VERTEX Environmental Inc.

CASE STUDY
PHCs

Overview

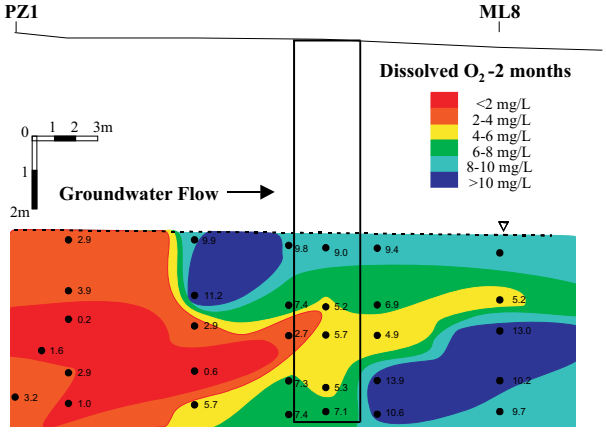
Near a residential area in Quebec, an accidental release of petroleum hydrocarbons from a spill into the underlying groundwater and soil posed a risk to nearby water supply wells. Groundwater concentrations for selected PHCs included:

- Benzene (maximum concentration of 146 µg/L)
- Toluene (maximum concentration of 436 µg/L)
- Xylene (maximum concentration of >4,000 µg/L)

Scope of Work

Vertex staff:

- Acquired all relevant permits to complete the remediation program
- Designed and optimized an in-*situ* program to maximize treatment efficiencies
- Implemented a program that minimized capital expenditures and infrastructure



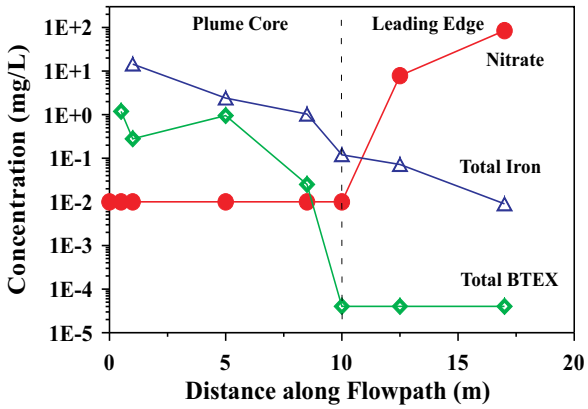
The Vertex Approach

- Chemical oxidation
- Unconfined sand formation
- Multiple applications
  - grassland, near residents
- Injection of chemical oxidant
  - Activated Persulphate
  - Hydrogen peroxide activator
- Injections completed using:
  - Vertical wells

Outcome

- Over 30,000 L of oxidant solution delivered to impacted areas
- Minimal disruption to nearby residents
- Nearby structures not affected
- Persulphate solution effectively distributed thoroughout impacts areas
- Remediation objectives met for:
  - BTEX
  - F1 & F2
  - F3 & F4
- Record of Site Condition Obtained

Electron Donors



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