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ANALYSIS OF ALTERNATIVES
CBS VANPORT/VANPORT TOWNSHIP MUNICIPAL AUTHORITY SITE
VANPORT TOWNSHIP
BEAVER COUNTY
SOUTHWEST REGION

DEP APPROVAL

Paul Vogel

Paul Vogel
Environmental Group Manager
Hazardous Sites Cleanup

11-22-2016
Date

Kevin Halloran
Regional Manager
Environmental Cleanup Program

11/22/16
Date

COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
Hazardous Sites Cleanup Program
CBS Vanport/Vanport Township Municipal Authority Site
Vanport Township, Beaver County

ANALYSIS OF ALTERNATIVES AND PROPOSED RESPONSE

The purpose of the Analysis of Alternatives and Proposed Response document is to outline the decision-making process for the selection of the proposed response and to provide a description of the proposed response. This document will be included in the Administrative Record, which will be compiled for this response pursuant to Section 506 of the Pennsylvania Hazardous Sites Cleanup Act, Act 108 of October 18, 1988, P.L. 756 35 P.S. §§ 6020.101-6020.1305 ("HSCA"), § 6020.506.

Threats of direct contact, inhalation and ingestion are present at the CBS Vanport – Vanport Township Municipal Authority ("VTMA") Site ("Site"). To address those threats, the Department proposes a limited interim response pursuant to HSCA, specifically: (1) to continue monthly sampling of select groundwater monitoring wells to track plume migration and to confirm that the towers are sufficient technology to effectively safeguard against unsafe levels of trichloroethylene (TCE) in the water supply system's influent; (2) to undertake fate and transport modeling of the TCE plume using existing groundwater data and collect additional data as needed; (3) collect soil and surface water samples to better define TCE contamination areas; (4) to assess the efficiency of the towers and to evaluate the utility of upgrades or operational alternatives; and (5) to assess the efficiency of the pump and treat system operating at the CBS Vanport facility upgradient of the VTMA public water supply system and to make any necessary improvements and to confirm that this technology is adequately addressing the TCE source areas.

I. SITE INFORMATION

The Vanport Township Municipal Authority (VTMA) owns and operates a public water supply system that services the municipalities of Vanport Township and Brighton Township in Beaver County, Pennsylvania. VTMA services a total population of approximately 10,000. The maximum daily consumption from the VTMA water supply system is approximately 2.2 million gallons per day (mgd); average daily consumption is 1.55 mgd.

The VTMA well field consists of six (6) production wells. These wells are located on 8.9 acres owned by the VTMA, which is situated approximately 300 feet from the north bank of the Ohio River.

In January, 1988, analytical results of samples obtained from various points in the VTMA water supply system indicated the presence of trichloroethylene (TCE) at concentrations less than 100 ug/l (ppb). After that time, sample results from the hydrogeologically

connected aquifer have frequently showed TCE levels above 100 ug/l. Under the Land Recycling and Environmental Remediation Standards Act, Act of May 19, 1995, P.L. 4, No. 1995-2, 35 P.S. §§ 6026.101-6026.9089, (Act 2), the Medium-Specific Concentration standard for TCE in used aquifers is 5.0 ug/l.

The Department believes that one possible source of the TCE is a former Westinghouse electronics manufacturing facility in Beaver. The facility is located approximately 1,500 feet north of the Ohio River at Vanport. The facility is bordered to the northwest by the bedrock wall of the Ohio River Valley and to the south by Georgetown Lane, the Beaver Cemetery, and an abandoned sand and gravel quarry. A park and athletic field lie to the west, and Tuscarawas Road, several businesses, and Beaver High School are east of the site. Twomile Run flows northeast of the site and along the southern border of the facility; it then flows southwest, to where it eventually discharges to the Ohio River.

The facility was originally operated by Curtiss Wright during World War II to manufacture airplane propellers. Westinghouse began operating the facility in 1947 to manufacture power distribution equipment, after which it manufactured circuit breakers until the plant closed. CBS Corporation merged with Westinghouse in 1995. Since 1994, Eaton Corporation has owned and operated the facility to manufacture electronic switchgear and switchboard apparatus.

Westinghouse used TCE at the facility for degreasing metal parts and components through 1987. In 1988, Westinghouse discovered TCE contamination in facility soil and groundwater.

Nearby businesses Jack and Jill One-Hour Cleaners and Crivelli Chevrolet are other possible sources of the TCE. Jack and Jill is now defunct, but during its operations the cleaner's wastes were handled by Safety-Kleen, a licensed hazardous waste transporter. Crivelli is an ongoing business. Crivelli connected with the sanitary sewer treatment system of Vanport in the summer of 1988.

Another potential source of TCE contamination is an abandoned sand and gravel quarry, known as Beaver Sand Company. The quarry is located approximately 1,000 feet north of the VTMA well field. The quarry is about 1,300 feet long and 600 feet wide, with a depth that does not appear to exceed 100 feet. Quarry operations ceased between 1965-1966. The quarry is now abandoned and overgrown with vegetation. There are currently at least eight different owners of the various parcels that make up the quarry.

A former quarry employee has alleged to the Department that significant amounts of industrial wastes were disposed of in the quarry while it was in operation. Also, apparently, small amounts of household waste and scrap were dumped in the quarry in the late 1980's. During a 1992 investigation of the quarry conducted on behalf of Westinghouse, contractor Rizzo & Associates excavated test pits, drilled borings, and collected soil samples. TCE was found in one test pit soil sample at a depth of 4 to 6 feet, at levels well under the TCE soil standard under Act 2.

In 1988, the Department conducted a hydrogeologic investigation to investigate the source of the TCE contamination of the VTMA well field. During its investigation, the Department installed ten groundwater monitoring wells between the Westinghouse facility and the VTMA well field. At the same time, Westinghouse conducted an investigation of the TCE contamination at its facility. Westinghouse installed groundwater monitoring wells within and around the facility and between the facility and the VTMA well field.

Nine out of eleven groundwater samples collected during the Department hydrogeologic investigation exceeded the 5.0 ug/l Act 2 TCE standard for used aquifers, with sample results ranging from 14.8 ug/l to 1,100.0 ug/l TCE.

In a March 1989 sampling event, the Department's investigation found that TCE in the groundwater exceeded the Act 2 TCE standard in eight out of ten Department monitoring wells, with sample results ranging from 21.0 ug/l to 1,200.0 ug/l TCE. Samples collected from two Westinghouse wells from the same sampling event also exceeded the 5.0 ug/l Act 2 standard, at 44,000.0 ug/l and 800.0 ug/l TCE.

The Department and Westinghouse investigations determined that the aquifer under the Westinghouse facility is the same aquifer as that used by the VTMA pumping wells. The VTMA pumping wells are hydraulically downgradient from the Westinghouse facility. Groundwater flow from the Westinghouse facility is generally to the southwest, in the direction of the VTMA pumping wells and the Ohio River.

On June 23, 1989, Westinghouse entered into a Consent Order and Agreement (CO&A) with the Department. Westinghouse agreed to construct and install an air stripping tower system at the VTMA public water system to reduce the concentration of TCE in the public water supply. In addition, Westinghouse agreed to pay VTMA for the operation and maintenance costs of the tower system. The CO&A required Westinghouse to continue these payments until the Department determined that, for fifteen (15) sampling periods, the influent to the tower system showed TCE at less than 5.0 ug/l. Under the CO&A, Westinghouse would thereafter reinstate its payments if the Department determined that the TCE in the influent was 5.0 ug/l or greater. The CO&A also required Westinghouse to conduct representative sampling at the influent to and effluent from the tower.

After entering the CO&A, Westinghouse constructed the air stripping tower system at the VTMA and also conducted a remedial design investigation at its own Vanport facility. The investigation was documented in a June 1990 report. This report identified the presence of TCE and other volatile organic compounds (VOCs) in the shallow groundwater at the Westinghouse facility, in an area south of the facility where some tanks had leaked, and in the northeastern area of the facility. Evaluation of later groundwater data indicates that there is also deep groundwater VOC contamination in the south tank area of the facility. The Westinghouse groundwater monitoring well sample results for TCE ranged from 8.0 ug/l to over 10,000 ug/l, well exceeding the 5 ug/l Act 2

TCE standard. Westinghouse installed two pumping wells for a pump and treat system at the facility.

In 1995, CBS Corporation merged with Westinghouse and assumed all liability for its environmental legacies. CBS continued to conduct the required sampling and analysis of groundwater and payment for operation and maintenance of the VTMA tower system. In April 2016, CBS advised the Department that it believed it had met the conditions at the influent at the VTMA tower system, and that it would cease payments for the operation and maintenance costs of the VTMA tower system. CBS discontinued its payment for the tower system at the VTMA public water system in June 2016. CBS has indicated it plans to continue the sampling and analysis of groundwater for TCE at VTMA's influent and at selected monitoring wells for a one-year period. Department review of the July 2016 groundwater data shows that sixteen of the monitored groundwater wells upgradient of the VTMA public water supply system exceeded the Act 2 TCE standard of 5.0 ug/l, with sample results ranging from 11.0 ug/l to 45,000.0 ug/l.

II. RESPONSE CATEGORY

The Department plans a HSCA limited interim response for this Site.

III. APPLICABLE, RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

Hazardous Sites Cleanup Act, Act of October 18, 1988, P.L. 756, 35 P.S. §§ 6020.101-6020.1305

Solid Waste Management Act, Act of July 7, 1980, P.L. 380, No. 97, *as amended*, 35 P.S. §§ 6018.101-6018.1003

25 Pa. Code Chapters 260-270: Hazardous Waste Management

Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§ 691.1-691.1001

Land Recycling and Environmental Remediation Standards Act, Act of May 19, 1995, P.L. 4, No. 1995-2, 35 P.S. §§ 6026.101-6026.909 ("Act 2")

25 Pa. Code Chapter 250: Administration of Land Recycling Program (Act 2)

Technical Guidance Manual for the Land Recycling Program (Act 2)

40 CFR Part 302: Hazardous Substance Designation, Reportable Quantities and Notification

Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, as amended, 35 P.S. §§ 721.1-721.17

25 Pa. Code Chapter 109: Safe Drinking Water

IV. ANALYSIS OF ALTERNATIVES

Alternative 1. No Action

If the Department does not take any action, without additional funds, VTMA will be unable to conduct sampling of the system's influent or associated groundwater wells to assure the towers' elimination of the threat of TCE to the water supply. No action will prolong the likely inefficiency of the tower system and of the upgradient pump and treat system, both of which are dated. The effective operation of both these systems is integral to VTMA's provision of safe drinking water to the serviced communities.

Compliance with ARARs

This alternative does not comply with ARARs, because TCE, a hazardous substance, would continue to present a threat of contamination to a public drinking water supply. Threats to human health and the environment, such as direct contact, ingestion, inhalation and groundwater contamination, would not be addressed.

Cost Effectiveness

There would be no direct costs associated with this alternative, but, as indicated, the threat of TCE would remain in groundwater, threatening the community. In addition, any delay in necessary improvements to the air stripping towers or the pump and treat system could result in increased costs for later repairs or improvements that would not have been necessary or would have been less costly had timely intervention been made.

Alternative 2. Cover only the cost of monthly monitoring of VTMA influent and select groundwater wells

If the Department only subsidizes costs associated with the groundwater monitoring program, the current efficiency or long-term viability of the towers and the upgradient pump and treat system will not be addressed. This will leave both systems at an ongoing risk of sudden breakdown, jeopardizing community safety, as well as sustaining an ongoing lack of cost-effectiveness in subsidizing a likely suboptimal system and deferring needed repairs.

Compliance with ARARs

Groundwater monitoring may address ARARs in part, but as noted, long-term groundwater contamination issues will persist. Until these issues are addressed, satisfactory compliance with ARARs will not be accomplished.

Cost Effectiveness

The estimated monthly cost for monthly groundwater monitoring is about $40,000. Without an assessment of the efficiency or long-term viability of the tower and pump and treat systems, repairs will likely become more costly over time. In addition, there will be a continuing loss of money that would otherwise be saved with an efficient system. This alternative would therefore not be cost-effective.

Alternative 3. Continue a monthly sampling protocol; undertake fate and transport modeling of the TCE plume using existing groundwater data and collect additional data as needed; collect soil and surface water samples to better define TCE contamination areas; assess the efficiency, future viability, and alternatives to the tower and pump and treat systems.

Compliance with ARARs

This alternative would best assure compliance with ARARs.

Cost Effectiveness

This alternative would cost approximately $600,000 in total and is feasible. This alternative is also cost-effective, as it would assure that the systems are operating with optimal efficiency and with the least risk of breakdown, preempting community safety risk and later costly repair.

PROPOSED RESPONSE

For the reasons stated, the Department selects Alternative 3; Department retention of a contractor to (a) to continue a monthly sampling protocol; (b) undertake fate and transport modeling of the TCE plume; (c) collect soil and surface water samples; and (d) to assess the efficiency, future viability, and alternatives to the tower and pump and treat systems.

DEP APPROVAL

FOR THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Regional Director

11/23/16

Date