

Clean-up and Restoration after Major Release of Petroleum at an Oil Distribution Depot

During delivery of refined petroleum products (petrol/gasoline) to an oil distribution depot in Southern Europe, the discharge valves on a rail tanker containing 55,000 litres of unleaded petrol were opened before the discharge pipe unions had been checked. The result was that the contents of rail tanker were discharged into the track ballast. The site was sealed with clay beneath the ballast, so petrol was temporarily contained on the site and the ambient temperature was low due to the season.

As a matter of urgency, the oil company needed to recover the petrol before it evaporated or started to migrate into the groundwater and off site (apartment blocks, offices and other factories were sited close to the depot).

Global Advantech's solution was to combine a custom-designed pump-and-treat bioremediation system with the existing oil-water separators used for treating groundwater on the site.

A number of wells were dug into the track ballast down the surface of the clay bed and air-driven (explosion-proof) pumps installed to recover the petrol and groundwater. Pipework was installed to feed the outputs from these pumps into the existing oil-water separators. The outlets from the separators were fed to two 50m³ tanks connected in series, with air-sparge pipes fitted along their bottoms, to function as air-stirred bioreactors. A dosing system was set up to deliver Global Advantech's Natural Bioremediation Agent BR912 into the first tank at a controlled rate. The water from the outlet



of the second tank was pumped to a perforated pipe system arranged to irrigate the track ballast with the treated groundwater.

The two tanks were filled with water and the pumps and dosing system were turned on. Within a few days, 80% of the lost petrol had been recovered from the oil-water separators. The pump-and-treat bioremediation was continued for eight weeks to completely remediate the track ballast, which had become impregnated with oils over the years of operation of the depot.

Global Advantech's bioremediation and effluent treatment products contain natural molecules, which are proven to catalyse certain cell defence mechanisms and accelerate specific metabolic functions within micro-organisms. Their addition enables indigenous micro-organisms to utilise the hydrocarbons and otherwise toxic organic molecules as food sources, rapidly degrading them to carbon dioxide, and simple salts.

Global Advantech Limited

Exceptional clean technologies for a sustainable future.....

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