COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
Hazardous Sites Cleanup Program

Nockamixon TCE
Nockamixon Township, Bucks County

STATEMENT OF DECISION

The Commonwealth of Pennsylvania, Department of Environmental Protection ("Department") files this statement of the basis and purpose of its decision in accordance with Section 506(e) of the Pennsylvania Hazardous Sites Cleanup Act, Act of October 18, 1988, P.L. 756 No. 108 ("HSCA"), 35 P.S. Section 6020.506(e).

The Department initiated a Prompt Interim Response to alleviate the threat to public health and safety posed by the release and threatened release of Trichloroethylene (TCE) and Tetrachloroethylene (PCE), which have contaminated soil and groundwater and caused vapor intrusion at one or more homes located in Nockamixon Township, Bucks County. The selected response involves the installation and maintenance of vapor mitigation systems combined with institutional controls. This action is protective of the public health and safety and the environment.

I. SITE INFORMATION

A. Site Location Description

The Nockamixon TCE HSCA Site (Site) is located in Nockamixon Township, Bucks County. The Site includes properties located along portions of Easton, Tower, Brennan and Durham Roads, and Park and Mountain View Drives. The Site includes an area of groundwater contaminated by the volatile organic compounds (VOCs) TCE and/or PCE affecting private wells and an area of soil contamination located along Brennan Road. Additionally, at least one occupied private residence is impacted by vapor intrusion of TCE and PCE resulting from soil and/or groundwater contamination. The area of the Site consists mostly of rural residential properties, a few small businesses, and a parochial school.

B. Site History

The Bucks County Health Department notified the Department, in Spring 2009, that contamination had been detected in Site area private wells. The Department initiated an investigation in 2009 to confirm the Health Department's findings and expand the sampling area. During its investigation, the Department identified 55 private wells at the Site with detectable levels of VOCs and 45 private wells with concentrations of TCE and/or PCE greater than their Maximum Contaminant Levels (MCLs).

In accordance with its August 15, 2011 Statement of Decision (SOD), the Department conducted a HSCA Interim Response to address properties with private water supplies affected by TCE

and/or PCE at levels exceeding the MCLs. This response involved installation and maintenance for one-year of point of entry carbon filtration systems. Institutional Controls regarding the continued operation and maintenance of the filtration systems were attached to the deeds of each of the affected properties.

Additionally, the Department initiated environmental characterization activities at the Site in March 2010. These ongoing characterization activities have included review of aerial photography, witness interviews, installation and sampling of monitoring wells, soil and soil vapor sampling, and indoor air sampling conducted at properties located in the vicinity of a source area (identified during the soil investigation) to evaluate the potential for vapor intrusion to occupied buildings.

Two source areas have been identified through subsurface soil sampling on a 77-acre former farm property located along Brennan Road. File reviews, aerial photography analysis and witness interviews suggest that William Schulberger, a former owner of this property, disposed of hazardous substances on the property prior to 1973. The property owner was reportedly employed at US Gauge, which used chlorinated solvents in its manufacturing operation. A letter, dated January 2, 1980, in the Department's file references leaking drums at the property. This area of concern, identified as the "Nockamixon Route 563 Drum Site" was also investigated between 1988 and 1990 by the US Environmental Protection Agency.

The Department is completing an investigation and delineation of soil contamination at the Site, which also involved soil vapor screening. Findings from the onsite soil analysis and soil vapor screening prompted the Department to initiate an evaluation of vapor intrusion near the confirmed source area. This evaluation included the collection of indoor air samples at eight occupied structures. TCE and/or PCE were detected in indoor air at four of these structures. At two of these properties, cumulative cancer and non-cancer risks were evaluated. Risk levels exceeded the acceptable criteria in the unfinished basement of one home and in the unfinished basement and living space in the second home. TCE and PCE were also detected in sub slab soil vapor samples collected beneath the home with the highest indoor air concentrations confirming the link between indoor air and the subsurface contamination.

C. Release of Hazardous Substances

The presence of TCE, and PCE, in groundwater samples (including drinking water wells), soil samples, and indoor air samples is evidence that VOCs have been released in the Site area. TCE and PCE are both listed as hazardous substances under 40 CFR Part 302.4. DEP installed and monitored carbon filtration systems at 40 homes with TCE and/or PCE exceeding the MCL.

Groundwater samples collected from eight of the twelve Site monitoring wells contain TCE and/or PCE at levels exceeding site-specific residential groundwater to indoor air screening levels established in the Department's Vapor Intrusion Guidance.

Soil samples collected from the former Schulberger farm property contained TCE and PCE ranging from non-detectable to 131,000 and 276,000 μg/kg respectively. These concentrations exceed the soil-to-groundwater statewide health standards (500 μg/kg for TCE and PCE) and the soil-to-indoor air screening values for PCE (430 μg/kg) and TCE (170 μg/kg).

As discussed above, risk evaluation of indoor air TCE and PCE concentrations from two homes, near the identified source area, yielded risk levels which exceeded the acceptable criteria. TCE and PCE were detected in sub slab soil vapor beneath one of these homes, establishing the source of indoor air contamination as vapor intrusion.

TCE and PCE are solvents commonly used in circuit board manufacturing, the textile industry and for the removal of grease from metal parts. PCE is also used for dry cleaning. TCE and PCE pose ingestion, inhalation, and dermal exposure threats to human health when present in drinking water supplies. According to the Environmental Protection Agency (EPA), TCE is carcinogenic to humans, and PCE is likely to be carcinogenic to humans by all routes of exposure.

In its 2011 SOD, the Department addressed the drinking water exposure pathway. The direct contact exposure pathway to the contaminated soil and the vapor intrusion exposure pathway (inhalation of indoor air affected by soil or groundwater contamination) still remain open.

II. RESPONSE CATEGORY

The Department proposes a prompt interim response at this Site to protect public health and safety or the environment. The Department has the authority to conduct an Interim Response action as defined in Section 103 of HSCA, 35 P.S. § 6020.103, to alleviate the threat to public health and safety. The Department's response action is based upon the release of hazardous substances found at the Site. A prompt interim action is justified in order to remove the current exposure risks by mitigating the observed indoor air human health threat caused by VOC vapor intrusion into nearby residential homes. The Department determined that this response should not be delayed for the length of time that it would take to develop and close an administrative record. The selected response will cost less than $2 million and take less than one (1) year to implement and therefore was initiated as a prompt interim response using the Hazardous Sites Cleanup Fund.

III. CLEANUP STANDARDS

This selected response is not a final remedial response pursuant to Section 504 of HSCA 35 P.S. § 6020.504 and therefore, is not required to meet the cleanup standards which apply to final remedial responses. Additional response action may be needed to achieve a complete and final cleanup for the Site.

Even though this response is not a final remedial action, the Department will attain the standards in 25 Pa. Code Chapter 250, Subchapter D (Site Specific Standards) and Land Recycling Program Technical Guidance Manual- Section IV.A.4. Vapor Intrusion into Buildings from Groundwater and Soil.

IV. APPLICABLE, RELEVANT, and APPROPRIATE REQUIREMENTS (ARARs)

The following standards, requirements, criteria or limitations are legally applicable, or relevant and appropriate under the circumstances presented by the Site.

The Pennsylvania Constitution, Article 1, Section 27.

The Solid Waste Management Act, Act of July 7, 1980, P.L. 380, No. 97, as amended, 35 P.S. Sections 6018.101 et. seq.

25 PA Code Chapters 260a-266a, 266b and 268a-270a and incorporated parts of the Resource Conservation and Recovery Act (RCRA) (42 U.S.C.A., §§ 6901-6992) federal regulations in 40 CFR Parts 124, 260-270, 273, and 279

National Primary Drinking Water Regulations, 40 CFR §141.1, *et seq.*

- Section 141.61(a) provides a list of federal maximum contaminant levels (MCLs) for organic contaminants in drinking water. Below is a table of Site-related MCLs obtained therefrom.

Contaminant	MCL for groundwater (used aquifer) in parts per billion (ppb)
TCE	5
PCE	5

Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, No. 43, 35 P.S. § 721.1, *et seq.*

Regulations promulgated under the Safe Drinking Water Act, 25 Pa. Code §§109 et. seq.

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

- Section 303 of Act 2, 35 P.S. § 6026.303 outlines the establishment of statewide health standards and medium specific concentrations (MSCs) for all mediums, including groundwater.

Regulations promulgated under Act 2, 25 Pa. Code Chapter 250 – Administration of Land Recycling Program
Subchapter C. Statewide Health Standards – Title 25 Chapter 250.301
Subchapter G. Demonstration of Attainment – Title 25 Chapter 250.701 and Postremediation Care Attainment 25 Pa. Code § 250.708.
Appendix A - provides Medium Specific Concentrations of various contaminants.

Hazardous Sites Cleanup Act, Act of October 18, 1988, P.L. 756, No. 108, as amended, 35 P.S. § 6020.101, *et seq.* ("HSCA")

Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 – 6517 ("UECA").

The Clean Streams Law, Act of June 22, 1937, P.L. 1987, No.394, *as amended*, 35 P.S. §§691.1-691.1001.

In addition to the ARARS listed above, the following documents are pertinent to the response actions selected herein, yet are not statutory or regulatory in nature.

Standard Operating Procedure for the Hazardous Sites Cleanup Program, HSCA Handbook, Division of Site Remediation, Bureau of Environmental Cleanup and Brownfields, January 2013.

Guidance for Commonwealth-Funded Water Supply Response Actions, June 15, 2013, Department of Environmental Protection, Bureau of Environmental Cleanup and Brownfields, document number 262-5800-001

Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2, January 18, 2017, Department of Environmental Protection, Bureau of Environmental Cleanup and Brownfields, document number 253-0300-101

Vapor Intrusion Screening Level (VISL) Calculator Version 3.5, June 2017 Regional Screening Levels (RSLs). USEPA, Office of Solid Waste and Emergency Response (OSWER).

V. ANALYSIS OF ALTERNATIVES

Evaluation of Alternatives

Pursuant to its authority under Section 501 of HSCA, 35 P.S. § 6020.501, the Department shall implement an Interim Response action at the Nockamixon TCE HSCA Site. In order to achieve the objective of eliminating the threats posed through Vapor Intrusion, the Department considered the following two potential alternatives:

1. No Action.
2. Installation of vapor intrusion mitigation systems to eliminate the vapor intrusion pathway, combined with institutional controls

ALTERNATIVE 1: No Action

Description of the Alternative:

Under this alternative the Department would take no further action.

Protection of Human Health and Environment:

This alternative would not eliminate the threats to the public health and safety due to the potential of exposure to Site contaminants.

Compliance with ARARs:
This alternative would not comply with ARARs because it fails to prevent the public's exposure to hazardous substances.

Feasibility, Effectiveness, Implementability and Permanence:
This alternative would be feasible and implementable because no action would be taken. However, it would not address the health threats to the public and does not offer a permanent solution.

Costs and Cost Effectiveness:
There is no cost associated with this alternative.

ALTERNATIVE 2: Installation of vapor intrusion mitigation systems to eliminate the vapor intrusion pathway, combined with institutional controls

Description of the Alternative:
The Department will offer to install air mitigation systems in the residential homes impacted by vapor intrusion. The basement walls and floors would also be sealed to prevent vapor intrusion. Post-installation indoor air sampling will be conducted for the residents where previous TCE and/or PCE sampling results have exceeded the allowable risk criteria to verify the effectiveness of the systems and sealing work. The Department will fund all costs for installation and testing of the systems. Thereafter, the home owner will be responsible for electric operating costs and maintenance costs for continued operation of the systems. The total number of homes that will be supplied vapor mitigation systems is currently unknown as the investigation is ongoing.

An institutional control in the form of an Environmental Covenant (EC) or HSCA 512 Order that will be recorded with the Bucks County Recorder of Deeds to alert prospective property owners of the vapor intrusion threat. The ECs or HSCA 512 Orders are recorded in a manner that will assure its disclosure in the ordinary course of a title search of the subject property to inform prospective property purchasers of the health threat. The documents will also include information on groundwater contamination and the vapor mitigation systems installed at the property and the need for continued operation of the system to eliminate the vapor intrusion threat.

Protection of Human Health and Environment:
This alternative is protective of public health and safety for the vapor intrusion pathway, so long as the air mitigation systems are properly maintained.

Compliance with ARARs:
Under this alternative, vapor intrusion and post-remediation conditions will be evaluated in accordance with the *Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2 (January 18, 2017)*. Post remediation institutional controls will meet the requirements of UECA and HSCA.

Feasibility, Effectiveness, Implementability and Permanence:
Air mitigation systems may be installed expediently and are effective in mitigating vapor intrusion immediately upon installation.

Costs and Cost Effectiveness:
Costs of vapor mitigation systems may vary widely depending on the construction of individual homes. The estimated cost of implementing this alternative is approximately $15,000 per home.

VI. SELECTED RESPONSE

The Department has determined, based upon the information contained in this document, that an Interim Response action is justified at the Site in accordance with section 505(b) of the HSCA, 35 P.S. § 6020.505(b). The Department has selected Alternative 2 because it is protective, cost effective, and mitigates the vapor intrusion threat immediately upon completion. Vapor intrusion will be addressed through site specific engineering controls consisting of installing vapor mitigation systems to eliminate the route of exposure resulting in an indoor air direct contact or inhalation threat.

Air mitigation systems will be offered for installation by the Department for the residential homes determined to be impacted by vapor intrusion due to releases. Mitigation systems may be subsequently installed in additional homes where a vapor intrusion direct contact threat is determined.

VII. RESPONSE TO PUBLIC COMMENTS

The public comment period for the selection of this prompt interim response action opened on June 2, 2018 and closed on August 31, 2018. The notice was also published in *The Bucks County Courier Times* on June 3, 2018.

The Department received no written comments and received no requests to present oral testimony at a public hearing.

VIII. DEP APPROVALS

FOR THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Southeast Regional Office

9.19.2018
Date