

Combined Remedies Treat BTEX Contamination on Government Property

Ontario, Canada Site Remediated with ORC® Advanced and RegenOx®

Project Highlights

- In Situ Chemical Oxidation (ISCO) and Enhanced Biodegradation used post-excavation to treat residual contamination.
- Extensive site mapping conducted with membrane interface probe (MIP) to detect distinct zones of higher mass contamination.
- 95% reductions seen in dissolved phase petroleum hydrocarbon contamination.



RegenOx and ORC Advanced were applied on-site to treat high TPH concentrations.

Project Summary

A large public works property in Ontario, Canada was contaminated with TPH. Approximately 5,000 gallons of fuel was released into the subsurface primarily due to fuel theft that had taken place on-site. Due to significant volumes of free-product, an excavation occurred followed by skimming activities from 2005-2010. Through extensive site evaluation, it was determined that there was a need for further mass reduction using ISCO. RegenOx® ISCO was selected for use in the heavily and moderately impacted areas. Enhanced aerobic biodegradation using ORC® Advanced was selected for use in the dissolved-phase areas downgradient from the source. Overall, 96% reductions were seen in dissolved phase petroleum hydrocarbon concentrations.

Site Type: Government Yard

Contaminant of Concern:
BTEX

Remediation Approach:
Enhanced Aerobic
Biodegradation, In Situ
Chemical Oxidation

Technology Used: ORC
Advanced, RegenOx

Remediation Approach

Membrane interface probe (MIP) data was collected and proved to be integral for the remediation design and implementation. Distinct zones with high mass were present on-site and detected through the probe. RegenOx and ORC Advanced were applied via direct-push injections. Approximately 150,000 pounds of RegenOx and 45,000 pounds of ORC Advanced were applied over several injections. Higher concentrations of RegenOx were applied into the vertical zones of higher contamination to improve overall product performance.

Technology Description

Advanced Formula Oxygen Release Compound 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.