

Groundwater Remediation

Re-Circulation Treatment Cell

Re-Circulation Iron Treatment Cell

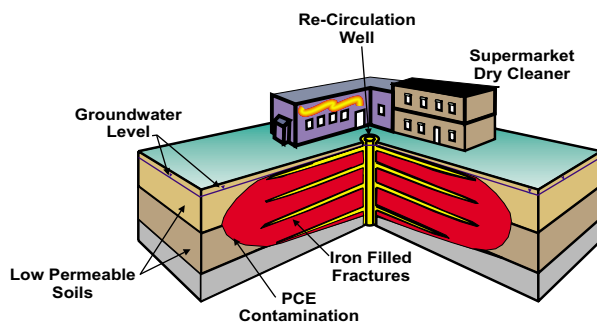
Tight low permeable soils are not amenable to conventional *in situ* remediation due to their low permeability. Installing horizontal permeable fractures in the soil by hydraulic fracturing greatly enhances the soil mass permeability and access to the contaminants. For chlorinated solvent contamination, GeoSierra has pioneered the use of installing iron filings into the subsurface to abiotic dehalogenate the contaminants to non-toxic end products.

An operating dry cleaning facility in Atlanta, GA was contaminated with Tetrachloroethene (PCE) at high concentrations in the groundwater in a low permeable weathered residuum. Horizontal fractures were installed beneath and around the building with iron filled fractures placed near the residuum bedrock contact. During installation of the fractures the building was monitored by high-precision bi-axial tilt meters and the fracture geometry was determined by the active resistivity method.

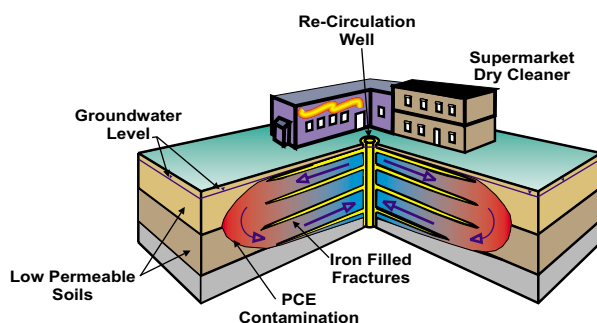


Groundwater Remediation at a TNT Manufacturing Facility using Hydraulic Fracturing

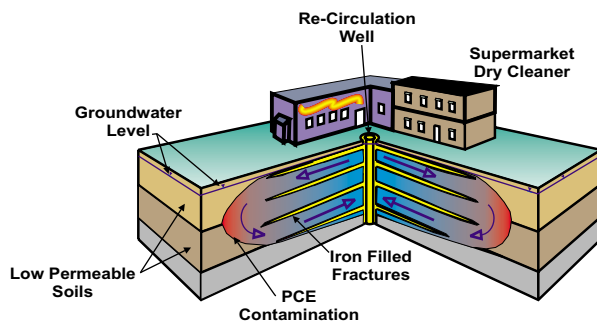
The *in situ* treatment cell consists of highly permeable iron filled horizontal fractures with a low volume re-circulation pump. The re-circulation of the groundwater through the iron filled fractures provides significant residence time to destroy even extremely high levels of PCE and daughter product contamination. Such high concentrations of contaminants can be degraded reasonably quickly within 6-12 months and areas of source contamination can be remediated within 1-2 years.



Re-Circulation Treatment Cell at 0 years



Re-Circulation Treatment Cell after 0.5 years



Re-Circulation Treatment Cell after 1 year