

CONFIDENTIAL CLIENT

Santa Monica, California

Role: Subcontractor

Lead Agency: DTSC

Contracting: Time and Materials

Services:

- Electrical Resistance Heating
- Remediation System Installation
- Remedial System Operation, Monitoring and Maintenance
- Electrode/Well Installation
- Trenching (inside and outside building)
- Piping Installation
- Permitting

Discussion:

CES Group was contracted to construct, operate, monitor and maintain an Electrical Resistive Heating (ERH) remediation system for the remediation of chlorinated hydrocarbons in clay soils under an existing large building. The remediation system consisted of electrical resistance heating Power Control Unit (PCU) with more than 400 electrodes. Hydrocarbon vapors and steam were extracted by a 1,000 scfm Soil Vapor Extraction (SVE) system with more than 425 extraction wells. Treatment of the extracted vapors was performed by a 1,000 scfm Thermal Oxidizer, Granular Activated Carbon (GAC) and a Refrigeration Condensing Unit (RCU). The site is currently the largest volume ever treated by the ERH technology in the World.

CES was contracted to assist in the installation of ERH electrodes and extraction wells as well as complete system construction including trenching, cable installation, piping, and installation of monitoring points/wells. Construction of this large system took approximately 8 months.





Following system construction CES personnel proceeded to complete startup of this complicated remediation system and subsequent operations, monitoring, and maintenance. System operations and monitoring required optimization and balance of extraction flows to maximize design performance. Monitoring included measuring vapor flow rates using a pitot tube and manometer, in addition to temperature measurements. Other monitoring required peziometer measurements for system water levels and subsurface pressure. CES laboratory technicians also analyzed vapor samples onsite using a gas chromatograph saving the client thousands of dollars in analytical costs.

CES Group was also responsible for obtaining the South Coast Air Quality Management District (SCAQMD) permit to operate as well as maintaining compliance with the permit. The vapor treatment for this project consisted of multiple thermal oxidizers as well as contaminant recycling capabilities with flow rates exceeding 1,000 scfm. Our team was also responsible for maintaining and sampling for compliance with the NPDES permit.

During remediation system operations CES maintained a 98% up time for the SVE system resulting in complete remediation of the site in an estimated one year of operation.

