

## Crossley Farm Superfund Site Huff's Church, Berks County, Pennsylvania

### -- OU-2 Design Phase Completed --

#### **OU-2 Cleanup Design Completed**

The U.S. Environmental Protection Agency (EPA) is working with the Pennsylvania Department of Environmental Protection (PADEP) to clean up groundwater contamination at the Crossley Farm Superfund Site located near Huff's Church in Berks County, Pennsylvania.

The Remedial Design Phase of the Superfund process for the Operable Unit-2 (OU-2) Amendment is completed. This fact sheet provides a summary of the groundwater cleanup design and announces an upcoming Community Briefing, where EPA representatives can provide details on the design plans and answer questions or concerns residents may have about the project.

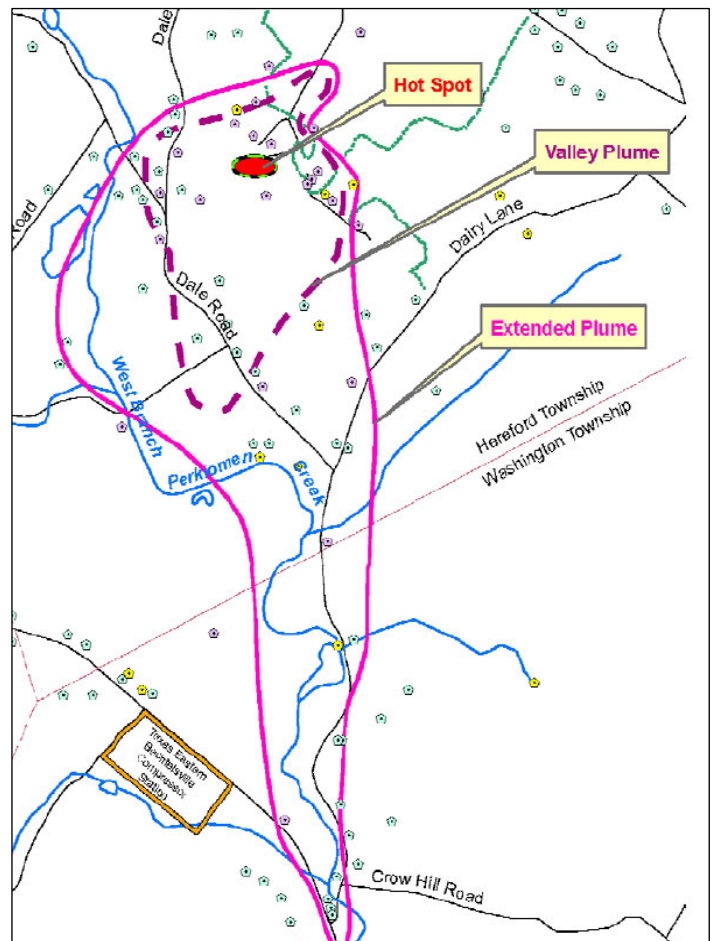
EPA's cleanup plan will address the groundwater contamination in the Valley Plume area at the bottom of Blackhead Hill (see Map 1). To achieve cleanup goals, the remedy is divided into five components, which are:

- 1) Interception and Containment,
- 2) Treatment,
- 3) Discharge,
- 4) Institutional Controls, and
- 5) Long-Term Monitoring and Five-Year Reviews.

#### **Community Briefing**

EPA will hold a community briefing for residents who would like to discuss the design details or may have questions or concerns about the project.

**Tuesday, September 22, 2009**  
**6:30 p.m. – 8:30 p.m.**  
at the  
**Washington Elementary School**  
located at 1406 on Route 100  
in Barto, Pennsylvania



Map 1: Dotted line indicates Valley Plume area.  
Solid line indicates extent of contamination area.

## Design Summary

### 1) Interception and Containment

This component involves:

- ✓ Installing 10 – 12 new extraction wells in the Valley Plume area where the groundwater of TCE (trichloroethylene) contamination is greater than 1,000 parts per billion (ppb). (See Map on page 3).
- ✓ Monitoring groundwater conditions, using multiple monitoring wells, for at least six months to determine the effectiveness in intercepting and containing the groundwater plume.
- ✓ Pumping groundwater at a rate of approximately 1,000 gallons per minute (gpm). The pumping rate may change depending on the monitoring results.

### 2) Treatment.

EPA contractors will construct an on-site treatment plant and an electrical control station. The groundwater treatment plant will be approximately 70 feet by 115 feet in size and 18 feet tall, located along Dairy Lane. The electrical control structure will be an estimated 5 feet by 10 feet in size, located along Dale Road. Both structures will be located on the Crossley Farm property.

The extraction wells will pump the groundwater through an underground pipe into the treatment system. Treatment will include:

- ✓ Filtration,
- ✓ Air Stripping and Off-Gas Treatment,
- ✓ Activated Carbon Adsorption.

Groundwater will be pumped through filter units to remove filterable solids. The filtered water will then flow through air strippers for the removal of volatile organic compounds (VOCs). Activated carbon adsorption units consisting of two carbon columns will be used to treat the water after air stripping so that any residual organic compounds can be adsorbed

by the carbon. Then, the treated water from the carbon columns will flow through a sediment filter to remove fine carbon particles, if any. Finally, the treated water will flow into a holding tank so that the water can be discharged under controlled conditions.

Air from the air stripper units will also be treated. The air will go through an exhaust heater first, and then through a vapor phase carbon adsorption system.

### 3) Discharge

The treated water will exit the treatment plant into infiltration galleries and ponds located adjacent to the unnamed tributary that leads to the Perkiomen Creek. Some treated water may also be discharged directly into the Perkiomen Creek.

An infiltration gallery is an underground drain, constructed and designed to return treated water back to the aquifer using underground pipes, sand and gravel. When the water table is high along the tributary, treated water may also flow over the surface. An underground pipe to the creek may also be used to supplement the discharge gallery, when necessary.

The treated water will be sampled on a regular basis before it is discharged. Chemical sampling and temperature measurements will be conducted once a day for the first week, every other day for the next two weeks, and then twice a month for the duration of the Remedial Action. There will also be temperature probed in the Perkiomen Creek and the discharge tributary, which will measure and record the temperature in the creek throughout the remediation.

### 4) Institutional Controls

Institutional Controls will involve restrictions on the use of the contaminated groundwater.

In this case, no new private wells will be permitted to be installed within the contaminated groundwater plume. Contaminated groundwater located at the

Crossley Farm Superfund Site property will also not be permitted to be used, unless treatment units are installed and maintained by the private well owner. EPA will not install or maintain any new private well treatment units.

### 5) Long-term Monitoring and Five-Year Reviews

Long-term monitoring for OU-2 will involve conducting periodic sampling from on-site and selected off-site wells and surface water locations to evaluate the effectiveness of the cleanup efforts. Surface water samples will also be taken downstream from the extraction well area and discharge area, to help determine if there are any effects of water withdrawal and/or discharge on the West Branch of the Perkiomen Creek. Sampling will check for:

- ✓ Migration of any site-related contaminants;
- ✓ Changes in concentration levels; and
- ✓ Potential effects to the West Branch of the Perkiomen Creek from the treated discharged water.

Long-term monitoring is set to be performed over a period of 30 years; collecting samples from approximately 50 locations. These samples will be collected periodically, based on site conditions.

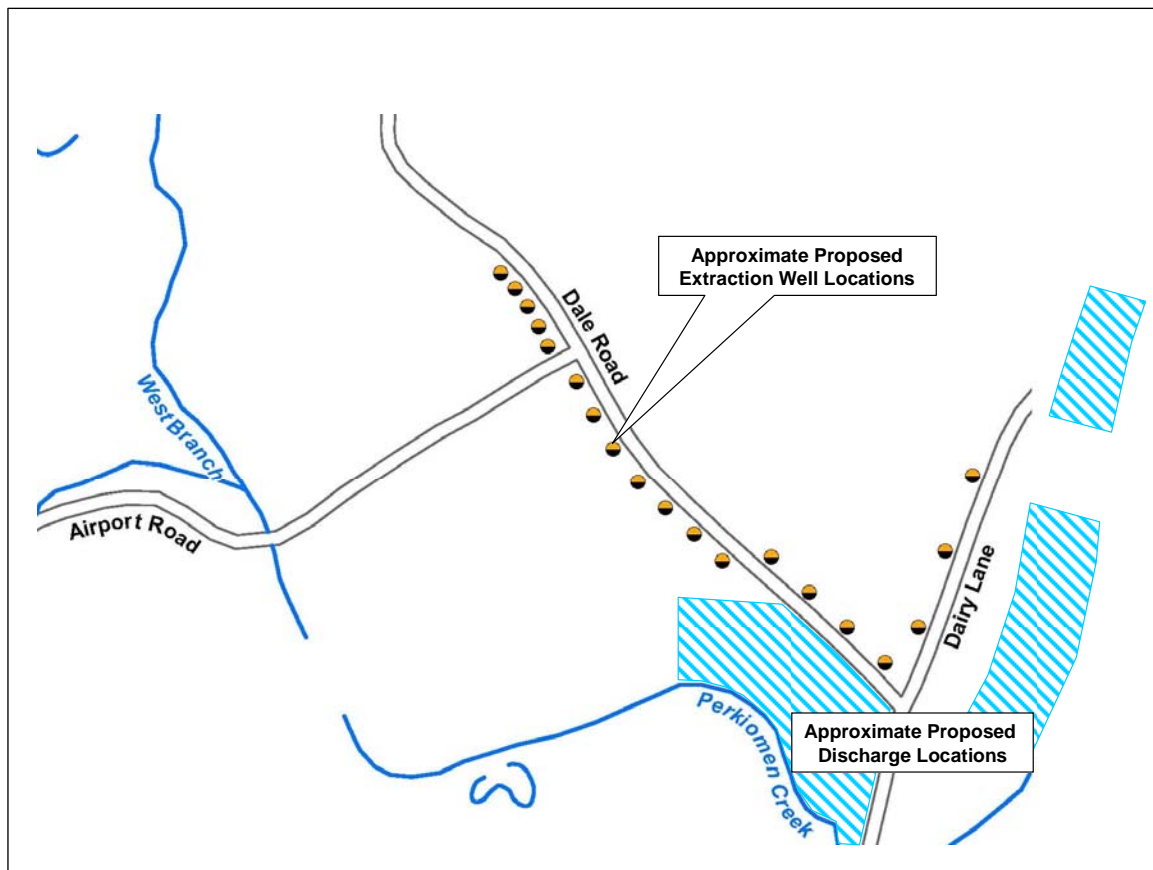
The estimated cost for this project is \$10 million. This estimate may change as work progresses.

Map 2 shows the location of the extraction well system and the general location of the discharge areas.

### **Next Steps**

Now that the cleanup design is completed, the next phase in the Superfund process is Remedial Action. This autumn, EPA contractors will begin construction of the pump-and-treat system, and begin installing the extraction wells.

Map 2: Estimated locations of extraction wells. Map not to scale.



## Brief Site Background

- The Site is approximately 200 acres of farmland. A portion of the land was once used for dumping various wastes, resulting in a TCE-contaminated groundwater plume.
- The Site's operable units are:
  - OU-1: point-of-entry carbon treatment units on contaminated residential wells (currently state-led); and
  - OU-2: regional groundwater contamination and onsite soils.
- Cleanup activities included a TCE Vapor Intrusion Assessment and Removal Action in 2007. EPA installed ventilation systems, similar to the systems used for radon, in two residences.

While designing the "Hot-Spot" remedy, EPA decided that the planned cleanup method alone would not be effective at preventing the continued migration of contaminated groundwater. EPA decided to include an additional step, which is the OU-2 Design Phase summary discussed in this fact sheet.

As mentioned at the Proposed Plan Public Meeting in June 2007, this OU-2 Record of Decision (ROD) Amendment does not replace the 2001 OU-2 ROD regarding the "Hot Spot" Area. Rather, it will supplement the original plan by also addressing the Valley Plume Area.

## For More Information

This fact sheet, and other site-related documents, including the full design report, called "*Groundwater Remedial Action Design for Valley Plume Area Basis of Design Report: Crossley Farm Site*," are available on EPA's website at:

[www.epa.gov/reg3hwmd/super/sites/PAD981740061/index.htm](http://www.epa.gov/reg3hwmd/super/sites/PAD981740061/index.htm).

If you have further questions, please contact:

Roy Schrock,  
Remedial Project Manager  
(215) 814-3210 or [schrock.roy@epa.gov](mailto:schrock.roy@epa.gov)

Trish Taylor,  
Community Involvement Coordinator,  
(215) 814-5539 or [taylor.trish@epa.gov](mailto:taylor.trish@epa.gov)

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U.S. Environmental Protection Agency Region 3  
Attn: Trish Taylor  
1650 Arch Street (3HS52)  
Philadelphia, PA 19103

