



alternative
environmental
solutions

REMEDICATION GASOLINE CONTAMINATED PROPERTY

Overview

Nine underground storage tanks (USTs) were removed from a gasoline and tire service station. Soil and groundwater contamination was identified requiring site characterization and remediation in accordance with the Pennsylvania environmental laws. Approximately 630 tons of impacted soil was excavated and subsequently thermally treated, followed by the installation of 14 on- and off-site groundwater monitoring wells. Separate-phase hydrocarbons (SPH) were present on the shallow groundwater table aquifer with “elevated” levels of dissolved-phase hydrocarbons being reported in the groundwater on- and off-site.



Photograph of the AES-assembled remediation (shed) in operation at the site.

Remedial System

In order to significantly decrease or halt the off-site migration of impacted groundwater during characterization activities, AES designed, tested, installed, and is operating a groundwater extraction remediation system to recover SPH and dissolved-phase hydrocarbons from the groundwater, along with a soil vapor extraction (SVE) remediation system to recover vapor-phase hydrocarbons from the subsurface soils. Groundwater treatment was accomplished through granular activated carbon (GAC) vessels following the approved NPDES permit, while the SVE system included a vapor GAC to treat extracted soil vapors.



Site photograph.

Results

After operating the remediation system continuously for less than a year and a half, hydrocarbon concentrations in the groundwater have been significantly reduced, both on- and off-site, and vapor streams were reduced to undetectable levels. Based on these results, AES ceased the operation of the SVE system and has enhanced groundwater remediation efforts by the addition of oxygen to the groundwater, which will substantially increase the biodegradation of the residual dissolved-phase hydrocarbons in groundwater. AES anticipates shutting down the groundwater extraction and treatment system and initiating attainment monitoring in the near future.

The groundwater remedial system has effectively extracted and treated approximately 927,000 gallons of groundwater during the 765 days (2.1 years) of operation. Once the system had been adjusted to optimize operations and efficiency, AES has only had to respond to two alarm conditions.

Work Tasks

- Routine Maintenance ✓
- Equipment Repair ✓
- General Housekeeping ✓
- 24/7 Alarm Condition Response ✓

AES O&M Statistics:

- Continuous Operation*, Groundwater System: 98%
- Continuous Operation*, SVE System: 98%
- No major period (>2 days) where system was down

* includes carbon change outs, equipment upgrades, repairs, etc.