



OVERVIEW

Groundwater impacted with chlorinated ethenes were flowing from this dry cleaning facility at concentrations greater than the applicable Standards. The concentrations of the compounds of concern were:

- PCE (maximum concentration of 223 µg/L), and
- TCE (maximum concentration of 0.9 µg/L)

Vertex was requested to implement a cost-effective program to mitigate the impacts flowing from the Site that was passive and required little to no maintenance and operation.

SCOPE OF WORK

- Acquired all relevant permits to complete the remediation program
- Designed and optimized an *in-situ* program to maximize treatment efficiencies
- Conducted a pilot-scale program to determine injection pressures needed to create an adequate area of influence in the clayey overburden
- Implemented a full-scale program using direct push techniques and high pressure injection

THE VERTEX APPROACH

- In-Situ Chemical Oxidation
- Multiply applications
 - Source reduction
 - Plume elimination
- Injection of chemical oxidant
 - 440 kg of permanganate
- Injections completed using:
 - Vertical wells
 - High pressure (> 150 psi)



OUTCOME

- Over 30,000 L of oxidant solution delivered
- Operations not interrupted
- Remediation objectives meant:
 - PCE (>75% decrease after 2 injections)
 - TCE (>80% decrease after 2 injections)
 - cis-1,2-DCE (76% decrease after 2 injections)