



OVERVIEW

As part of a real estate transaction, our client was committed to treat a chlorinated ethene plume to below the applicable Standards. The ethenes of concern included:

- TCE (concentrations of ~100 µg/L)
- cis-1,2-DCE (concentrations of ~150 µg/L)
- Vinyl chloride (concentrations of ~10 µg/L)

SCOPE OF WORK

- Acquired all relevant permits to complete the remediation program.
- Designed pilot scale program to determine injection parameters.
- Designed and optimized an *in-situ* program to maximize treatment efficiencies.
- Implemented a program that minimized capital expenditures and infrastructure.
- Monitored pre- and post-injection treatment parameters.



THE VERTEX APPROACH

- Program to address plume with dimensions of ~150 m by 50 m
- Chemical oxidation using permanganate
- Three injections under low pressure
 - greater than 3,900 kg of KMnO_4
- Injections completed using:
 - Direct placement
 - Pressure injection into vertical wells
 - 54 injection wells and 58 temporary points

OUTCOME

- Remediation completed within 6 months
- Remediation objectives meant:
 - TCE below 50 µg/L
 - cis-1,2-DCE below 70 µg/L
 - Vinyl chloride below 0.5 µg/L
- Record of Site Condition Obtained

