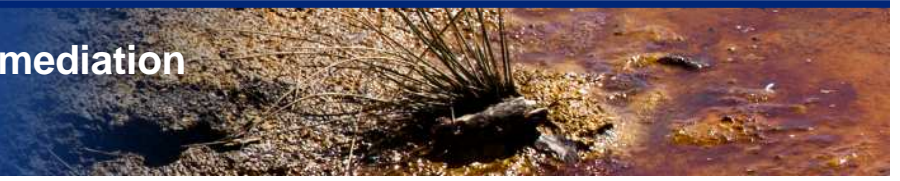


## Acidic Landfill Leachate Remediation

### Land Remediation Case Study



Oceans-ESU Ltd were commissioned to identify solutions for large consistent volumes of landfill leachate emanating from a restored landfill site. The landfill had been used for many years, for the disposal of domestic and vehicle batteries and it was believed other wastes were also tipped. This leachate posed a threat to local surface and groundwaters.

Domestic landfill leachates can display a variety of chemical contaminants, including ammonia, heavy metals and elevated concentrations of dissolved organic materials. The leachate also displayed an unusually acidic pH, and contained significant quantities of dissolved cadmium and zinc.

Due to the 'mixed' nature of the leachate, 'conventional' treatments were not appropriate. The site was geographically isolated, requiring minimal capital investment and low ongoing maintenance. Any treated leachate was to be suitable for discharge to local surface water courses.

Four 'phases' of remedial works were required, including pH neutralisation; initial oxidation and settlement of fine particles; metal entrapment (predominantly for the removal of cadmium and zinc); and a final treatment of the residual metal, organic, and ammonia contamination.



The first phase involved a tanked lime-slurry dosing system, neutralising the pH to between 6 and 8. The leachate then passed to a shallow oxidation and settlement pond, and then onto two parallel metal entrapment reed beds.

Leachates then passed onto two further parallel reed beds, removing the dissolved organic matter and ammonia, thus allowing discharge into adjacent surface waters.

The system has consistently met appropriate discharge consents and EQS, directed by the Environment Agency. It has also shown over a 90% concentration reduction of cadmium, zinc, ammonia and dissolved organic matter and is still in operation.