REGENESIS

PROJECT PROFILE

Combined Technologies Treat High TBA Levels

Site Closure Pending at Active California Retail Petroleum Service Station

Project Highlights

- A range of various remediation approaches were applied at the site over a span of 20 years.
- Enhanced Aerobic Biodegradation (EAB) remediation approach replaces soil excavation plan at site.
- Site closure pending.

Table 1. Monitoring Well 1 Results

MW 1	Pre-Injection	Post-Injection
TPH-g	2000 ug/L	<50 ug/L
Ethylbenzene	300 ug/L	<1 ug/L
Xylene	370 ug/L	<1 ug/L
TBA	560 ug/L	16 ug/L

Project Summary

An active service station in Southern California was contaminated with high levels of TBA and TPH-g. Various active remediation approaches took place on-site for nearly 20 years including excavation of the underground storage tanks and dispensers, soil vapor extraction and groundwater pump and treat.

Although the active remediation reduced concentrations at the source, contamination levels remained high. Regenesis became involved with the site in 2011 and after two applications of enhanced aerobic biodegradation using ORC® Advanced and RegenOx®, site closure is pending.

Site Type: Service Station

Contaminant of Concern: TBA, TPH-g

Concentration: 10,000 ug/L

Remediation Approach: Enhanced Anaerobic Biodegradation, In Situ Chemical Oxidation

Soil Type: Silt

Technology Used: ORC Advanced, RegenOx

Remediation Approach

In 1995, the underground storage tanks and dispensers were excavated and 257 tons of contaminated soil was removed. From 2003 to 2009, dissolved oxygen injection was applied into seven injection wells and in 2009, over 6,000 gallons of water was extracted from one well. In November 2011, Regenesis became involved in the project and proposed a combined remedies approach.

The remedy implemented at the site from November 2011 through November 2012 included introduction of a controlled-release molecular oxygen into the subsurface water to promote bio-degradation of the fuel hydrocarbons. The implementation of the remedy was completed in two phases with the initial injection activities being completed in November 2011. A second injection event was completed at the site in November 2012. Approximately a total of 6,000 pounds of ORC Advanced and 480 pounds of RegeneOx were applied on-site.

Contaminant concentrations were analyzed in the most recent monitoring events and compared to pre-injection concentrations. Results for performance monitoring well MW 1 were the most significant as all contaminant concentrations decreased to below regulatory limits (Table 1).

Closure has been requested and is currently pending.

Technology Description

Advanced Formula Oxygen Release Compound (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.

RegenOx is an advanced chemical oxidation technology that destroys contaminants through powerful, yet controlled chemical reactions and not through biological means. This product maximizes in situ performance while using a solid alkaline oxidant that employs a sodium percarbonate complex with a multi-part catalytic formula.