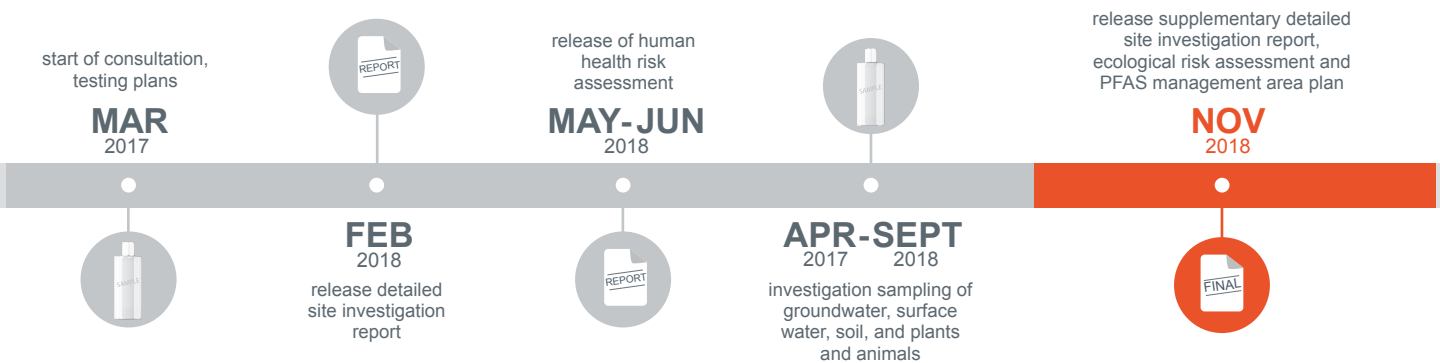




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Next steps

- Measures for managing the movement and possible exposure-risk to PFAS within the Management Area will continue to be investigated.
- Defence will monitor and assess surface water and groundwater at locations on-base and off-base for any changes to PFAS concentrations.
- The PFAS Management Area Plan will be reviewed and updated (where necessary) every 12 months to ensure the document is current and its recommendations are valid.



Dietary advice

Defence will continue to work with the Northern Territory Government to provide data that supports their development of health advice about the potential risks associated with recreational use of Rapid Creek and Ludmilla Creeks. For further information, please see the RAAF Base Darwin – Human Health Risk Assessment Factsheet located at <http://www.defence.gov.au/environment/pfas/Darwin/publications.asp> and the NT Health Fishing in Darwin Creeks poster located at <https://nt.gov.au/industry/hospitality/food-safety-and-regulations/eating-fish-containing-pfas-chemicals>.

Keeping the community informed

Defence will continue to keep the community informed on the outcomes of further sampling and the implementation of management plans. As additional information becomes available, updates will be provided through the website, direct mail, fact sheets and newsletters.

Contact Information

RAAF Base Darwin Community information line

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

Website www.defence.gov.au/environment/pfas/Darwin

PFAS Taskforce Website <http://www.pfas.gov.au/>

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