

onesky **SUCCESS** story

Soil and Groundwater Remediation Montgomery County, Pennsylvania

In July 1985, one foot of gasoline was found floating in a private well. The source was a nearby service station owned by an independent petroleum retailer and distributor. In 1997-98, the petroleum retailer and its insurance company selected Onesky Engineering, Inc. to replace the incumbent environmental consultant. Today, our firm is providing a variety of environmental activities at this Pennsylvania Department of Environmental Protection (PADEP) Act 2 Land Recycling Program site.

Extensive evaluations

The initial consultants had provided some preliminary remedial action, including installation of granulated activated carbon (GAC) adsorbers. Onesky Engineering, Inc. conducted comprehensive site characterization activities and remedial feasibility testing. Early in the project, we also performed a remedial alternatives analysis for the client and its insurer. We evaluated a variety of technologies for both statewide health standard and site-specific standard scenarios.

Alternatives included perpetual pump-and-treat given a variety of economic models, continued aggressive remedial action to include additional pneumatic fracturing, and pathway elimination with a combination of institutional and engineering controls.

Targeted technologies

Based on the remedial feasibility testing, we determined that vacuum-enhanced groundwater extraction was the most effective approach for the site. We extract groundwater from the subsurface by using submersible electric pumps installed in on- and off-site recovery wells. We extract hydrocarbon vapors with a positive displacement blower system from a series of extraction points. As of March 2005, the total throughput of the upgraded system was 5.8 million gallons.

To facilitate the remedial action, we pneumatically fractured the bedrock formation in the source area to increase the permeability and expedite removal of the contaminant mass.



Off-site recovery well installation

PROJECT HIGHLIGHTS

Soil and groundwater remediation and innovative real estate transfer solutions for Pennsylvania Act 2 Land Recycling Program site

Comprehensive site characterization program:

- soil and groundwater monitoring and sampling
- soil vapor sampling
- aquifer testing
- remedial pilot testing for soil vapor extraction and dual-phase extraction technologies
- subsurface geophysical surveying
- packer testing
- receptor surveying

Remedial alternatives analysis

Replacement of existing groundwater remediation system with vacuum-enhanced groundwater extraction and treatment system

Pneumatic fracturing to expedite contaminant mass removal

Risk transfer mechanisms and remediation stop-loss insurance

Onesky Engineering maintains the previously installed carbon adsorbers and replaces them as necessary.

Act 2

In July 2002, the site was entered into the Land Recycling Program with the completion of the necessary administrative requirements. These requirements included public notification of the chosen remedial cleanup standards for soil and groundwater at the site. In this case, we used a combination of PADEP statewide health and site-specific standards.

Closure challenges

The closure of this site is complicated by the number of nearby domestic water supply wells that have been impacted by this release. Onesky Engineering, Inc. has coordinated the delivery of bottled water supply and the installation of Point of Entry Treatment (POET) systems for several residences, an apartment building, several businesses, and a volunteer fire company. We have also facilitated coordination meetings for our client to keep affected residents informed of the project progress.

Satisfactory solution for all stakeholders

In June 2004, we conducted packer testing, geophysical logging, and fate and transport modeling to hone the site conceptual model. The modeling and site empirical data forms the basis of a cost-effective site-closure strategy, which may employ institutional and engineering controls to eliminate any potential exposure pathways to sensitive recipients.

Onesky Engineering, Inc. has also developed an innovative approach to closure involving risk transfer mechanisms and remediation stop loss insurance to provide a solution satisfactory to all of the project stakeholders.



Remediation system upgrade

Onesky
ENGINEERING, INC.

Custom-Crafted Environmental Solutions