



**Per- and Poly-Fluoroalkyl Substances (PFAS) Management and Remedial Options – Update on Defence Soil Solidification and Stabilisation Trials**

The Department of Defence (Defence) is researching a number of management and remedial technologies as part of its national PFAS Investigation and Management program.

**About Soil Solidification Trials**

Solidification involves mixing a binding agent with affected soil to bind the compounds in a solid block, trapping it in place. Defence undertook solidification trials using source material from RAAF Base Williamtown, NSW and Army Aviation Centre Oakey, QLD.

**Approach**

Bulk soil samples from RAAF Base Williamtown and Army Aviation Centre Oakey were separately collected, analysed and homogenised. Chemical testing of pre-solidified soil samples were conducted to determine the PFAS levels. Mixtures of reagents were added into the soil samples and cured for 28 days. Soil samples then subjected to physical and chemical testing in accordance with relevant guidelines.

**Current status/outcomes**

Physical and chemical testings have been completed with promising outcomes in certain applications, however further analysis is required to determine utility. These outcomes will be presented to the State regulators and Site Auditors for their review.

Whilst the outcomes are promising, the impacts of applying this treatment on soil biota are yet to be understood.



Photo A & B, Soil materials from Army Aviation Centre Oakey & RAAF Base Williamtown.



Photo C, D & E, Homogenised soil stockpiled - post mixing. Photo F, Typical equipment for the structural integrity procedure. Photo G, Typical leaching setup (LEAF Method 1315) which involves multiple leaching events of the undisturbed monolith sample.



**About Soil Stabilisation Trials**

Stabilisation involves mixing particular materials into affected soil to cause a chemical reaction, which will ensure the compounds are less likely to spread. The objective of the stabilisation trials was to assess the performance and relative effectiveness of various stabilisation products, compared to each other, currently available on the market in chemically immobilising PFAS in soil, under equivalent conditions.

**Approach**

Bulk soil samples from RAAF Base Williamtown and Army Aviation Centre Oakey were separately collected, analysed and homogenised. A sub-sample from each of the soil samples was collected and analysed to determine PFAS levels. The sub-samples were treated with stabilisation products using pre-determined mixture ratios based on supplier recommendations. Suppliers were invited to supervise the trials.

**Current status**

Defence commenced the stabilisation trial activities in October 2016. Based upon Defence engagement with industries, 14 companies registered to participate in the trials. Eight companies were identified to have a potential product which may be applicable to the trials. The eight companies were subsequently invited to the next phase and participated in the trials conducted on November and December 2016. In addition to the above, Defence also tested one off-the-shelf product in the soil stabilisation trial. Defence is expected to receive the results in late December 2016.



Photo H & I, Soil preparation for Stabilisation trial.



Photo J & K, Left soil is treated with one of supplier's agent and right soil is untreated soil.





### Keeping the Community Informed

The identification of suitable management and remedial options are a priority, and Defence continues to work with domestic and international partners on this matter. Defence is committed to keeping the community informed about the work being undertaken regarding remediation.

As new information becomes available, Defence will update the website, produce fact sheets and hold community information sessions with local communities as required.

### Further Information

For further information contact the national PFAS Investigation and Management team on:

**Phone:** 1800 365 414 (free call during business hours)

**Web:** <http://www.defence.gov.au/ID/PFOSPFOA>

**Email:** [PFASDefenceCoordination@golder.com.au](mailto:PFASDefenceCoordination@golder.com.au)

Contact details for site-specific project teams can be found on the National PFAS website listed above.

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

