

PROJECT HIGHLIGHT

CLIENT: Excel Environmental Resources, Inc.

LOCATION: River Edge, NJ

TECHNOLOGY: Pneumatic Enhanced Injection

LITHOLOGY: Fractured Bedrock

CONTAMINANTS: PCE, TCE, DCE and VC

enhance fractures to maximize ROI and contact.

Approach

The Geochemical conditions supported in situ chemical reduction (ISTR) to provide short and long-term treatment of groundwater. Cascade did a two-phase injection approach.

- EHC-L injection via gallery installed within excavation areas to allow the reagents to closely follow the original path of discharge
- EHC injection via an injection point array within source areas to target the most heavily impacted water-bearing fractures.

Our team installed 19 injection points within and surrounding the two source areas. EHC was injected within a total of 206 vertical fracture intervals. An average of 1,500 lbs. of EHC was injected in each fracture interval. Combination of tilt meters, pressure influence and surface heave indicated that a 50 ft ROI was achieved.

Results

Pneumatic fracturing was very effective in achieving ROI greater than 50 ft. and insuring contact of the ECH with the contaminant mass. Rapid reduction of PCE concentrations accompanied by temporal fluctuations of degradation products TCE, DCE, and VC. Complete reduction of PCE to below 1 ug/L at several key well locations after only one injection event.

Development of the site is underway as post-injection monitoring continues to support MNA as the final remedy for groundwater.

A second round of injections was completed in 2017 – additional 10 points were completed with Pneumatic fracturing and injection of EHC/ELS (~62,000 additional lbs) in three areas. Second round of injections was successful even though application pressures were more limited as the new building was in place. No detrimental impact occurred to the new building.

Remediation of Chlorinated Ethenes in Fractured Bedrock

Site Information

Historic groundwater data indicated high concentrations of PCE and degradation products TCE, DCE and VC. Remediation of this Brownfield property needed to be completed on an expedited basis with a high probability of success due to retail redevelopment timeline. Cascade was contracted to properly characterize the site by maximizing the use of existing data and develop a site-specific Conceptual Site Model (CSM). Pneumatic fracturing was utilized to

