INSITU

CASE STUDY

PERMEABLE REACTIVE ZONE TO TREAT CVOCs USING ZERO VALENT IRON (ZVI)

BACKGROUND

CLIENT: LANDOWNER
DURATION: 1 MONTH
LOCATION: TORONTO, ONTARIO

In Toronto, Ontario groundwater at a commercial facility was impacted with chlorinated volatile organic compounds (CVOCs) including TCE and its daughter products cis 1,2-DCE and vinyl chloride. IRSL worked with the consultant to develop an injection program that addressed the impacts and provided contingencies in the event that assumptions were inaccurate. Prior to implementing the full-scale program IRSL conducted a design verification program.

APPROACH

The impacts on the Site were addressed using the chemical reductant zero valent iron (ZVI). The ZVI was injected into the impacted zones using direct push technology (DPT) at multiple locations and over multiple vertical intervals to create a reactive permeable zone (PRZ).

For more information, contact:

InSitu Remediation Services Limited
St. George, Ontario, Canada

T: 289.208.8832
E: info@irsl.ca

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GEOLOGY: Fill and Glacial Till

PBZ Width: 120m

Construction:

The program involved the injection of 45,900 kg of ZVI over a 120 metre width. Direct push technology was used to advance 209 injection locations over a six-week period.

Reagents Used:

- Cleanit SI 100 ZVI

Challenges

- The high volume of solution being injected caused pure volume displacement issues
- The facility was active and required a small injection footprint to minimize impacts to clients
- Budget and time constraints
- Heterogeneity of injection area

Results

- On budget
- On time
- Greater than 99.6% reduction in target CVOCs

INSITU | INNOVATIVE TECHNOLOGIES GROUNDED IN EXPERIENCE

InSitu Remediation Services Ltd. (IRSL) is one of Canada's most experienced remediation companies. Our team has designed, implemented, and optimized, soil and groundwater remediation programs in diverse geological environments in North, Central, and South America, Asia, Europe, and the Middle East.

We confidently implement innovative solutions, based on sound knowledge, using seasoned field staff. Our pragmatic, flexible approach reduces effort, cost to our clients, and environmental risk.

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