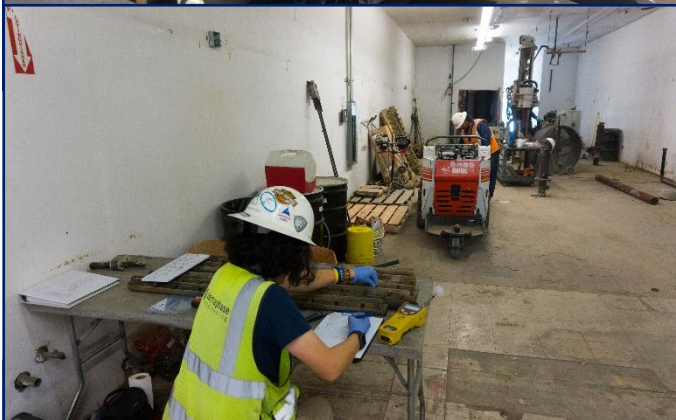


In-Situ Thermal Conductive Heating

Soil and Groundwater Remediation

Redwood City, California



*remedial design
permitting
remediation system construction
oversight
in-situ thermal remediation
remediation system operations
oversight*

Remedial technologies were evaluated for the treatment of a tetrachloroethene (PCE) release in soil and groundwater. Subsurface investigation results and a vapor-intrusion evaluation indicated that vapor intrusion was occurring into the overlying commercial property. In-situ thermal conductive heating was selected based on the low permeability formation at the site, the need to address vapor intrusion concerns, and to meet the owner's and project objectives.

Terraphase assisted in preparation of remedial design documents and negotiated approval of the design with the oversight agency. Terraphase also obtained permits from the Bay Area Air Quality Management District and San Mateo County Groundwater Protection Program. Terraphase managed the drilling contractor and remediation system vendor during installation of the system consisting of 13 heating wells, 15 soil vapor extraction (SVE) wells, five multi-phase extraction (MPE) wells, and temperature- and pressure-monitoring points. During system operation, Terraphase conducted routine operations and maintenance and permit compliance site visits.

The remediation system was designed to treat 1,100 cubic yards of PCE-impacted soil to a depth of 40 feet, underlying the commercial space. The soil is heated to the design temperature of 100 degrees Celsius. The volatilized PCE and other volatile organic compounds are captured with the SVE and MPE wells. The captured vapor and water fractions are treated using activated carbon and discharged. Upon completion of the remediation operations, Terraphase will collect post-remediation confirmation soil, groundwater, and sub-slab soil gas samples to evaluate system performance.