



# Perfluorinated Compounds (PFC) Environmental Management Program



## Community Information Session

RAAF Base Pearce  
Environmental Investigation

23<sup>rd</sup> June 2016  
Session #1



# Agenda

- Welcome
- About the Defence PFC Environmental Management Program
  - Background
  - About PFCs
  - Health information
- About this Environmental Investigation Project
- Question and Answer Forum
- Informal Q&A and Information Session



Australian Government  
Department of Defence  
Estate and Infrastructure Group

# About the Defence PFC Environmental Program



# Program Background

- Defence National PFC Environmental Management Program established
- Defence has initiated a program of investigation at bases
- RAAF Pearce Environmental Investigation Project has commenced
- Other key departments and agencies involved

# Site Background

- RAAF Pearce has been a permanent operational flying and training base since 1939
- The base has a history of using Aqueous Film Forming Foam (AFFF) in emergencies and fire fighter training.

# What are PFCs?

- PFCs also known as perflouro and polyfluoro alkyl substances (PFAS)
- PFCs have been used to make **coatings and products** that resist:
  - heat
  - oil
  - stains
  - grease
  - Water
- Legacy AFFF foams contained PFCs including perflourooctane sulfonate (PFOS) and perflourooctanoic acid (PFOA)

# About PFOS and PFOA

- Used for many years in a wide variety of common household and industrial products nationally and internationally.
- Present at trace concentrations throughout the environment and in most homes.
- Because of widespread use most people living in developed countries like Australia will have some PFOS and PFOA in their body.



# About PFOS and PFOA

- Legacy AFFF containing PFOS and PFOA were:
  - used due to their effectiveness in extinguishing liquid fuel fires
  - widely used at large industrial sites where liquid fuel fires might occur, aviation facilities and fire fighting facilities
  - used extensively worldwide and within Australia by civilian and military organisations for fighting liquid fuel fires from the 1970s



# About PFOS and PFOA

- PFCs, specifically PFOS and PFOA are emerging as compounds of interest around the world because they are persistent in the environment.
- Many countries have phased out, or are in the process of phasing out the use of PFOS and PFOA.

# Background in Defence

- **In 2003** Defence became aware that PFOS/PFOA was an emerging persistent organic pollutant – Defence released a specification for the supply and testing of AFFF concentrates.
- **From 2004** Defence commenced phasing out use of the old foams for both training and emergencies.
- **Currently** For emergencies, Defence uses a foam that does not contain PFOS and PFOA as active ingredients.

For training, Defence uses a foam which does not contain PFOS and PFOA.

# Health information

- PFCs can potentially enter the body in a number of ways:
  - primarily through drinking water
  - eating food that has taken up the chemicals
  - inhalation mainly in industrial settings
  - skin absorption (very low absorption risk)
- **enHealth** advises that 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.
- PFCs can be naturally eliminated from the body:
  - takes some time to be removed
  - accumulation can occur if intake continues

# Government Guidance

- There are as yet no formally recognised national screening levels for PFOA, PFOS or other PFCs in any media for use in Australia.
- The Australian Government is developing PFOS/PFOA health reference levels for application in Australia.
- WA Dept of Environment and Regulation has issued interim guidelines for assessment and management of PFCs (referred to as PFAS)
- Defence will consider the findings of its detailed site investigations in the context of the Australian health reference levels, when available.

# Defence engagement

- Defence is working closely with Commonwealth and State Governments, international bodies and industry to ensure we take a best practice approach.
- Defence is taking a proactive approach to understanding the impacts of historical use of AFFF at RAAF Base Pearce
- Defence is committed to an open and transparent process



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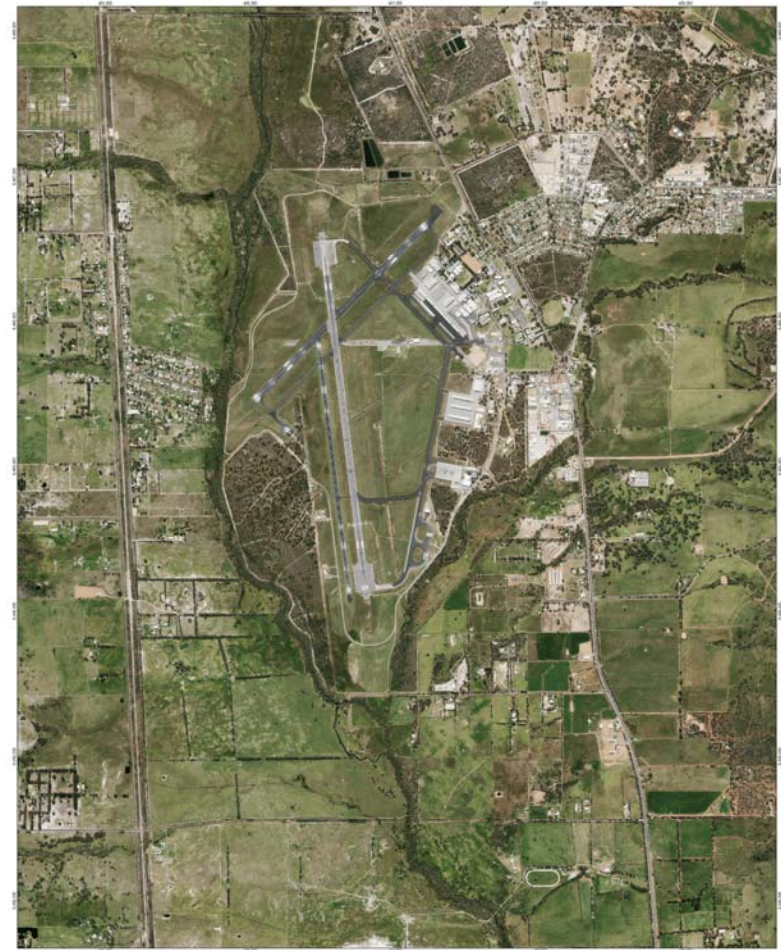
# About this Investigation



# About this investigation

- RAAF Base Pearce has commenced a detailed environmental investigation.
- Environmental investigation is undertaken in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM).
- Specialist Environmental Consultants have been engaged.
- Defence has worked with industry to develop a detailed investigation methodology to enable completion within 12 months from commencement.

# RAAF Base Pearce



Legend  
— Road

Page 104 of 171  
Scale: 1:5000  
Map Projection: UTM  
Map Datum: GDA 1984  
Map Scale: 1:5000  
Map Date: 16 Jun 2016

Department of Defence  
RAAF Base Pearce PFC Investigation  
Job Number: 61-32324  
Revision: 0  
Date: 16 Jun 2016

GHD  
GEOGRAPHICAL INFORMATION SYSTEMS  
GIP

Area Overview Map

Figure 1

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# Overview of Comprehensive Assessment Works

- Staged assessment program consistent with the NEPM and WA EPA requirements
  - Initial sampling locations (groundwater) off-site to assess if PFCs are present
  - Review of site history of AFFF use and sources of PFC contamination
  - Undertake detailed sampling on and off-site
  - Review risk to determine that water is safe for use

# Preliminary Site Investigation (Stage 1)

- Site history assessment
  - site interviews, stakeholder information, inspecting site
- Start development of Conceptual Site Model to identify contamination:
  - Sources (where and when AFFF was used)
  - Pathways (how PFCs move in the environment)
  - Receptors that may be exposed to the contamination
- Preliminary sampling and screening of risk level
  - off-site private groundwater bores (10 samples)
- Preliminary Site Investigation Report being prepared
- Stage 2 Sampling Analysis Quality Plan
- Water Use Survey Report

*AIM = Understand **Source-Pathway-Receptor** linkages and priority of works for Detailed Site Investigation.*

# Detailed Investigation Works (Stage 2)

- Collaborate with stakeholders to confirm further works, to inform the project, likely to comprise:
  - **Soil Investigation**
    - On-site soil samples
  - **Drainage Line Investigation**
    - On-site - Sample surface water and sediment/soil within drainage channels
    - Off-site – Sample downstream at drainage channel and dams. Background further ‘up-stream’ of Base.
  - **Groundwater Investigation**
    - Install additional shallow and monitoring bores
    - Gauge all bores, sample and assess all new locations
    - Biota sampling
    - Further off-site bore sampling
  - **Reporting on the works**
    - Interpretative Report, consistent with the NEPM guidelines

# Human Health and Ecological Risk Assessment (HHERA)

- Throughout the investigation, results will be compared to WA Interim screening criteria to assess the need for the HHERA
  - Consultation and input from agencies, experts and community
- Prepare HHERA methodology using NEPM and enHealth guidance (if required)
- Complete the HHERA, to evaluate risks to the human health and ecology, and inform future action to mitigate risks (if required)

# What will the field investigations works look like?



# Assessment Works Timing

## Preliminary Investigation Works (short term answers)

- Field Works – Completed May 2016 - June 2016
- Reporting of Results – In progress

## Detailed Investigation Works (longer term answers)

- Work Scoping and Planning – In progress
- Field Works – From August - October 2016
- Reporting of Results – November 2016 - January 2017

## Human Health and Ecological Risk Assessment

- Ongoing assessment of risk and requirement to commence HHERA throughout program (if required)

Ongoing  
community  
consultation





# Stakeholder and Community Engagement

- Regular Stakeholder interactions to provide timely and factual advice to guide decision-making
  - Public enquiry lines operate throughout project duration
  - Fact sheets, relevant information and results of sampling will be published on project website
  - Individual correspondence on private property results
  - Community engagement briefings at key milestones
  - Conducted with appropriate privacy considerations



# Bottled Water

- Interim Precaution:
  - Defence making available bottled water to residents within 3 km of RAAF Pearce Base who are not connected to town water and use bore water for drinking purposes.
  - The provision of alternative water supplies by Defence will be reviewed on completion of the Investigation, and/or if information obtained during the Investigation suggests such a review is warranted. It will also be reviewed once Australian health reference values are available.




# Need more information?



- **Defence wants to keep you informed**
  - Phone: **1800 987 614**
  - Email: [defence.bullsbrook@ghd.com](mailto:defence.bullsbrook@ghd.com)
  - Website: [www.defence.gov.au/id/pearce](http://www.defence.gov.au/id/pearce)
  - Post: **GHD, 999 Hay St, Perth WA 6000**
- Additional information sessions will be held during the course of the project.
- General information about the national Defence program can be found at: [www.defence.gov.au/ID/PFOSPFOA/](http://www.defence.gov.au/ID/PFOSPFOA/)



## In Summary

- Detailed site investigation has commenced and is in accordance with the NEPM.
  - enHealth advises that research has not conclusively demonstrated that PFCs are related to specific human illnesses, even under conditions of occupational exposure.
  - Defence will keep you informed and will continue to consult with all relevant Federal and State and local government agencies.
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# Questions?





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# Thank you for your attendance

