Project Profile

Bioremediation of TPH Contaminated Soil – Allubucket Attachment

Client	Southern Waste ResourceCo
Location	Southern Waste ResourceCo, Treatment Facility, South Australia
Duration	February 2014
Contract	Bioremediation treatment of TPH contaminated soil
Cost	Confidential

Project Overview

Bioremediation treatment of TPH contaminated soil.

Soil heavily contaminated with petroleum products was transported to the Southern Waste ResourceCo (SWR), Hazardous Waste Treatment Facility, for treatment to meet the required disposal criteria. Contamination concentrations of total petroleum hydrocarbons (TPH) averaged around 55,000 mg/kg, with maximum concentrations being as high as 90,000 mg/kg.

The bioremediation treatment system used was an enhanced bioremediation process utilising novel liquid nutrient additives, and a unique mixing and aeration system. This was undertaken due to the contaminated soil not having the nutrients required to enable the microbial consortia present to undertake metabolism of the TPH in an efficient manner, as well as the high concentration of TPH forming 'balls' which can affect the physical interaction of nutrients, water, air, microbes and the TPH contamination within the soil.

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Due to the relatively small volume of contaminated soil, being in the order of hundreds of tonnes, an excavator with an Allubucket attachment was used to both aerate the soil, and break up clumps of high TPH contaminated clumps. This approach was very effective as well as being efficient. As the soil was being discharged from the Allubucket, the liquid nutrient was added, ensuring a homogenous distribution of nutrients throughout the soil profile.

The treated soil was then placed into a windrow and turned to allow effective gas exchange. Concentrations of TPH were monitored over time, as well as process parameters such as pH and moisture. Analytical results showed that concentrations decreased rapidly, and the treatment project overall was a success.

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