Terramend® Reagent Achieves Remedial Goal After 120 Days

Bioremediation of Soil Contaminated by Aged Diesel Fuel

Site Overview

Site: Industrial Site, Northern California, Confidential Client

Approximately 10,500 yd^3 of contaminated soil was excavated from a location of a former underground storage tank at a transportation hub. The soil was impacted by diesel petroleum hydrocarbon (TPH-d) levels ranging from 500 mg/kg to 3,000 mg/kg. After a remedial options review, the site owner selected on-site bioremediation of the impacted soils using Terramend® Reagent.

Solution

A soil remediation cell was created by spreading the excavated TPH-impacted soil in a 2ft. thick layer. Terramend® was applied at a rate of 1.0% to soil mass using the amendment delivered in 2,000 lb. super sacs. The amendment was distributed over the surface from a bag using an excavator (Figure 1). Following the Terramend® application, soil in the remedial cell was tilled in a crisscross pattern using a heavy-duty tiller to mix in the amendment thoroughly into the targeted 2-ft soil layer (Figure 1).

After Terramend® incorporation, the remediation cell was irrigated to increase the soil water content to about 60% of water holding capacity (WHC) which is the desired level for creation of optimal conditions for aerobic bioremediation of TPH compounds in soil, based on previous Terramend® applications. The soil was then tilled twice a week over the remedial period. Irrigation was used as needed to maintain the desired water content.

Fig. 1: Terramend® application and soil tillage at the onset of the project.

Results

TPH-d concentration was monitored biweekly using samples collected in 10 sections within the remediation cell. Temporal trends in average TPH-d concentrations in two sections exhibiting the highest initial THC-d impacts are presented in Figure 2. The remedial target of 400 mg/kg was achieved in all sampled sections after 120 days of remedial activity.

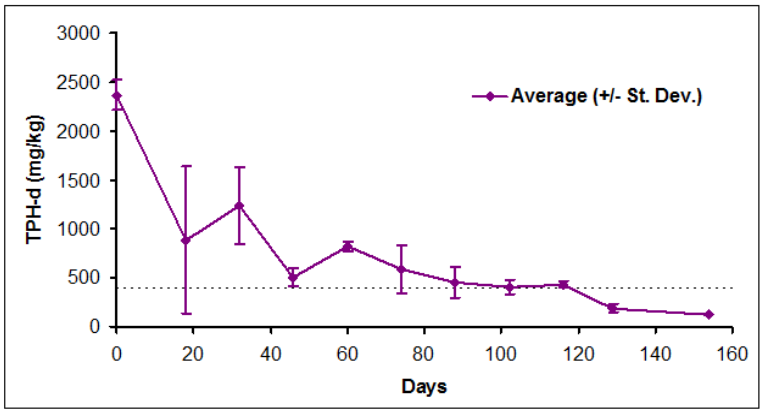

Fig. 2: Temporal trends in soil TPH-d concentrations in the Terramend® treatment cell (averages from two most impacted sections are presented).

The Terramend® Reagent remedial method provided a significant cost advantage as well as a lower carbon footprint, compared to off-site disposal or treatment.