

CASE STUDY - EPA REGION III CERCLA SITE

Client - Industrial Client, Pennsylvania

Workscope: Site Investigation, Feasibility Study (AS), Treatability Study, Remedial Design, remedial program construction and operation

Regulation:

Federal Superfund (NPL) project

Project Value:

\$350,000 to complete Pre-Design Investigation

Project Team: Paul Miller P.E., Julie Turner, Chris Thoeny P.G., Thomas Murphy

Goal: Define extent and magnitude of chlorinated solvent impact; evaluate contaminant fate and transport; evaluate most cost-effective remediation solution.



Site Concerns:

Low TCE and 1,1,1-TCA concentrations in 20+ year old plume in complex, dipping fractured bedrock setting complicated source area identification.

Project Description:

Alliance was retained to evaluate the ROD for this Superfund Site and pursue efforts with EPA to change the ROD. Alliance reviewed all historical site data (20+ years of data) and presented an alternative evaluation of the site conceptual model and potential remedy. EPA agreed to reevaluate the site through a pre-design investigation.

Alliance surveyed a nearby quarry to identify bedrock structural patterns (fracture strikes and dips), excavated three test pits on-site to identify site-specific bedrock structural patterns and collected soil/groundwater samples near a former on-site waste solvent UST. Based on the quarry survey and test pit study, Alliance prepared a Work Plan (including QAPP, HASP, and SAP) for approval by EPA to delineate the horizontal and vertical extent of solvent impact, to refine bedrock structure for fate and transport modeling, and to evaluate source-area remedial alternatives. The Work Plan consisted of the installation of nine monitoring wells to approximately 300 feet bgs using rock-coring technology, downhole geophysical testing, packer testing, well construction, groundwater sampling and analysis, and bench and field treatability studies.

Project Completion:

Rock cores were screened using hydrophobic dyes and UV to detect presence or absence of DNAPL. Downhole geophysical testing was performed to identify major water-bearing zones, fracture apertures and fracture permeability, and assist in vertical delineation. Treatability studies that were completed included permanganate oxidation, anaerobic reductive dechlorination (ARD), and air-sparging/soil vapor extraction (AS/SVE). Utilizing the findings of the investigation, Alliance was successful in persuading the EPA to abandon the remedial action provided in the ROD.