

Specialty Chemical Facility

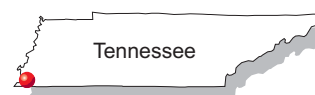


Location: Memphis, Tennessee

Site Issue: Organic chemicals and Dense Non Aqueous Phase Liquids (DNAPLs) in the soil and groundwater.

Solution: Groundwater and soil vapor extraction and treatment.

Client: Confidential specialty chemical company



Brief History

A specialty chemical facility located in Memphis, Tennessee performed RCRA related site assessment activities associated with waste management permitting. During the course of the RCRA Facility Investigation, site specific constituents were discovered in the uppermost aquifer and DNAPLs were encountered in the 30 to 40 feet of loess overlying the aquifer. Based on further investigation, it was concluded that enhanced downward hydraulic gradients created by full-scale operation of the containment system would initiate or increase the downward migration of DNAPLs into the uppermost aquifer.

HE&C was retained to design and manage implementation of a remedy to prevent the migration of impacted groundwater from the site, remediate the groundwater beneath the site, and remediate the DNAPL-containing vadose zone soils. HE&C developed a basis of design document for a ground water and soil vapor extraction and treatment system. HE&C prepared a detailed design of the remedy, prepared contractor bid packages, managed the bidding process, managed construction and startup of the remediation system, prepared an operation and maintenance manual, and assisted with long-term system operation.

Primary Activities Performed by HEC Personnel

- Developed a detailed basis of design calling for implementation of the remedial construction in three phases.
- Designed and managed construction of a ground water treatment system incorporating a DNAPL removal system, three innovative low-profile air-injected air strippers, a thermal oxidizer and scrubber system, and pH adjustment.
- Designed and managed construction of a deep-vacuum soil vapor and DNAPL extraction system consisting of 34 extraction wells on-site, two 50 h.p. liquid ring vacuum pumps capable of extracting 1,500 acfm at a 28-inch Hg vacuum, and treatment of soil vapor via thermal oxidation.
- Designed and managed installation of a treatment system building with a remote-controllable instrumentation system.
- Provided support in obtaining regulatory air and water discharge permits.
- Prepared a detailed remediation system operation and maintenance manual.
- Managed system startup operations and performed initial system operation and maintenance.
- Trained plant personnel for long term system operation and maintenance requirements.