

Chlorinated Solvents Treated Using “Trickle-Down” Method

Creative Remedial Approach in Cramped Conditions



Location: Former Dry Cleaner Site in Southwestern Ontario
Contaminant: Chlorinated Solvents, mainly Tetrachloroethylene (PCE)
Concentration: Up to 480 ug/L PCE in groundwater and greater than 10 ug/g PCE in soil
Soil Type: Silty Clay Till

Situation:

Historic releases caused significant migration of PCE into soil and groundwater. Major challenge encountered: impacts greater than 6 mbgs in silty clay till beneath occupied building. Facility had to be kept operational during remediation, including indoor excavation, injection well install and oxidant injections.

Timeline / Activity	Date	PCE in Groundwater (ug/L)	
		BH/MW5	BH/MW6
Remedial Standard		17	17
Pre-Remediation Max	Mar, 2012	480	480
Post-Excavation & Seeding	Jan, 2013	150	24
Post-Injections	Oct, 2015	3.2	9.0
% Reduction		99.3%	98.1%

Vertex Solution:

- Acquired all relevant permits to complete the in-situ remediation program.
- Successfully completed indoor excavation to remove all impacted soils to 3 mbgs with no disruption to neighbouring units.
- To access deeper contamination, innovative infiltration boreholes were drilled and backfilled to 6 mbgs with custom blend of sand and oxidant.
- “Seeded” base of excavation at 3 mbgs with additional oxidant and installed horizontal injection well system.
- After backfilling, injected oxidant solution into horizontal wells and allowed it to “trickle-down” into the boreholes to migrate laterally into fractured silty clay till.

Results:

- Greater than 98% reductions to groundwater and soil impacts with no breakdown products generated.



**Below the surface
Beyond the science**

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