

PersulfOx® ISCO Remediation Reduces BTEX F1 & F2 Concentrations at Alberta Municipal Affairs Site

ISCO Solution Results in Cost Savings and Treatment Area Reduction at Former Service Station

Project Highlights

- *In Situ* Chemical Oxidation (ISCO) used as a cost-effective alternative to excavation remediation methods
- *In Situ* treatment using direct push resulted in reduction in treatment area
- ISCO solution met time and budget goals

Project Summary

BTEX contaminated soil was found at an Alberta Municipal Affairs (AMA) site. The former service station located in Central Alberta, Canada had left a petroleum leak creating a smear zone with F1 and F2 concentrations at the source of the plume. Since the AMA site had limited funding and time constraints, a persulfate-based ISCO solution using PersulfOx was recommended to significantly reduce high petroleum concentrations in the soil and groundwater. This site marked the first time the engineering firm working with REGENESIS had employed an ISCO solution, having used excavation remediation methods as their recommended approach in the past. An expedited remediation plan was created and included multiple rounds of PersulfOx injections to treat the site.

Remediation Approach

PersulfOx was applied in seven existing monitoring wells. Working with the engineering firm, using direct-push injection of PersulfOx, REGENESIS strategically focused the application around two of the existing monitoring wells. Due to the saturated soil type and an increased risk for surfacing, precise application-volume monitoring was required. After the first round of two applications was completed, overall contaminant concentrations decreased.

REGENESIS Solution Applied

PersulfOx is a sodium persulfate-based chemical oxidation technology which destroys both hydrocarbon and chlorinated solvent-type contaminants in the subsurface. PersulfOx contains a built-in catalyst which activates the persulfate component and generates contaminant-destroying free radicals without the need for the addition of a separate activator.

Results

The REGENESIS ISCO plan incorporating direct-push injections of PersulfOx significantly reduced the level of BTEX contaminant concentrations following the first round of application. The PersulfOx solution effectively addressed the plume in the saturated smear zone, while meeting the goals of the project, as well as the client's time and budget constraints.



Site Details

Site Type: Former Service Station

Contaminant of Concern: BTEX, F1 and F2 Range Hydrocarbons

Concentration:

BTEX – 1-4.6 mg/L; .2-57.9 mg/kg
F1 – 4.2 mg/L; 804 mg/kg
F2 – 2 mg/L; 485 mg/kg

Remediation Approach: *In Situ* Chemical Oxidation (ISCO)

Soil Type: Clay, Sand

Technology Used: PERSULF 



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