

Soil Investigation, SVE Implementation and Groundwater Remediation

Electrical Component Manufacturing Facility, Oconee County, SC

Site Description

TCE has been identified in the soil and groundwater of this active manufacturing facility. Several areas – inside and outside the plant – have been identified as potential sources to groundwater contamination. Soil gas sampling and Soil Vapor Extraction (SVE) were utilized as investigative tools where access was limited or the location of contaminants was speculative. The advantage of this approach was that a large volume of soil can be evaluated with only one boring and the SVE results are used to design a full scale SVE system.



Rogers & Callcott Services and Results

Source Investigation – A Site investigation was conducted utilizing multiple methods. An important part of this investigation included employing soil gas and SVE technology as an investigative method. Direct-push technology was used due to limited access and to minimize impact to the areas of investigation. Work was performed as to not disrupt normal operations or the landscape at the facility. The soil gas data was used to define the extent of contamination in the vapor phase. The SVE tests provided air flow, vacuum, and concentration data used to evaluate the suitability of SVE as a remedy.

Remedy Implementation – The SVE data generated during the investigation phase was used to design and install the in-ground appurtenances and above grade piping for a full scale SVE system using 4-inch diameter pre-packed screens.



Considering the large size of the system and the silty soil typical of the piedmont, a rented trailer-mounted extraction system (vacuum pump and carbon) was initially used to conduct a pilot study prior to finalizing the design and purchasing of the full-scale system. The full scale system consists of 10 SVE wells, 24 monitoring points at three depths, over 1200 feet of piping and a positive displacement blower capable of producing a vacuum of 16" of mercury and a flow of 575 scfm. The SVE system has removed over 2300 lbs of TCE in 18 months of operation.

The SVE system is one component of the site remedy. Rogers & Callcott designed a hydraulic barrier system that has been successful in mitigating off-site contaminant migration into the surface water. The system consists of groundwater recovery and treatment by air-stripping. Additionally, two injection barriers for accelerated bioremediation were installed mid-plume in bedrock and saprolite.

In addition to investigation and design engineering, our role included source removal, aquifer testing, groundwater flow/fate and transport modeling, permitting for all aspects of the project, bidding for construction, contract document preparation, contract management, construction oversight, engineering certification, system performance evaluation, groundwater, surface water, sediment and indoor air sampling and analysis and reporting. The resulting system is effectively achieving its remedial goals through the use of state of the art data recording and communication technologies to function in sync with changing aquifer conditions as they are significantly affected by precipitation and surface water flow.

Our ability to provide all the consulting and design services needed to perform a full site investigation and corrective action, including all analytical services, has resulted in a focused site strategy and seamless project execution.