

PROJECT HIGHLIGHT

AGGRESSIVE INJECTION STRATEGIES HIT HARD

Remediating chlorinated solvents within fractured and weathered shale bedrock is complicated, but experienced partners can tailor the technology and approach to accomplish project goals.

LOCATION: Mid-Atlantic manufacturing facility

TECHNOLOGY: Pneumatically-Enhanced (PE) In Situ Chemical Reduction (ISCR) and Bioremediation

SERVICE: Remediation



PROJECT OVERVIEW

At a steel manufacturing facility, chlorinated solvent contamination was identified from a former lagoon source area, and the client delineated a plume that had migrated vertically and downgradient. They designed a remedy to quickly and significantly reduce the contaminant mass without the need for permanent subsurface infrastructure. To accomplish this, they brought in Cascade to perform pneumatic fracturing of the formation to increase bulk permeability, followed by injection of zero-valent iron (ZVI) slurry.

Because of the tight timeline, Cascade developed a plan to reduce the number of injection events and increase the ZVI dosage.

RESULTS

ZVI and Provect-IR solid carbon substrate were injected into 40 air rotary boreholes from 50 to 130 feet below ground surface (bgs). Four-inch steel casings allowed a pneumatic straddle-packer to isolate discrete 10-foot injection intervals along the vertical treatment zone. PE was then applied in all intervals prior to amendment injection and expanded the aperture and extent of the fracture network, allowing emplacement of the reagent and improved contact with the contaminant mass.

To expedite the project and ensure each injection was successful, Cascade enlisted two separate injection crews, each consisting of an experienced PE injection lead, injection technicians, operators, and helpers. Together, the two teams injected a total of 209,475 lbs. of ZVI and 202,250 lbs. of Provect-IR carbon substrate.

The site's shale bedrock was well suited to the technology, with an average ROI of 45 feet successfully achieved. Thanks to experienced crews and a savvy injection approach, the full volume of delivered reagent was emplaced safely and successfully, on time and on budget.



EXCELLENCE ON EVERY LEVEL™

425-527-9700 | www.cascade-env.com

Nationwide Office Locations | Headquartered in Washington