

CASE STUDY:

RemScan Spill Response for Transformer Oil Spill



In a South Australian metropolitan location, a power transformer was vandalized, leading to a suspected leakage of transformer oil into the surrounding soil. This event necessitated removal of the transformer and inspection of the surrounding soil for contamination. This was a perfect opportunity for a real world trial of RemScan's Spill Response Mode, a novel technology designed to expedite the assessment of soil contamination.

The remediation process began with the extraction of the remaining transformer oil and the removal of the transformer and its concrete base. A key task was to determine the extent of soil contamination, which potentially extended down to the water table.

RemScan's Spill Response Mode was utilized for this task. This technology facilitated the on-site evaluation of Total Petroleum Hydrocarbon (TPH) concentrations in the soil, yielding results within hours, a significant improvement over the multi-day period typically required for laboratory testing.

Soil samples were collected from around the transformer and at one-meter depth intervals until groundwater was reached. Each sample was divided into two portions: one for immediate on-site analysis using RemScan, and the other for laboratory Gas Chromatography (GC-FID) analysis. Due to recent rain RemScan's Portable Drying Unit was used to dry the samples in under 20 minutes.

While the TPH concentrations measured by RemScan and the laboratory varied, both sets of measurements suggested the same remediation actions. In cases where RemScan indicated high contamination, the laboratory results confirmed this assessment, and when RemScan measurements were low, the laboratory results agreed. Notably, RemScan Spill Response produced no false positives or negatives when readings were near the regulatory threshold of 1,000 mg/kg, which distinguishes "clean" from "contaminated" soil.

The trial served to assess the efficacy and utility of the RemScan Spill Response Mode in a real-world setting. The technology confirmed the remediation team's initial evaluation of excavation needs, helped determine the extent of contamination, and ensured the complete removal of contaminated soil. Its swift results allowed the project to be completed within a single day, circumventing potential delays and remobilization costs.

Overall, the project provided an opportunity to trial RemScan's Spill Response Mode. The trial demonstrated the technology's potential for delivering on-site, real-time soil analysis, a capability that could enhance the efficiency and timeliness of future environmental remediation projects.

Sample	GC-FID TPH (mg/kg)	RemScan TPH (mg/kg)
Baseline	0	0
Test 1	45,000	26,200
Test 2	6,500	2,600
Test 3	130	180
Test 4	14,000	4,800
Test 5	12,000	10,000
Test 6	4,200	6,600
Test 7	7,200	6,200