PlumeStop® and ORC® Advanced Treat BTEX to Non-Detect in 1 Month

Project Highlights

- Benzene (BTEX) and TPH-d (diesel) were reduced to non-detect within one month with no rebound
- Pre-project verification testing provided hydrogeological data to optimize the successful application of PlumeStop and ORC Advanced
- Active site did not impede remediation efforts

Project Summary

An active gas station in the Pacific Northwest was impacted with BTEX concentrations from a petroleum release. Following remediation of the source, residual BTEX concentrations persisted in a down gradient well. A new combined remedies *in situ* program using PlumeStop and ORC Advanced was designed. Following the verification testing, REGENESIS co-applied PlumeStop and ORC Advanced into the residual BTEX plume. After one month, sampling was conducted showing contaminants had been dramatically reduced to non-detect levels.

Site Details

Site Type: Active Service Station

Contaminate of Concern: Benzene and TPH-d

Concentration: Benzene at 19 ug/L and TPH-d at 500 ug/L

Remediation Approach: Sorption and Aerobic Biodegradation

Soil Type: Clay and Silt

Treatment Area: 760 square feet

Technology Used:

PLUME STOP Liquid Activated Carbon

OXYGEN RELEASE COMPOUND ORC

Remediation Approach

REGENESIS worked closely with the project consultant to complete a multi-step verification process prior to remediation. This procedure included a clear water injection to test aquifer properties and soil borings for detailed characterization of the proposed treatment area. This was followed by a pilot injection of PlumeStop to test distribution. The verification testing found that despite soils at the site being classified as clays and silts, there was a sufficient amount of sand present to allow for good distribution. Injection pressures remained below 5 psi for PlumeStop and below 10 psi for ORC Advanced. Distribution of greater than 12 feet was also observed. The verification process was an integral part of the project, helping to more accurately characterize true hydrogeologic conditions. Technical Engineers were able to take the information obtained from the verification process and optimize the PlumeStop and ORC Advanced design. The co-application of the two technologies quickly sorbed dissolved-phase contaminants and promoted aerobic biodegradation.

REGENESIS Solution Applied

PlumeStop Liquid Activated Carbon™ is composed of very fine particles of activated carbon (1-2µm) suspended in water through the use of unique organic polymer dispersion chemistry. Once in the subsurface, the material behaves as a colloidal biomatrix binding to the aquifer matrix, rapidly removing contaminants from groundwater, and expediting permanent contaminant biodegradation. ORC Advanced is a proprietary formulation of food-grade, calcium oxy-hydroxide that produces a controlled-release of molecular oxygen for periods of up to 12 months upon hydration.

Results

Residual BTEX and TPH-d concentrations lingering for years are common for gas station sites and often are the only obstacle to closure. The combined remedies application of PlumeStop and ORC Advanced demonstrates a unique ability to attain non-detect levels in a short time frame with substantial cost savings over other approaches, including natural attenuation.

REGENESIS

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