Community Information Session
Army Aviation Centre Oakey (AACO) – Environmental Investigation

4 December 2015
Attendees

- The Hon Ian Macfarlane MP, Member for Groom.
- The Hon Darren Chester MP, Assistant Minister for Defence.
- Ms Vicki Pearce, Director Environmental Remediation Programs.
- Dr Mathew Klein, Senior Medical Adviser, Occupational & Environmental Medicine.
- CMDR Rachel Jones, Office of Defence Special Counsel.
Agenda

• Background.
• PFOS & PFOA.
• Investigation to date.
• Current and upcoming works.
• Health considerations.
• Legal considerations.
• Conclusion.
Background

The purpose of the Army Aviation Centre Oakey (AACO) Environmental Investigation is to understand impacts on the environment from historical use of fire-fighting foams

• Defence periodically assesses groundwater on its bases, including Oakey.
• In 2010, sampling results showed evidence of PFOS and PFOA in the groundwater beneath the AACO.
• Further assessments indicated the impact had travelled beyond the AACO:
  – this was informed by targeted off-base sampling in early 2013 and wider scale sampling undertaken in 2014 and 2015.
Background

• Fire-fighting training activities occurred at AACO for decades.
• Aqueous Film Forming Foam (AFFF) is used to extinguish Class B fires (flammable liquid and gas fires).
• Historical AFFF products contained PFCs including:
  – Perfluorooctane Sulfonate (PFOS).
  – Perfluorooctanoic Acid (PFOA).
• In 2008, Defence implemented a policy to restrict use of AFFF with PFOS/ PFOA.
Background

- Defence has introduced a training foam – ‘Ansul’ which contains no PFOS/PFOA.
- For operational purposes, Defence also moved to ‘Ansulite’ which contains only trace levels of PFOS/PFOA.
- Defence primarily only discharges AFFF products during emergencies or incidents, and not in training activities.
- The exception being the requirement to test specific equipment; in these cases all the foam is captured in a closed system.
About PFOS and PFOA

• PFOS and PFOA are:
  – two of the many types of perfluorinated chemicals (PFCs).
  – used for many years in a wide variety of common household and industrial products.
  – present at trace concentrations throughout the environment and in most homes.
About PFOS and PFOA

PFCs, such as PFOS and PFOA, have been used to make **coatings and products** that resist:

- heat
- oil
- stains
- grease
- water

most people living in developed areas are likely to have background levels in their systems.
The investigation to date
Late-2013 to mid-2015

- Sampling of soil, groundwater, surface water and sediment.
- Community water use survey
- Engaging with State and Commonwealth government agencies and regulators.

Image: Example of a water bore
Late-2013 to mid-2015

- As a precaution, it has been recommended that residents within the Investigation Area not drink the bore water
- assisting residents access to an alternative water supply on a case by case basis
- development of long-term management strategies
- altering water use on AACO to minimise contamination recharge
AACO Environmental Investigation

Investigation & Detection Areas

PFOS

PFOA
Key activities ("Stage 2C", mid 2015–mid 2016)

AACO Environmental Investigation

Ongoing water assistance and regular community updates

Hydrogeological assessment

Liaising with relevant government agencies and regulators

Human health and ecological risk assessment

Management options assessment
## Hydrogeological Assessment

<table>
<thead>
<tr>
<th>Task</th>
<th>Completion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage line sampling</td>
<td>✔</td>
<td>Sediment + water</td>
</tr>
<tr>
<td>Creek sampling</td>
<td>✔</td>
<td>Off-site</td>
</tr>
<tr>
<td>Irrigated soil sampling</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Monitoring well installation</td>
<td>✔</td>
<td>10 x well pairs</td>
</tr>
<tr>
<td>Aquifer gauging, sampling, testing</td>
<td>Dec 2015</td>
<td>New wells + target bores</td>
</tr>
<tr>
<td>Conceptual site model update</td>
<td>Mar 2016</td>
<td></td>
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<tr>
<td>Hydrogeological flow model</td>
<td>Mar 2016</td>
<td>Model Plan in Nov-Dec with Technical Advisor</td>
</tr>
<tr>
<td>Solute transport and mass flux model</td>
<td>May 2016</td>
<td></td>
</tr>
<tr>
<td>Hydrogeological Assessment Report</td>
<td>May 2016</td>
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## Human Health and Ecological Risk Assessment

<table>
<thead>
<tr>
<th>Task</th>
<th>Completion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biota (Crop &amp; Fauna) sampling</td>
<td>Feb 2016</td>
<td>Preliminary HHERA Plan &amp; Sampling Plan for Biota currently in review by Technical Advisor.</td>
</tr>
<tr>
<td>Fauna biokinetic modelling</td>
<td>March 2016</td>
<td></td>
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<tr>
<td>Economic risk assessment</td>
<td>June 2016</td>
<td></td>
</tr>
<tr>
<td>Tier 2 Human Health Risk Assessment</td>
<td>June 2016</td>
<td></td>
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<tr>
<td>Risk Assessment Report</td>
<td>June 2016</td>
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## Community Consultation

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<tr>
<th>Task</th>
<th>Completion</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Community Engagement Strategy</td>
<td>✔</td>
<td>Draft</td>
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<tr>
<td>Community Information Session 5</td>
<td>✔</td>
<td>August 2015</td>
</tr>
<tr>
<td>Ministerial Community Information Session</td>
<td>December</td>
<td></td>
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<tr>
<td>Community Information Session 6</td>
<td>March-April</td>
<td></td>
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<tr>
<td>Community Enquiry Management</td>
<td>Ongoing</td>
<td>Project Hotline, Email</td>
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<tr>
<td>Project Website</td>
<td>Ongoing</td>
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<tr>
<td>Short-term Water Assistance</td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>Summary of sample numbers</td>
<td>Stage 2a (2010-Nov 2013)</td>
<td>Nov 2013-June 2015 (stage 2b)</td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>-------------------------------</td>
</tr>
<tr>
<td>Groundwater samples</td>
<td>136</td>
<td>144</td>
</tr>
<tr>
<td>Surface Water samples</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Household Water Tank samples</td>
<td>0</td>
<td>28</td>
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<tr>
<td>Swimming Pool</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>House Tap</td>
<td>1</td>
<td>15</td>
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<tr>
<td>Pore Water</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Sediment Leachate</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Sediment</td>
<td>24</td>
<td>43</td>
</tr>
<tr>
<td>Soil</td>
<td>85</td>
<td>2</td>
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<tr>
<td>Concrete</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Concentrate</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>270</td>
<td>277</td>
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AACO Environmental Investigation

DRAINAGE LINE SEDIMENT AND SURFACE WATER SAMPLING LOCATIONS
SAMPLE LOCATIONS UP-SURFACE WATER GRADIENT OF AACO
OFF-SITE SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS
## AACO Environmental Investigation

### Purpose

#### Offsite Wells

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solute Model Centre Transect</td>
<td>MWOA, MWOB, MWOC</td>
</tr>
<tr>
<td>Plume Delineation</td>
<td>As above plus MWOD</td>
</tr>
<tr>
<td>Sentinel</td>
<td>MWOE</td>
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</tbody>
</table>

### Onsite Wells

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Former Fire Training Area</td>
<td>MWN- H</td>
</tr>
<tr>
<td>Solute Model Northern Transect</td>
<td>MWN- H</td>
</tr>
<tr>
<td>Solute Model Western Transect</td>
<td>MWG1-C MWG1-A MWA5-A</td>
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<tr>
<td>Western Boundary Delineation (Shallow)</td>
<td>MWG1-B</td>
</tr>
<tr>
<td>Southern Boundary Delineation (Shallow)</td>
<td>MWA4-B-UA</td>
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</tbody>
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### HYDROGEOLOGICAL INVESTIGATION MONITORING WELL LOCATIONS

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**LEGEND**

- Existing Registered Bore
- One Upper Alluvial Aquifer Well and One Basalt Aquifer Well
- One Upper Alluvial Aquifer Well and One Lower Alluvial Aquifer Well
- Drainage
- Railway
- AACO Base Boundary
Health Considerations

• PFCs can potentially enter the body a number of ways:
  – Primarily through drinking contaminated water.
  – Inhalation mainly in industrial settings.
  – Eating food that has taken up the chemicals.
  – Skin absorption (very poor).
• PFCs can be naturally eliminated from the body
  – Takes significant amount of time to be removed.
  – Accumulation will occur if intake continues.
Health Considerations

• What does the science say?
  – No definitive findings that link exposure to PFOS and PFOA to adverse health outcomes.
  – Workers exposed to very high levels have not demonstrated significant health affects

• Defence is working closely with Commonwealth and State Governments and international bodies to ensure our knowledge remains current
Legal considerations

• Defence is not able to provide legal advice about:
  – property values
  – individual legal representation
  – the terms of engagement offered by legal representatives
• Landholders should seek their own independent legal advice from relevant industry professionals
• Individual community members seeking to represent their own interests, in respect of any potential claim, should direct their claim to the Office of Defence Special Counsel at dl.specialcounsel@defence.gov.au
• Claims should include supporting information demonstrating the nature, extent and quantification of any alleged loss or damage.
Conclusion

- Defence's priority has and continues to be that residents and businesses in the investigation area have access to safe drinking water.
- This is a complex problem and it will take time to understand the full nature and extent of the contamination.
- Defence will continue to work with the QLD Government agencies and the Oakey community to determine appropriate management strategies for the contamination.
Thank you

Contact us

Phone: 1800 136 129 free call *(Monday to Friday, 8.30am to 5pm)*

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