Fisheries closure: 4982 1232 milk from dairy cows.

locally caught fish

PFAS Investigation & Management Program home grown eggs

home grown red meat
to mains water.

in the past. Residents should contact the Defence project rainwater tank that contains, or has contained, bore water

use of a bore for drinking water. Defence will also provide water to residents if drinking water is sourced from a Defence will undertake further assessment to address important limitations in the current understanding of PFAS impacts arising from RAAF Base Williamtown within the NSW EPA Investigation Area for:

• Home grown eggs
• Locally caught fish
• Home grown fruit and vegetables
• Home grown red meat, and
• Milk from dairy cows.

The outcomes of these further assessments will also inform ongoing environmental monitoring and future management decisions in relation to PFAS on, or in the vicinity, RAAF Base Williamtown. The further assessments and ongoing monitoring programs of work will be developed in consultation with NSW EPA. Depending on the outcome of these additional investigations, it may be necessary to revise the 2016 HHRA further to quantify changes to currently identified potential human health risks.

Water assistance

Defence continues to provide alternative sources of water to residents within the investigation area who rely on the use of a bore for drinking water. Defence will also provide water to residents if drinking water is sourced from a rainwater tank that contains, or has contained, bore water in the past. Residents should contact the Defence project team to discuss possible management strategies.

Defence is also providing $4.3 million to Hunter-Water Corporation to connect properties in the investigation area to mains water.

Next Steps

Further Considerations

The results of this Sensitivity Assessment provide an improved understanding of the potential human health risks to identified off-site receptors within the NSW EPA Investigation Area. Defence will undertake further assessment to address important limitations in the current understanding of PFAS impacts arising from RAAF Base Williamtown within the NSW EPA Investigation Area for:

Keeping the community informed

Defence is committed to regularly updating the community throughout the investigation. Updates will be provided through the project website, community information sessions, direct mail and information sheets as new information becomes available. Enquiries or requests relating to individual properties will be considered on a case-by-case basis.

NSW Government agencies also have information which may be relevant:

• NSW EPA: 131 555
• NSW Health: 1300 066 055
• NSW Department of Primary Industries:
  - Fisheries closure: 4982 1232
  - Agriculture: 1800 838 995
• NSW Food Authority: 1300 552 406

The most up to date Investigation Area map can be accessed from NSW EPA website: http://www.epa.nsw.gov.au/MediaInformation/williamtown.htm

Defence attends all Community Reference Group meetings and minutes are published at: http://www.epa.nsw.gov.au/MediaInformation/community-referencegroupwilliamtown.htm

RAAF Base Williamtown Environmental Investigation

Off-Site Human Health Risk Assessment - Sensitivity Assessment

The Department of Defence (Defence) has engaged an independent environmental consultant to complete a Sensitivity Assessment as part of the ongoing RAAF Base Williamtown Environmental Investigation. This Sensitivity Assessment is an addendum to the 2016 Human Health Risk Assessment (HHRA) and provides additional guidance about precautionary recommendations for the RAAF Base Williamtown Investigation Area.

This Sensitivity Assessment considers the Hazard Assessment Report – Perfluorooctane sulfonate (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorohexane sulfonate (PFHxS), released by Food Standards Australia New Zealand (FSANZ).

The FSANZ Report contains Toxicity Reference Values (TRV) for PFOS and PFOA, expressed as Tolerable Daily Intakes (TDI). A TDI represents a level of a substance that a person can be exposed to every day of their entire lifetime without appreciable risk to their health. The TDI is based on toxicological studies and incorporates safety factors to account for uncertainty.

The Sensitivity Assessment will assist Defence to understand how the FSANZ TDI may affect the conclusions of the off-Site HHRA, published in August 2016.

Off-Site Human Health Risk Assessment 2016

The 2016 HHRA assessed potential risks to human health associated with exposure to PFAS within the New South Wales Environmental Protection Agency (NSW EPA) Investigation Area. It concluded that within the NSW EPA Investigation Area (excluding the Southern Area, immediately south of the base), there is a "low and acceptable" risk to health from current and ongoing PFAS exposure if they continued to follow precautionary recommendations to not use groundwater for drinking purposes. This excluded upper level exposure due to drinking groundwater and/or eating large quantities of eggs from backyard chickens that drink PFAS impacted surface water.

In the Southern Area, it was concluded that in addition to drinking groundwater and/or eating large quantities of eggs, risks may result from PFAS exposure due to:

• Incidental or unintentional ingestion of groundwater while showering, bathing, using pools or sprinkler play; and/or
• Eating beef or drinking milk from livestock raised in the Southern Area.

The 2016 HHRA made a number of recommendations for residents living in the NSW EPA Investigation Area and the Southern Area. These recommendations related to using bore water and consuming produce sourced from within the NSW EPA Investigation Area.

Based on the findings of this Sensitivity Assessment, a 2017 HHRA Addendum has been developed to build upon the 2016 HHRA.

Sensitivity Assessment 2017

Precautionary Recommendations:

The 2017 HHRA Addendum makes the following precautionary recommendations:

• Continue not drinking groundwater in the NSW EPA Investigation Area (including the Southern Area);
• Avoid or minimise using groundwater for bathing, showering, home swimming, paddling pools and/or sprinkler play in the Southern Area;
• Avoid or minimise incidental ingestion of surface water when swimming in surface water bodies in the NSW EPA Investigation Area (including the Southern Area); and
• Minimise consumption of the following until additional data can be collected to refine the HHRA:
  - home grown eggs
  - locally caught fish
  - home grown fruit and vegetables
  - home grown red meat
  - milk from dairy cows.

The NSW EPA Investigation Area and the Southern Area are shown on the map on the next page. The Investigation Area and Southern Area have not changed since the 2016 HHRA.

Outcomes of Sensitivity Assessment – Breast Milk

Current enHealth (2016) guidance states, "the significant health benefits of breast feeding are well established and far outweigh any potential health risks to an infant from any PFOS or PFOA transferred through breast milk".

Exposure to PFAS through breastfeeding was also considered in the Sensitivity Assessment. It was found that exposure to PFAS through breastfeeding alone is not estimated to exceed the FSANZ TDI. However, the combination of exposure to PFAS through breastfeeding and subsequent exposure from all other potential pathways could potentially result in exceedances of the FSANZ TDI. The potential for this to occur can be minimised by following the above precautionary recommendations. An exceedance of the TDI does not mean that adverse health effects will occur.

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Amended Precautionary Recommendations for the Investigation Area

Pathways changed as a result of adopting FSANZ TDI

### Exposure Pathways - Offsite Stage 2B Investigation Area

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<td>Upper Exposure</td>
<td>Typical Exposure</td>
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<tr>
<td>Incidental ingestion of surface water</td>
<td>Residents, non-resident commercial fishers and visitors</td>
<td>Low &amp; Acceptable</td>
<td>Low &amp; Acceptable</td>
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<tr>
<td>Consumption of locally sourced seafood</td>
<td>Residents, non-resident commercial fishers</td>
<td>Low &amp; Acceptable</td>
<td>Low &amp; Acceptable</td>
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<tr>
<td>Consumption of locally grown fruit and vegetables</td>
<td>Residents</td>
<td>Low &amp; Acceptable</td>
<td>Low &amp; Acceptable</td>
</tr>
<tr>
<td>Consumption of beef from locally grown cattle</td>
<td>Residents</td>
<td>Low &amp; Acceptable</td>
<td>Low &amp; Acceptable</td>
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### Exposure Pathways - Offsite Southern Investigation Area

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<tbody>
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</tr>
</tbody>
</table>

### Table 1: Developed by AECOM Australia Pty Ltd

* A Hazard Index less than a target value of 1 is considered to indicate that cumulative PFAS intakes via identified pathways are unlikely to exceed the relevant TDI and therefore risk to health is termed “low and acceptable”.

Unchanged 2016 HHRA Outcomes

**Unchanged from Low and Acceptable Risk:**
- Dermal contact with groundwater
- Dermal contact with surface water
- Incidental ingestion of, and dermal contact with, soil and sediment
- Inhalation of dust from soil and sediment
- Consumption of honey
- Incidental ingestion of groundwater in NSW EPA Investigation Area (excluding Southern Area).

**Unchanged from Elevated Risk:**
- Ingestion of groundwater
- Consumption of eggs
- Consumption of milk
- Consumption of beef (Southern Area only)
- Incidental ingestion of groundwater (Southern Area only).