

Immobilisation of PFAS Soil from Air Force Base in Australia

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In 2019, construction works at a former fire training ground at the Royal Australian Airforce Base in Townsville, Australia generated 1,500 tonnes of PFAS contaminated soil.

Due to space restrictions at the base, the soil was transported to the Springmount Landfill near Cairns for offsite disposal.

Because the PFAS levels leaching from the soil exceeded the landfill disposal guidelines, the soil was firstly immobilised with RemBind®, a powdered product that permanently binds up PFAS to prevent leaching.

Because the landfill sits among natural creeks and wildlife, a special treatment area was prepared with a high level of environmental controls including a compacted clay liner and a clay bund to prevent leachate runoff. A water truck was used to control dust in the hot, windy conditions.



Soil Treatment Site

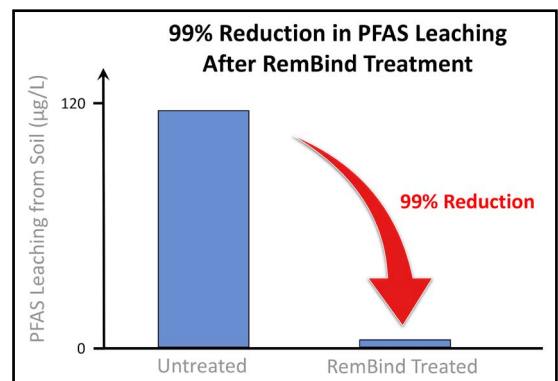
SoilCyclers, a preferred mixing contractor for the RemBind product in Australia, was engaged to prepare the soil and thoroughly mix the RemBind using mobile trommel screens.

The first part of the process involved mixing the RemBind product with the contaminated soil using an excavator at an addition rate of 2%. Water sprays were used to suppress dust.



Soil Treatment Using a Mobile Trommel Screen

The pre-mixed soil was then fed into a mobile trommel screen for thorough mixing and removal of oversized material. The oversized material contained plastic waste and rocks. The rocks were washed and reused on site and the plastic was sorted and recycled.



Water was added to the treated soil to start the fixation process. After a fixation period of 24 hours, validation samples were collected and sent to an accredited laboratory for analysis.

Results showed that the PFAS leachability was reduced by more than 99% to and met the stringent landfill disposal criteria. The treated soil was then safely disposed to landfill with full signoff from local authorities.

Immobilisation proved to be the most economical treatment solution and had the lowest carbon footprint compared to other treatment options such as soil washing or thermal destruction.

This ground-breaking project demonstrates yet again the way for the safe, sustainable and economical management of PFAS contaminated soil.