

RegenesiS Remediation Services™ – LNAPL Recovery at an Active Gas Station

Combined Treatment Remedies Reduce Contamination Concentrations at Michigan Service Station

*Hudsonville, Michigan*

RegenesiS Remediation Services (RRS) was contracted to remediate a residual LNAPL and dissolved-phase petroleum plume from historic gasoline and diesel fuel releases at an active service station. RegenOx PetroCleanze™ (PetroCleanze) was chosen as the primary remediation technology to facilitate the recovery of residual LNAPL and chemically oxidize contaminants without negatively impacting sensitive infrastructure. The design called for three (3) application events using PetroCleanze, with Oxygen Release Compound (ORC®) Advanced applied during the final application event in a down-gradient plume cut-off barrier, to promote the enhanced aerobic biodegradation of dissolved-phase petroleum hydrocarbons. Eight (8) injection/extraction wells and 28 direct-push technology (DPT) injection points were used to apply the remediation reagents in the silty-sand aquifer and smear zone. Vacuum extraction was conducted between PetroCleanze applications to recover residual free-phase petroleum hydrocarbons liberated from the soils. Reagent distribution monitoring confirmed PetroCleanze was present throughout the targeted source area during each application event.

Prior to the first PetroCleanze application event, no measurable free product was observed at this site since 2006. Less than twenty-four hours after the first PetroCleanze application event, LNAPL up to three inches thick was observed in four of the eight wells. After completing the third application and extraction event, LNAPL was not observed in any wells on site, and BTEX concentrations in groundwater were showing reductions for the first time since the fuel releases first occurred. A total of 2,160 pounds of RegenOx PetroCleanze and 1,120 lbs. of ORC Advanced were injected.

Remediation Details:**Site Type:** Service Station**Remediation Approaches:** LNAPL Recovery, In Situ Chemical Oxidation, Enhanced Aerobic Biodegradation, Vacuum Extraction**Technologies:** RegenOx PetroCleanze, ORC® Advanced**Geology:** Sand, Silt**Medium:** Groundwater, Saturated Soil**COCs:** Petroleum Hydrocarbons, Petroleum LNAPL**Surficial Treatment:** 4,300 ft²**Treatment Interval:** 4-10 ft. bgs**Cubic Yards Treated:** 910**Cost Per Cubic Yard:** \$40.50 applied**About RRS:**

RegenesiS Remediation Services (RRS) is a dedicated team of scientists and engineers whose primary function is to provide environmental engineering and consulting firms with specialized groundwater and soil remediation planning, design, verification and application services.

This uniquely qualified group of remediation professionals combine excellence in field activity management and RegenesiS' class-leading technologies to bring sites to closure. RRS draws from REGENESIS' 19+ years of experience working with hundreds of leading environmental engineering firms on thousands of remediation projects around the world.