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PROJECT DETAILS

Location:

Southern United States

Project Type:

In-Situ Bioremediation

PROJECT SUMMARY

A combined remediation technique involving in-situ chemical reduction and enhanced bioremediation was implemented at a contaminated site to treat soil and groundwater. The site contaminants of concern (COC) comprise a mixture of brominated and chlorinated organic compounds. The uppermost water-bearing sediment at the site is dominated by quaternary deposits consisting of silty sand, silty clay, and sandy clay. This water bearing zone sits on top of a mountain formation that prevents the downward migration of surface water and shallow groundwater into the regional aquifer. The shallow groundwater is present at approximately 5 to 12 feet below ground surface (bgs).

REMEDIATION PLAN

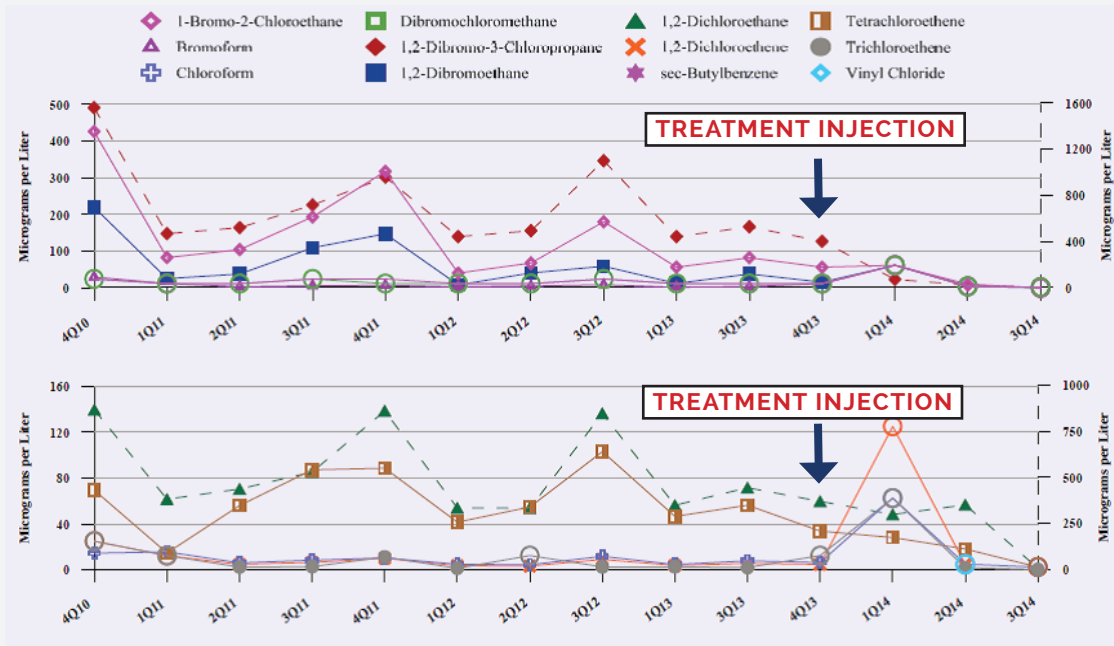
In December 2013, three permeable reactive barriers (PRBs) were constructed along the property boundary to accelerate the abiotic and microbial degradation processes naturally occurring as impacted groundwater attenuates across the site. Zero Valent Iron (ZVI) particles, a combination of hydrogen donors, and microbial nutrients were injected at depths ranging from 5 to 15 bgs. Injection of these remediation products was accomplished using direct push drilling techniques. A network of groundwater monitoring wells and piezometers are being utilized to assess the cleanup program.



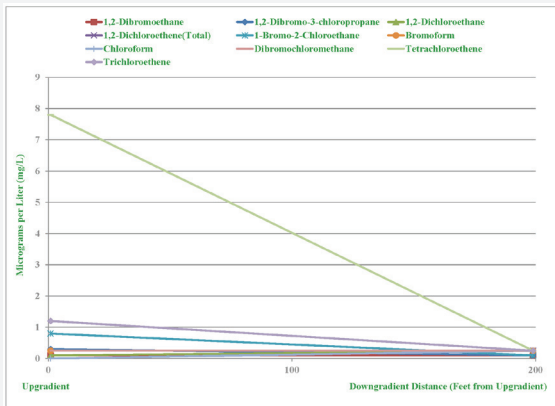
THE RESULTS

Approximately 8 months after project implementation, results show up to 80% reduction in Site COC comprising a complex mixture of halogenated organic compounds. The groundwater monitoring data trend indicates an overall decrease in contaminant mass across the entire site and improved biogeochemical parameters necessary for optimum reductive dehalogenation of the Site COC.

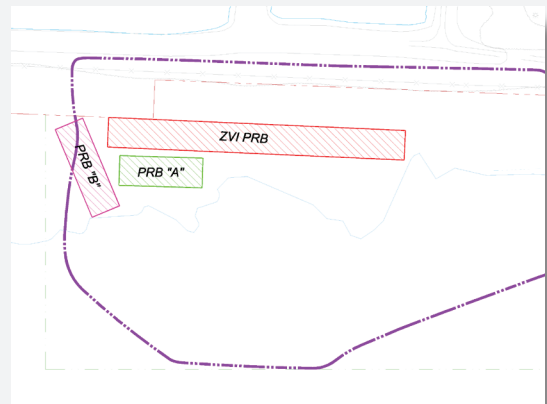
COC CONCENTRATION TREND



POST INJECTION ANALYSIS



PERMEABLE REACTIVE BARRIERS



SS_001