

ORIGINAL

THIRD FIVE-YEAR REVIEW REPORT FOR NORTH PENN AREA 12 SUPERFUND SITE MONTGOMERY COUNTY, PENNSYLVANIA



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Prepared By: United States Environmental Protection Agency Region 3 Philadelphia, Pennsylvania

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27/2015

Date

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LIST OF ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CIC	Community-Involvement-Coordinator
COC	Contaminant of Concern
DCE	Dichloroethylene
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
GPRA	Government Performance and Results Act
IC	Institutional Control
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
μg/L	microgram per liter
mg/L	milligram per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PADEP	Pennsylvania Department of Environmental Protection
PCE	Tetrachloroethylene
PRP	Potentially Responsible Party
RI/FS	Remedial Investigation and Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SWRAU	Sitewide Ready for Anticipated Use
TCE	Trichloroethylene

EXECUTIVE SUMMARY

The North Penn Area 12 Superfund Site (Site) is located in Worcester Township, Montgomery County, Pennsylvania. The Site includes a 26-acre parcel previously operated by a subsidiary to Schlumberger, Inc., a 12-acre area previously operated by the U.S. Army as a Nike missile control facility, and the associated groundwater contamination. Records show that the former facility used several drums of trichloroethylene (TCE) each year as a degreasing solvent until 1976, when it switched to trichloroethane (TCA). TCE was also allegedly used and disposed of at the former Nike control facility property. The United States Environmental Protection Agency (EPA) selected a remedy for the Site including an extension of the public water system, a groundwater institutional controls, and long-term groundwater monitoring. The triggering action for this policy five-year review (FYR) was the completion of the previous FYR on September 28, 2010.

The assessment of the third Five-Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD), dated September 30, 1997, and is functioning as designed. There is no exposure to contaminated groundwater because residents are on a public water system, and institutional controls are in place to prevent use of contaminated groundwater as a source of drinking water. The current groundwater extraction system is effectively capturing the known plume. There is an ongoing optimization of the current groundwater extraction system which is described in this FYR. EPA has determined that the Site is protective of human health and the environment in the short term. EPA expects the Site will be fully protective of human health and the environment when the groundwater cleanup goals are met.

As part of this FYR, the Government Performance and Results Act (GPRA) Measures have also been reviewed. The GPRA Measures and their status are provided as follows:

Environmental Indicators

Human Health: Human Exposure Controlled and Protective Remedy in Place (HEPR) Groundwater Migration: Groundwater Migration under Control (GMUC)

Sitewide Ready for Anticipated Use (SWRAU) The Site achieved the SWRAU Measure on August 10, 2012.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION					
Site Name: North F	Penn Area 12				
EPA ID: PADOS	57152365				
Region: 3	State: PA	City/County: Worcester Township, Montgomery County			
	SI	TE STATUS			
NPL Status: Final	·				
Remediation Status:	Operating				
Multiple OUs? No	Has the Yes	e site achieved construction completion?			
Has the site been pu	t into reuse? Yes				
	REV	/IEW STATUS			
Lead agency: EPA R	egion 3				
Author name: Rom	bel Arquines, with a	dditional support provided by Skeo Solutions			
Author title: Remed	al Project Manager	Author affiliation: EPA Region 3			
Review period: June	2014 – August 201	5			
Date of site inspection: 1st: November 10, 2014; 2nd: March 11, 2015					
Type of review: Post-SARA Policy Review					
Review number: 3					
Triggering action: Completion of Second Five Year Review report					
Triggering action date: September 28, 2010					
Due date (five years after triggering action date): September 28, 2015					

FIVE-YEAR REVIEW SUMMARY FORM (CONTINUED)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:

Issues and Recommendations Identified in the Five-Year Review:

OU(s): OU1	Issue Category: Monitoring Issue: Need to evaluate air emissions from the treatment system to evaluate compliance with the federal air ARAR (40 C.F.R. Section 264.1032(a)).				
	Recommendation: Perform the required calculations and/or collect samples to demonstrate compliance with the federal air ARAR.				
Affect Current Protectiveness	Affect Future Protectiveness	Implementing Party	Oversight Party	Milestone Date	
No	Yes	PRP	EPA	6/30/2016	

Sitewide Protectiveness Statement

Protectiveness Determination: Protective in the short term

Protectiveness Statement:

The assessment of the third Five-Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD), dated September 30, 1997, and is functioning as designed. There is no exposure to contaminated groundwater because residents are on a public water system, and institutional controls are in place to prevent use of contaminated groundwater as a source of drinking water. The current groundwater extraction system is effectively capturing the known plume. There is an ongoing optimization of the current groundwater extraction system which is described in this FYR. EPA has determined that the Site is protective of human health and the environment in the short term. EPA expects the Site will be fully protective of human health and the environment when the groundwater cleanup goals are met.

Third Five-Year Review Report for North Penn Area 12 Superfund Site

1.0-Introduction--

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. FYR reports document FYR methods, findings and conclusions. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with §[104] or §[106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP, 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii), which states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action.

EPA Region 3, with contractor support from Skeo Solutions, conducted the FYR and prepared this report regarding the remedy implemented at the North Penn Area 12 Superfund Site (Site) in Worcester Township, Montgomery County, Pennsylvania. EPA conducted this FYR from June 2014 to August 2015. EPA is the lead agency for developing and implementing the remedy for the potentially responsible party (PRP)-financed cleanup at the Site. The Pennsylvania Department of Environmental Protection (PADEP), as the support agency representing the Commonwealth of Pennsylvania, has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the third FYR for the Site. The triggering action for this policy review is the completion of the previous FYR. The FYR is required because the post-Superfund Amendments and

Reauthorizations Act (SARA) remedial action, upon completion, will not leave hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and restricted exposure, but will take more than five years to complete. The Site consists of one operable unit (OU).

2.0 Site Chronology

Table 1 lists the dates of important events for the Site.

Table 1: Chronology of Site Events

Event	Date
Pennsylvania Department of Environmental Resources (now known as PADEP) found solvents, including trichloroethylene (TCE), in groundwater	1979
EPA proposed the Site for listing on the National Priorities List (NPL)	January 22, 1987
EPA and two PRPs (Transicoil and Eagle-Picher Industries, Inc.) signed an Administrative Order on Consent to conduct a remedial investigation and feasibility study (RI/FS)	June 26, 1989
EPA finalized the listing of the Site on the NPL	February 21, 1990
Transicoil and Eagle-Picher Industries, Inc. provided carbon filtration systems for 13 residential wells with TCE concentrations above the federal standard	1990-1991
Transicoil and Eagle-Picher Industries, Inc. filed for Chapter 11 bankruptcy and halted work on the RI/FS	January 7, 1991
EPA issued a Unilateral Administrative Order to four PRPs to conduct a removal action (provide carbon filtration systems for 14 residential wells with TCE concentrations above the federal standard, conduct periodic sampling of over 100 residential wells). The PRPs complied with this order.	August 22, 1995
EPA completed the RI/FS EPA issued the Record of Decision (ROD), selecting a remedy for the Site	September 30, 1997
EPA issued an Administrative Order for Remedial Design and Remedial Action to four PRPs	July 22, 1998
PRPs began remedial design	August 21, 1998
EPA signed an Agreement and Covenant Not to Sue with the prospective purchaser of part of the Site (Techni-Tool, Inc. and T-Squared Realty, LLC.)	September 3, 1998
Owners of the former Transicoil property recorded a Notice of Use Restriction prohibiting the use of groundwater until EPA determines that the water is safe for use as drinking water	December 31, 1998
PRPs completed remedial design for the water line extension	March 24, 1999
PRPs constructed the water line extension and connected homes and businesses to the water line	April 19, 1999 to November 9, 1999
PRPs completed remedial design for the groundwater treatment system	January 26, 2000
PRPs constructed the groundwater treatment system	April 11, 2000 to August 31, 2000
EPA issued the Preliminary Closeout Report and the Site achieved the construction complete milestone	September 20, 2000
EPA approved the shutdown of extraction wells EW-5, EW-6, EW-7 and EW-9	December 8, 2004
EPA issued the Site's first FYR	August 31, 2005

Event	Date
PRPs conducted one-time analysis of groundwater for 1,4-dioxane	November 2005
Owner of the parcel west of the Site recorded a Declaration of Easements and Restrictions Agreement providing access to the property and prohibiting the use of groundwater for drinking until EPA determines that it is safe to do so	October 9, 2007
PRPs installed an additional extraction well on the property west of the former Transicoil property	October 22, 2007
EPA issued the Site's second FYR	September 28, 2010
PRPs completed a vapor intrusion evaluation	May 11, 2012
PRPs installed three new monitoring wells	August 2012
EPA issued an addendum to the Site's second FYR	September 21, 2012
PRPs submitted a System Effectiveness Evaluation Report to EPA	October 2013
PRPs began routine analysis of groundwater for 1,4-dioxane at EPA's request	November 2014
PRPs transitioned to new operation and maintenance (O&M) contractor	November 2014

3.0 Background

3.1 Physical Characteristics

The Site is located in Worcester Township, Montgomery County, Pennsylvania (see Figure 1). The Site includes a parcel previously operated by Transicoil, Inc., an area previously operated by the U.S. Army as a control facility, and the associated groundwater contamination. The former Transicoil property occupies about 26 acres at 1547 North Trooper Road. The former U.S. Army Nike control facility comprises about 12 acres on North Trooper Road, directly northeast of the former Transicoil property.

The topography of the area is gently rolling, with low-lying ridges and hills. The bedrock underlying the Site (Lockatong Formation) contains multiple vertical fractures, providing preferential flow paths for groundwater. Bedding planes dip to the northwest. Depth to bedrock ranges from 3 to 12 feet. The Site is along the crest of a broad northeast-southwest trending ridge which acts as a local drainage divide. The northern part of the Site is drained by several unnamed tributaries of Zacharias Creek, which flows into Skippack Creek. The southern part of the Site is drained by unnamed tributaries of Stony Creek, which flows into the Schuylkill River.

The Site is a groundwater recharge area. Groundwater beneath the Site primarily flows toward the northwest and is mainly found in fractures and bedding plane openings due to low porosity. Groundwater in the upper part of the aquifer generally is under unconfined (water-table) conditions. Groundwater in the deeper part of the aquifer is probably confined, resulting in local artesian conditions.

As part of the ongoing optimization, an updated conceptual site model will be constructed to confirm the current geology and hydro-geologic conditions at the Site.

3.2 Land and Resource Use

The Site is currently under reuse. In 1998, Techni-Tool, Inc., a distributor of equipment for electronics production, entered into a prospective purchaser agreement with EPA prior to purchasing the former Transicoil property. In July 2000, Techni-Tool, Inc. completed construction and began operation of its new warehouse mail-order tool distribution facility (see Figure 2).

The Army donated a 9-acre portion of the former Nike facility to Worcester Township in 1975, which now maintains that area as Nike Park (parcel 670000665006, see Figure 4). The 2008 Worcester Township Comprehensive Plan states that the "Township would like to acquire land or rights to lands to the north and west of the [Nike Park] property that have not only the potential to provide for passive and active recreation opportunities within the Township, but might be valuable for future pathway connections." The Comprehensive Plan also includes plans to build a recreational trail across the Site, but as of March 11, 2015, no additional properties have been purchased and no trail construction has begun.

The Commonwealth of Pennsylvania acquired the remaining portion of the former Nike facility in 1975, where Montgomery County now operates Center Point Training Center, an adult training and care facility, on that property (parcel 670000667004, see Figure 4).

The area surrounding the Site is primarily rural residential, interspersed with agriculture and housing developments. A developer purchased a parcel (parcel 661001, see Figure 4) west of the Site and submitted residential use plans for review in 2008. The proposal has since expired and as of March 11, 2015, the developer has not resubmitted another proposal for development.

Approximately 31,000 people live within a 3-mile radius of the Site and use either public water or private wells for drinking water. Residents affected by the Site have been connected to the municipal water line and their residential wells properly abandoned. The exceptions are residences that participate in the Site's Residential Monitoring Program, which are connected to the water line, but have retained their residential wells. These remaining wells are routinely sampled as part of the program and supply only outdoor spigots for safe non-potable uses such as watering grass or washing cars.

3.3 History of Contamination

As part of manufacturing operations, Transicoil used trichloroethylene (TCE) and other solvents to degrease parts and equipment. State records show that the facility used several drums of TCE each year as a degreasing solvent until 1976, when it switched to other solvents. The company stored waste oil and spent solvents in an underground storage tank and also allegedly disposed of spent solvents in the septic system and at times directly on the ground.

The U.S. Army used the former Nike control facility property from 1954 to 1968. TCE was reportedly used and disposed of at the facility during its operation.

In 1979, the Pennsylvania Department of Environmental Resources (now known as PADEP) found elevated concentrations of solvent-based chemicals, including TCE, in monitoring wells at the Transicoil property and in private wells off the property. Subsequent sampling by a consultant to Transicoil confirmed the results. Several follow-up investigations of the contamination problem at the former Transicoil facility and in the surrounding area were conducted. An investigation in-1980 included:-sampling near-a-buried-waste-solvent-tank;-----sampling of the contents of the waste solvent tank; sampling from underground septic system distribution boxes; and soil sampling in the septic system drain field area. Groundwater in two monitoring wells was also monitored for one year.

3.4 Initial Response

In January 1987, EPA proposed the Site for inclusion on the National Priorities List. EPA and two PRPs (Transicoil, Inc. and Eagle-Picher Industries, Inc.) signed a consent agreement in 1989, in which the PRPs agreed to conduct a remedial investigation and feasibility study (RI/FS) at the Site. EPA finalized the listing of the Site on the National Priorities List (NPL) on February 21, 1990. Transicoil, Inc. and Eagle-Picher Industries, Inc. ceased work on the RI/FS prior to filing for Chapter 11 bankruptcy on January 7, 1991. Therefore, EPA completed the Site's RI/FS. EPA began work on the RI/FS in 1991 and completed it in 1997.

Residential wells near the former Transicoil facility were sampled in 1990 and again in 1991. Thirteen residential wells contained TCE above EPA's Maximum Contaminant Level (MCL) of 5 micrograms per liter (μ g/L). Transicoil/Eagle-Picher installed carbon filtration systems on those residential wells that exceeded the MCL for TCE.

EPA conducted additional residential well sampling in 1995, and found more residential wells with TCE above the 5 μ g/L MCL (see Figure 3). EPA issued a Unilateral Administrative Order for Removal Action (removal order) requiring the PRPs to install and maintain carbon filtration systems on those wells with TCE above the MCL. The removal order also required periodic sampling of over 100 residential wells near the Site to ensure that TCE levels in residential water supplies would be maintained at safe levels. The PRPs provided 14 home wells with carbon filters in accordance with the removal order.

Figure 1: Site Location Map

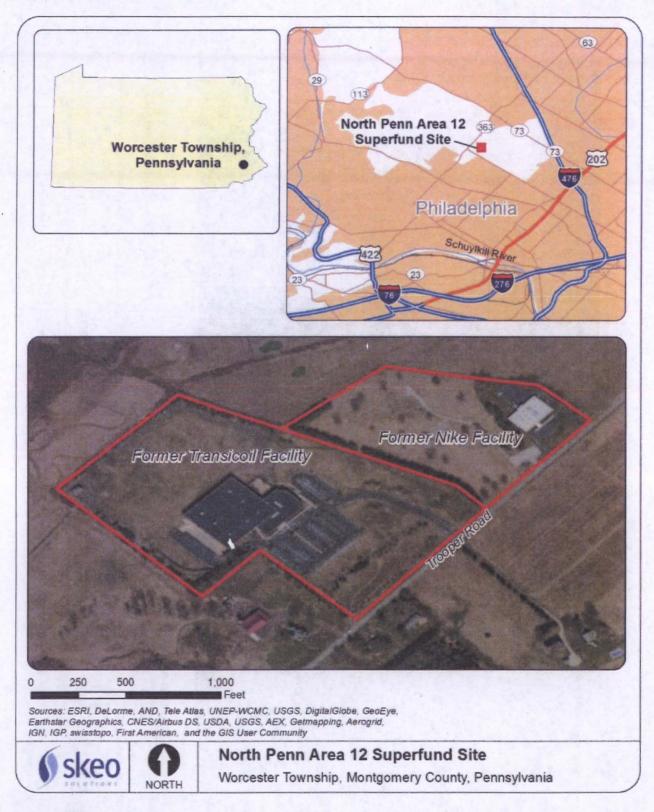
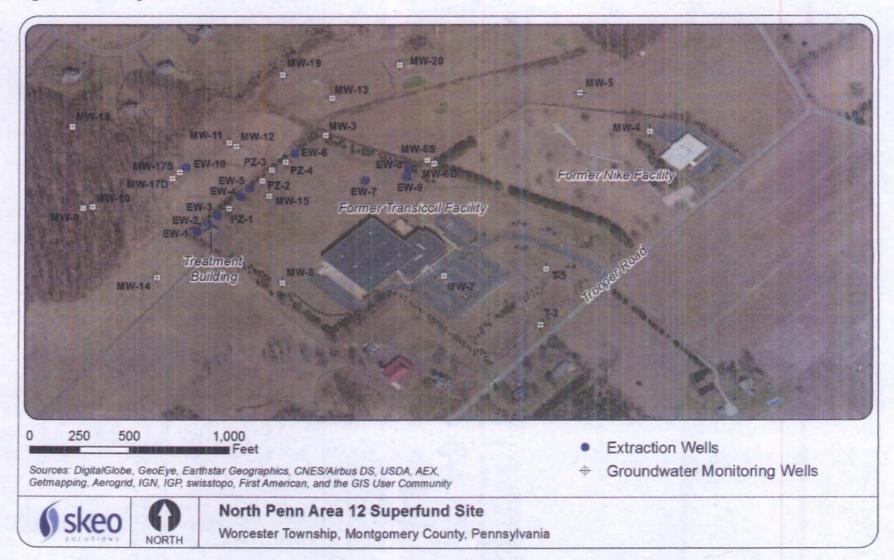
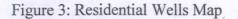
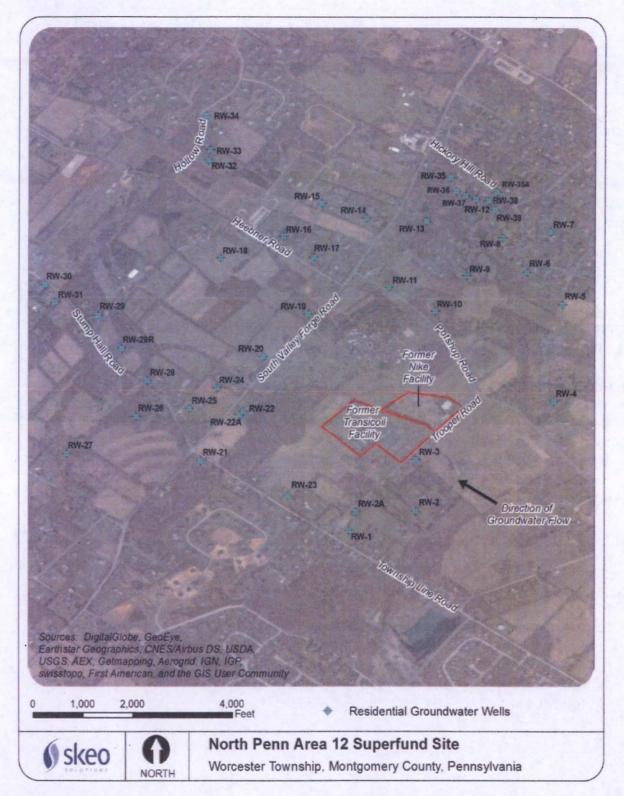


Figure 2: Site Map







3.5 Basis for Taking Action

EPA's remedial investigation identified the following site-related contaminants of potential concern in groundwater: chloroform, 1,1-dichloroethylene (DCE), 1,2-DCE (total), cis-1,2-DCE, tetrachloroethylene (PCE) and TCE. EPA's human health risk assessment found that the principal-source-of-risk-at-the-Site-was-from-exposure-to-groundwater.-The-main-site-contaminant contributing to the non-cancer hazard from groundwater was TCE. The main cancer risk contaminants were TCE, 1,1-DCE and PCE.

Risks from exposure to soil were below or within EPA's range of acceptable risk. EPA conducted soil sampling at the Site in 1994 as part of the remedial investigation. Concentrations of volatile organic compounds in soil did not pose a risk to human health. Several inorganic substances, including arsenic, beryllium and manganese, were detected in the Site's soil in excess of levels that could pose a potential human health risk. However, these substances were determined to be naturally-occurring and not a result of activities at the Site. Therefore, EPA did not require soil remediation for the remedy.

EPA's ecological risk assessment characterized potentially sensitive non-human receptors across multiple media and found that Site-related contamination was not expected to pose a significant risk to the environment.

4.0 Remedial Actions

In accordance with CERCLA and the NCP, the overriding goals for any remedial action are protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs). A number of remedial alternatives were considered for the Site, and final selection was made based on an evaluation of each alternative against nine evaluation criteria that are specified in the NCP §300.430(e)(9)(iii).

4.1 Remedy Selection

On September 30, 1997, EPA issued a ROD documenting the selected remedy for the Site. The ROD identified the following remedial objectives for the response action:

- Prevent exposure or potential exposure to groundwater that contains contaminants of concern (COCs) at the Site at concentrations above the MCLs, which are the cleanup goals for the Site.
- Use remedial technologies to reduce concentrations of Site COCs to levels that are below the MCLs.

The 1997 ROD selected the following remedy:

- 1. The construction of a public water supply system extension to provide drinking water to residents whose wells have been adversely affected or could potentially be adversely affected by contamination from the Site.
- 2. The construction and operation of a groundwater extraction and treatment system using either an air stripper with vapor-phase carbon or a liquid-phase carbon adsorption unit.
- 3. A study to determine if any additional remedial measures may be needed or are technically practicable to reduce site-related contaminants to MCL concentrations in the contaminated groundwater that lies beyond the influence of the groundwater extraction and treatment system.
- Long-term monitoring to evaluate the performance of the groundwater extraction and treatment system and to ensure that all affected and potentially affected residents are provided public water.
- Institutional controls that prohibit the use of groundwater on the former Transicoil property and restrict the use of site-related contaminated groundwater as a drinking water supply source.

The ROD requires that the groundwater extraction and treatment system continue to operate until the groundwater COCs meet EPA's MCLs or non-zero Maximum Contaminant Level Goals (MCLGs), whichever is more stringent. Table 2 provides the groundwater cleanup goals specified in the ROD.

Groundwater Contaminant	. ROD Cleanup Goal (µg/L)
TCE	5
1,1-DCE	7
cis-1,2-DCE	70
1,2-DCE (total)	70
PCE	5
Chloroform (as trichloromethanes)	100

Table 2: Groundwater Cleanup Goals

4.2 Remedy Implementation

On July 22, 1998, EPA issued an Administrative Order for Remedial Design and Remedial Action to four PRPs requiring that the PRPs develop the remedial design and implement the remedial action. The PRPs were responsible for the design and construction of the water supply line extension on an expedited basis.

In partnership with the EPA and the PRPs, the North Penn Water Authority, the local water authority, contributed to the design of the water line extension. EPA approved the final design for the water line extension in April 1999. The PRPs contractor started construction in April 1999, and completed the work in August 1999. The water main extension included 5.25 miles of water main pipeline. The North Penn Water Authority subsequently took ownership of the extended water supply pipelines and accepted responsibility for all future operation and maintenance of the waterline extension.

EPA approved the final design for the service connection work in August 1999. The PRPs' contractor started construction in August 1999, and completed this work in November 1999. This work included the connection of 147 affected and potentially affected homes and businesses to the public water system. It also included either the disconnection/abandonment of the old supply wells or the conversion of the wells for non-consumption outside use only. In all cases, the well supply was disconnected from the in-home distribution system.

EPA approved the PRPs' design for the groundwater extraction and treatment system in January 2000. The PRPs' construction subcontractor started construction in April 2000, and completed construction in August 2000. All remedial action activities were performed according to the design specifications set forth in the approved final design, including:

- Construction of an on-site groundwater extraction and treatment facility that included:
 - o a treatment building
 - o an 8,400-gallon equalization tank
 - o a packed column air stripping tower
 - o two vapor-phase carbon adsorption units
 - o a 185-gallon effluent tank
- Construction of nine extraction wells and seven additional monitoring wells.
- Construction of pipeline that transports and discharges the treated groundwater to an unnamed tributary of Stony Creek under a National Pollutant Discharge Elimination System (NPDES) permit issued by PADEP.

The ROD required a study to determine if any further remedial measures were required beyond the groundwater extraction system's area of influence. The PRPs' report, submitted to EPA in August 2000, found limited potential for natural attenuation via biological degradation of contaminants in the plume, but predicted that the plume could be reduced to levels below MCLs in about 15 years after the startup of the groundwater treatment system. The report also predicted that contaminant concentrations beyond the current public water service area would not exceed the MCLs. Therefore, the report concluded that no additional remedial action was necessary in the area outside the influence of the groundwater treatment system.

The institutional controls required by the ROD have been implemented. On December 31, 1998, the owners of the former Transicoil property recorded a Notice of Use Restriction with the Montgomery County Recorder of Deeds (see Appendix F). The Notice of Use Restriction prohibits the use of groundwater at the former Transicoil property until EPA determines that the water is safe for use as drinking water. During this FYR process, EPA determined that the Notice of Use Restriction is still recorded by the Montgomery County Recorder of Deeds, as of August 2014.

The Montgomery County Health Department implements well permitting regulations contained in Chapter 17 of the Montgomery County Public Health Code. These regulations require a permit for any new supply well before it is installed. These regulations also require sampling of the well water to demonstrate that it meets drinking water standards before the Health Department will permit the new supply well to be used for drinking purposes.

A developer purchased a parcel west of the Site and submitted residential use plans for review in 2008. The proposal has since expired and the developer has not resubmitted another proposal for development. The developer signed a Declaration of Easements and Restrictions Agreement in 2007 providing access to the property and prohibiting the use of groundwater for drinking until EPA determines that it is safe to do so (see Appendix G). During this FYR process, EPA confirmed that this Agreement is still recorded by the Montgomery County Recorder of Deeds, as of August 2014.

4.3 Operation and Maintenance (O&M)

EPA approved the PRPs' operation and maintenance (O&M) plan in August 2001. The current groundwater extraction system consists of three extraction wells. At the time of the 2015 FYR site inspection in March 2015, two extraction wells were operating (EW-8 and EW-10). One extraction well (EW-4) was not running due to low water levels. The groundwater treatment system consists primarily of an equalization tank, an air stripping tower, and a vapor-phase carbon filtration system for removal of volatile organic compounds from the off-gas. The treated water is discharged to a catch basin on the west side of North Trooper Road, which drains to a tributary of Stony Creek in compliance with the NPDES permit. The extraction and treatment system operates unattended 24 hours a day, 7 days a week, and was designed to pump, treat and discharge up to 35 gallons of groundwater per minute. As described in the most recent Annual Performance Monitoring and NPDES Report (July 2014), the flow rate now ranges from about 15 to 24 gallons per minute.

Since continuous operation of the groundwater extraction and treatment system began in 2000, various relatively minor operational and maintenance problems have been addressed. None of these maintenance problems resulted in an extended shutdown of the system.

The PRPs submit monthly O&M reports to EPA summarizing maintenance issues, system shutdowns, adjustments, repairs and the amount of groundwater pumped from each extraction well. The PRPs submit monthly reports to PADEP with sampling data for the discharged treated groundwater, as required by the NPDES permit. The current NPDES permit expires on April 30, 2016.

A number of adjustments have been made to the system since it began operation. EPA approved the shutdown of wells EW-5, EW-6, EW-7 and EW-9 on December 8, 2004, after the PRPs requested permission to turn off these less-contaminated and low-yielding extraction wells.

The ROD's selected remedy initially required quarterly sampling of the nearby residential wells, monitoring wells and extraction wells to evaluate performance of the groundwater treatment system, and to ensure that all affected and potentially affected residents were provided public water. There was also a requirement to perform bi-monthly sampling of the treated water discharge to monitor compliance with the NPDES permit requirements. In November 2002, the PRPs requested that the groundwater monitoring frequency be reduced to semi-annually and that

the NPDES monitoring frequency be reduced to monthly. EPA and PADEP approved these requests in November 2002 and December 2002, respectively.

Monitoring conducted through mid-2005 showed that the pumping of groundwater was having no impact on water levels in wetlands areas, ponds and surface water levels near the Site. After review by PADEP, EPA approved the PRPs' request to stop monitoring surface water levels near the Site.

In an effort to increase the contaminant mass removal rate and to expedite compliance with the groundwater cleanup goals, the PRPs installed an additional extraction well in October 2007 on the property west of the former Transicoil property, in the area of highest contamination. The PRPs installed three new monitoring wells in August 2012 to help determine the effectiveness of the new extraction well and better delineate the plume. Following a year of sampling using the new wells, the PRPs submitted a System Effectiveness Evaluation Report to EPA in 2013. Sections 5 and 7 of this FYR report describe the outcomes of this phase of the ongoing optimization effort.

Table 3 presents the Site's annual O&M costs for the last five years. Post-construction, annual costs have remained consistent over the past five years.

Year	Total Cost
2010	\$245,000
2011	\$193,000
2012	\$246,000
2013	\$247,000
2014	\$252,000

Table 3: Annual O&M Costs

5.0 Progress Since the Last Five-Year Review

The protectiveness statement from the 2012 Addendum to the 2010 FYR for the Site stated the following:

The assessment of the second Five-Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD), dated September 30, 1997, and is functioning as designed. There is no exposure to contaminated groundwater because residents are on a public water system, and the groundwater extraction system is effectively capturing the plume. The protectiveness determination was deferred in the second Five-Year Review until another vapor intrusion assessment was completed, including the collection of subslab, indoor, and outdoor air samples. In 2012, the vapor intrusion assessment was completed and reviewed. EPA concluded that vapor intrusion was not an issue at the Site. Therefore, EPA determines that the Site is protective of human health and the environment in the short term and EPA expects the Site will be fully protective of human health and the environment when the groundwater cleanup goals are met.

The 2010 FYR included three issues and recommendations. This report summarizes each recommendation and its current status below.

Recommendation	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Evaluate the effectiveness of the groundwater collection system, which now includes a new extraction well. Develop a more complete delineation of the plume.	PRPs	10/30/12	PRP installed three new monitoring wells in August 2012. Following a year of sampling using the new wells, the PRP submitted a System Effectiveness Evaluation Report to EPA in 2013. EPA determined that the limited data from the report indicated that the plume might extend further than previously believed. Subsequent data and information following the 2013 report helped EPA conclude that the current groundwater extraction system is effectively capturing the known plume.	10/17/13
Conduct vapor intrusion sampling (subslab, indoor/outdoor air) in on-site structures closest to the TCE plume, as well as in potentially impacted existing off-site residences.	PRPs	10/30/12	PRP conducted vapor intrusion investigation, including subslab, indoor and outdoor air samples. EPA approved the Site Characterization Report: Vapor Intrusion Evaluation (May 11, 2012), which concluded that concentrations of site-related COCs detected in the shallow groundwater did not impact the subslab soil or indoor air quality at levels of concern at the representative buildings tested. EPA concluded that vapor intrusion was not a concern at the Site.	5/11/12
Evaluate need for institutional controls to address groundwater contamination and vapor intrusion pathway exposures which potentially affect off-site development.	EPA	12/30/11	EPA determined that the present groundwater institutional controls are sufficient and that no new institutional controls are necessary at this time to protect future residents or workers, because the 2012 vapor intrusion assessment concluded that vapor intrusion did not have any impacts at the Site.	6/26/12

Table 4: Progress on Recommendations from the 2010 FYR

6.0 Five-Year Review Process

6.1 Administrative Components

EPA Region 3 initiated the FYR in June 2014 and scheduled its completion for September 2015. In August 2014, the EPA Remedial Project Manager (RPM) held two scoping meetings and invited the Site's attorney, community involvement coordinator (CIC), hydro-geologist, toxicologist, biologist, supervisor, and contractor support to discuss the Site and items of interest as they related to the protectiveness of the remedy currently in place. The review schedule established consisted of the following activities:

- Community notification.
- Document review.
- Data collection and review.
- Site inspection.
- Local interviews.
- FYR Report development and review.

6.2 Community Involvement

On April 29, 2015, EPA published a public notice in The Reporter newspaper announcing the commencement of the FYR process for the Site, providing contact information for the CIC, inviting community participation, and establishing that the FYR would be available to the public in September 2015. The press notice is available in Appendix B. No one contacted EPA as a result of the advertisement. As part of the FYR, EPA conducted several interviews of PRP personnel, local government officials, and community members which are found in Appendix C. EPA will place copies of the FYR in the designated site repository: Lansdale Public Library, 301 Vine Street, Lansdale, Pennsylvania 19446.

6.3 Document Review

This FYR included a review of relevant, site-related documents including the ROD, remedial action reports and recent monitoring data. A complete list of the documents reviewed can be found in Appendix A.

ARARs Review

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain "a degree of cleanup of hazardous substance, pollutants, and contaminants released into the environment and of control of further release at a minimum which assures protection of human health and the environment." The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate.

Groundwater ARARs

The ROD selected MCLs and non-zero MCLGs as ARARs. The ROD states that the groundwater extraction and treatment system will reduce the concentration of each groundwater COC to its MCL or non-zero MCLG, whichever is more stringent. Table 5 compares the MCLs/MCLGs at the time of the ROD against the current MCLs/MCLGs. The MCLs/MCLGs for most of the COCs have not changed. The MCL/MCLG for 1,2-DCE (total) has become less stringent. The MCL/MCLG for chloroform has become more stringent. Section 6.4 of this FYR Report compares the Site's sampling data against the cleanup goals.

Table 5: ARAR Review for Groundwater COCs

COC	1997 ROD ARAR (µg/L)	Current ARAR (µg/L) ^a	ARAR Change	
TCE	5 ^b	5 ^b	No change	
1,1-DCE	7 ^b	7 ^b	No change	
cis-1,2-DCE	70 ^b	70 ^b	No change	
1,2-DCE (total)	70°	$cis-1,2-DCE = 70^{b}$ trans-1,2-DCE = 100^{b}	Less stringent	
PCE	5 ^b	5 ^b	No change	
Chloroform	100 ^b	$MCL = 80^{b}$ $MCLG = 70^{c}$	More stringent	
Notes: a. Current ARARs we August 8, 2014) b. Based on MCL c. Based on non-zero	are obtained from http://water.e	pa.gov/drink/contaminants/in	dex.cfm (accessed	

Surface Water ARARs

The ROD stated that the substantive requirements of the Pennsylvania NPDES Regulations (25 Pa. Code §92.31) would apply to the discharge of treated groundwater to the tributary of Stony Creek. These regulations are now found in Title 25, Chapter 92a of the Pennsylvania Code. Section 6.4 of this FYR Report compares the Site's discharge sampling data against the NPDES permit limits.

The ROD also selected the Pennsylvania Water Quality Standards (25 Pa. Code §§93.1-93.9) as "to-be-considered" criteria. These standards contain the water quality criteria that PADEP uses to develop effluent limitations in NPDES permits. The discharge at the Site routinely meets the requirements of the NPDES permits and any discrepancies are reported to the State and logged in their reporting database.

Air ARARs

The ROD selected 40 CFR Part 264, Subpart AA (Air Emission Standards for Process Vents) as an ARAR for the air emissions from the air stripping unit. The ROD stated that "40 C.F.R. §264.1032 (a.) requires total organic emissions from all affected process vents at the Site to be below 1.4 kg/hr [kilograms per hour] and 2800 kg/yr [kilograms per year] (3.1 tons/year) under this regulation or reduce, by use of a control device, total organic emissions by 95% by weight." During this FYR process, EPA determined that the emissions standards in 40 CFR 264.1032(a) have not changed.¹ The PRPs do not collect air effluent samples. The selected remedy does not include an air sampling component or an emissions calculation analysis to determine if the system is compliant with this ARAR. The high efficiency of the remedy's vapor-phase carbon adsorption system likely meets these requirements, however direct sampling data or an emissions calculation analysis is necessary for confirmation.

The ROD also selected Title 25, Chapter 127, Subchapter A of the Pennsylvania Code as an ARAR. That regulation requires that air emissions be reduced to the minimum obtainable levels

¹ <u>http://www.gpo.gov/fdsys/pkg/CFR-2013-title40-vol27/pdf/CFR-2013-title40-vol27-part264-subpartAA.pdf</u> (accessed August 8, 2014)

through the use of best available technology. The vapor-phase carbon adsorption system satisfies this ARAR.

Institutional Control Review

Table 6 provides a list of the parcels associated with the Site's sources of contamination.

Table 6: Source Parcels

Parcel ID	Tax Map ID	Address	Owner	Current Use
670000664007	67017 025	1547 North Trooper Road	T-Squared Realty, LLC.	Techni-Tool facility (former Transicoil property)
670000665006	67017 050	1575 North Trooper Road	Worcester Township	Nike Park
670000667004	67017 049	1581 North Trooper Road	General State Authority Real Estate	Center Point Training Center

Tables 7 and 8 list the institutional controls at the Site. Figure 4 shows the areas of the Site subject to institutional controls. Section 4.2 also discusses the Site's institutional controls.

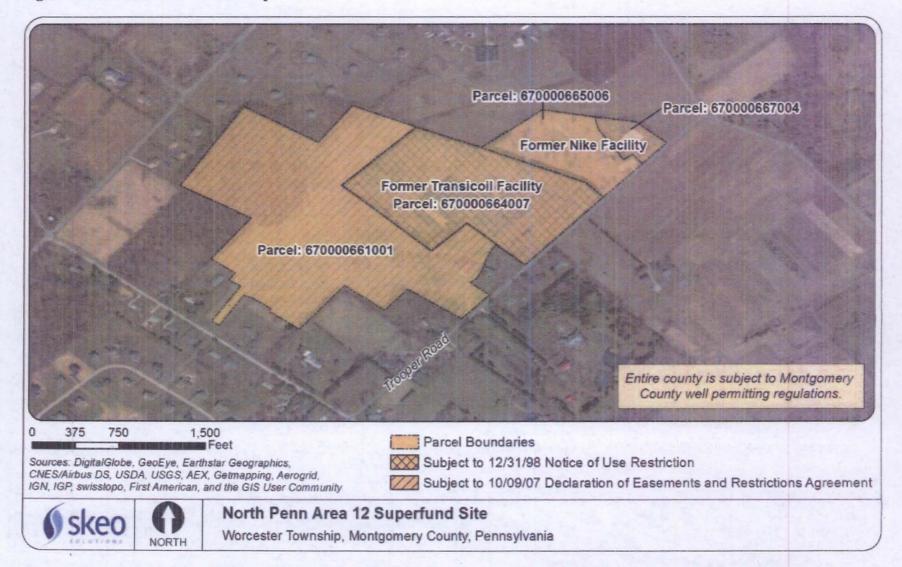
Table 7: Documents from Montgomery County Recorder of Deeds Website

Date Recorded	Description		Book #	Page #	
12/31/98	Notice of Use Restriction	Prohibits the use of groundwater at the former Transicoil property until EPA determines that the water is safe for use as drinking water.	5254	1110-1117	
12/31/98	Agreement and Covenant Not to Sue	Prospective purchaser agreement between EPA and Techni-Tool, Inc. and T-Squared Realty, LLC.	5254	1118-1161	
10/09/07	Declaration of Easements and Restrictions Agreement	Agreement between prospective developer of property west of former Transicoil property and one of the Site's PRPs (Schlumberger Technology Corporation) providing access to the property and prohibiting the use of groundwater for drinking until EPA determines that it is safe to do so.	5667	2472	

Table 8: Institutional Control ((IC)	Summary Table
----------------------------------	------	---------------

Medium	ICs Called for in the ROD?	ICs In Place?	IC Objective	Impacted Parcel	Instrument in Place	Notes
Groundwater at the former Transicoil property	Yes	Yes	Prohibit use of groundwater on the former Transicoil property	670000664007	12/31/98 Notice of Use Restriction	Applies to the former Transicoil property
	Yes	\$	Yes Restrict the use of site-related contaminated groundwater as a drinking water supply source	670000661001	10/09/07 Declaration of Easements and Restrictions Agreement	Applies to the property west of the former Transicoil property
Groundwater off the former Transicoil property		Yes		Various parcels	Montgomery County Public Health Code, Chapter 17 (well permitting regulations)	Regulations require permit for any new supply well before installation and sampling of well water to demonstrate compliance with drinking water standards before Health Department will permit the new supply well to be used for drinking purposes. Applies to entire county.

Figure 4: Institutional Controls Map



6.4 Data Review

Groundwater

During this FYR, EPA reviewed performance monitoring reports prepared by the PRPs' contractors. These reports contain groundwater sampling data for the last five years, including data from monitoring wells, extraction wells and residential wells. Appendix I presents TCE plume maps from November 2011 and November 2014 created by the PRPs. The data and the PRPs' plume maps suggest that the TCE plume has been stable or slightly shrinking in extent between 2011 and 2014. This data includes samples from three new monitoring wells EPA requested the PRPs install in 2012 to help determine the effectiveness of the current extraction system and delineate the plume. EPA has determined that the current groundwater extraction system is effectively capturing the known plume. Preliminary data from the ongoing optimization of the system also support this conclusion, but that information will not be finalized until the completion of the Optimization Report.

Monitoring and Extraction Wells

The following COCs were detected during the past five years at concentrations greater than their cleanup goals: TCE, 1,1-DCE and PCE. TCE is the most widespread COC at the Site. During the most recent sampling event (November 2014), it was detected above its cleanup goal in 16 of the 26 monitoring and extraction wells that were sampled. TCE concentrations have decreased in almost all of the monitoring and extraction wells since the groundwater extraction system began operating. The PRP's ongoing optimization is evaluating the groundwater extraction and treatment system to determine whether it should be modified in order to attain cleanup goals. Appendix H presents TCE concentration data for the past five years for monitoring and extraction wells.

Residential Wells

TCE was the only COC detected above its cleanup goal (5 μ g/L) in residential wells in the past five years. It was detected in RW-11, RW-16, RW-20 and RW-22A at levels ranging from 2.5 to 20 μ g/L during 2009-2014. See figures I-1 through I-3. All residents are currently connected to a municipal water line and do not use their residential wells as a potable source.

1,4-Dioxane

EPA's 2005 FYR recommended that groundwater at the Site be sampled for 1,4-dioxane, a stabilizing compound often found in solvents. The PRPs sampled monitoring wells for 1,4-dioxane in November 2005; concentrations ranged from 1.4 to 12 μ g/L. The PRPs sampled again for 1,4-dioxane in November 2012; concentrations ranged from undetected to 6.2 μ g/L. The current residential screening level (RSL) for 1,4-dioxane (corresponding to a cancer risk of 1 E-06) is 0.78 μ g/L. Six of twenty indoor air samples exceeded this RSL. EPA determined that even though a few exceedances of the RSL were observed, the detected concentrations of 1,4-dioxane still fell well within EPA's acceptable risk range (1 E-06 to 1 E-04). In addition, contaminated groundwater is no longer used for drinking, due to the extension of the municipal water line.

Discharge to Surface Water

Table 9 presents the effluent limitations from the Site's NPDES permit. During this FYR, EPA reviewed the Site's electronic discharge monitoring reports available from PADEP's online reporting website.² The website has data for the period from July 2011 through February 2015. During this period, the Site had a single exceedance of the effluent limitations. In September 2014, the average monthly TCE concentration was 0.0061 mg/L.

Table 9: Effluent Limitations from NPDES Permit

Parameter	Effluent Limitation (mg/L)					
	Instantaneous Minimum	Daily Maximum	Average Monthly	Instantaneous Maximum		
pH	6.0	Not applicable	Not applicable	9.0		
TCE	Not applicable	0.010	0.005	0.013		

Air

The PRPs do not collect air effluent samples. The selected remedy does not include an air sampling component or an emissions calculation analysis to determine if the system is compliant with this ARAR; therefore, this FYR is not able to assess compliance with the first of the Site's two air ARARs, as described in Section 6.3. The high efficiency of the remedy's vapor-phase carbon adsorption system likely meets these requirements, however direct sampling data or an emissions calculation analysis is necessary for confirmation.

The use of a vapor-phase carbon adsorption system as the best available technology for emissions reduction satisfies the second ARAR without the requirement of data collection or emissions calculation.

6.5 Site Inspection

EPA conducted the first of two FYR site inspections on November 10, 2014. This inspection was attended by the EPA RPM, EPA CIC, PADEP Project Officer, and two contractors for the PRP, Schlumberger. The inspection primarily focused on the operation of the extraction system and the PRP's transition of Site responsibilities from Schlumberger's previous contractor to their current contractor, CH2MHILL. EPA and PADEP concurred that an additional FYR site inspection would be necessary to fully complete the inspection of the Site.

EPA conducted the second FYR site inspection on March 11, 2015. Site inspection participants included:

- EPA RPM
- EPA CIC
- PADEP Project Officer
- CH2MHILL O&M project manager contractor for Schlumberger

² http://www.portal.state.pa.us/portal/server.pt/community/eDMR/17879/Search_eDMR_Data/1876949, data provided by PADEP on March 31, 2015

- Two CH2MHILL O&M staff contractors for Schlumberger
- Two Skeo Solutions contractors for EPA

Site inspection participants toured the groundwater treatment building and walked the Site to inspect monitoring wells and extraction wells. Extraction wells EW-8 and EW-10 were operating at the time of the inspection; extraction well 4 was not running due to low water levels. EW-8 was pumping at a rate of 3 gallons per minute. EW-10 was pumping at a rate of 10 gallons per minute.

The groundwater treatment building is surrounded by a locked fence. The Site's wells are not surrounded by a fence. CH2MHILL stated that there are no problems with trespassing or vandalism at the Site. A paved recreational trail on the Techni-Tool property (the former Transicoil property) is used by employees for walking. There was evidence that the trail had been used by a rider on a horse. The property west of Techni-Tool is undeveloped; the owner allows off-road vehicle riders to use the property. CH2MHILL stated that the off-road vehicle riders have not disturbed the wells.

During the FYR site inspection, the review team noted some minor issues described in the FYR inspection checklist presented in Appendix D. All of the minor issues have been resolved. Photographs from the FYR site inspection and photos showing the resolution of the minor issues are in Appendix E.

On March 11, 2015, Skeo Solutions staff visited the designated site repository, Lansdale Public Library, 301 Vine Street, Lansdale, Pennsylvania 19446, as part of the site inspection. The local repository contained the Site's Administrative Record (AR), last updated in August 2014. The local repository did not contain the Site's FYR reports. Hard copies of the FYR reports have been sent to the site repository, plus both the Site's AR and FYR reports are available electronically from the repository.

6.6 Interviews

The FYR process included interviews with parties affected by the Site, including the PRPs' O&M contractor, Township officials, and residents. The purpose was to document the perceived status of the Site and any perceived problems or successes with the phases of the remedy implemented to date. The interviews are summarized below. Appendix C provides the complete interviews.

The EPA RPM and EPA CIC interviewed the Worcester Township manager and a Worcester Township engineering consultant on March 11, 2015. The Township stated that they did not feel well-informed regarding the Site's cleanup and recommended that EPA send periodic emails to the township manager. They also suggested that the Township could post an update about the Site on the Township website. They reported no problems at the Site such as emergency response, vandalism or trespassing. The Township plans passive recreation for Nike Park. Residents have not raised any concerns about the Site to the Township.

The EPA CIC interviewed Schlumberger's new O&M contractor project manager on March 11, 2015. The O&M project manager stated that the groundwater extraction and treatment system seems to be capturing the plume and that they intend to assess optimization opportunities for groundwater treatment. The transition from the previous O&M contractor went well. The contractor has not heard any complaints from residents since CH2MHILL became involved in the project (in late 2014).

The EPA CIC also interviewed the Site's property owner and two nearby residents. The property owner was aware of the Site's environmental issues but not the current status of the Site. He was satisfied with the project manager's communication regarding the ultimate resolution of minor property damage by trucks during sampling. Both residents mentioned that they were aware of the Site and receive regular sampling data as part of the Monitoring Program but would like to receive regular updates on the progress of the Site directly from EPA.

7.0 Technical Assessment

7.1 Question A: Is the remedy functioning as intended by the decision documents?

The groundwater extraction and treatment system is operating as intended, although many of the extraction wells have had to be shut down due to low water levels. The PRPs' plume maps suggest that the TCE plume has been stable or slightly shrinking in extent between 2011 and 2014. Additional monitoring wells are being installed as part of an optimization that will help to confirm the full delineation of the TCE plume. During the past five years, TCE, 1,1-DCE and PCE were detected onsite at concentrations greater than their cleanup goals, including TCE as high as 340 μ g/L in 2013. During the most recent sampling event (November 2014), TCE was detected above its cleanup goal (5 μ g/L) in 16 of the 26 monitoring and extraction wells that were sampled, up to a maximum concentration of 140 μ g/L. TCE concentrations have decreased in almost all of the monitoring and extraction wells since the groundwater extraction system began operating. TCE was also detected above its cleanup goal in four residential wells in the past five years, at levels ranging up to 20 μ g/L. These four residences were among those connected to the municipal water system in 1999, with the wells converted for non-consumption outside use only.

The PRPs are evaluating the effectiveness of the groundwater extraction and treatment system to ensure it is capturing the full extent of the plume and to determine if modifications can be implemented to accelerate the cleanup. The optimization includes updating the site conceptual model, potentially adjusting the current monitoring/extraction well system, and exploring pilot remedy modifications to speed up the cleanup. The evaluation will be recorded in a final Optimization Report upon the conclusion of the optimization activities.

Institutional controls are in place to prevent exposure to contaminated groundwater. Recorded instruments are in place for the former Transicoil property and for the parcel to the west, prohibiting the use of groundwater for drinking until EPA determines that it is safe to do so. An additional institutional control protects other parcels with contaminated groundwater: the Montgomery County Public Health Code, Chapter 17 (well permitting regulations), requires a permit for any new supply well before installation. The regulations also require sampling of well

water to demonstrate compliance with drinking water standards before the Health Department will permit the new supply well to be used for drinking purposes.

On a single occasion in the past five years, the Site's surface water discharge had TCE concentrations in excess of the Site's NPDES permit limits. PADEP, which has been given oversight of the NPDES permits by EPA, is aware of the exceedance and has recorded it in their database.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of remedy selection still valid?

Yes. The ROD selected MCLs and non-zero MCLGs as the groundwater cleanup goals. The cleanup goals for most of the COCs have not changed since the ROD was issued. The cleanup goal for 1,2-DCE (total) has become less stringent. The cleanup goal for chloroform has become more stringent; however, chloroform concentrations at the Site are far below the more stringent cleanup goal (70 μ g/L).

The PRPs conducted a vapor intrusion investigation in 2012, including subslab, indoor and outdoor air samples in nine buildings including nearby residences. EPA approved the Site Characterization Report: Vapor Intrusion Evaluation (May 11, 2012), which concluded that concentrations of site-related COCs detected in the shallow groundwater did not affect the subslab soil or indoor air quality at levels of concern at the representative buildings tested. EPA concluded that vapor intrusion was not a concern at the Site. The current groundwater extraction system is effectively capturing the known plume.

The property to the west of the former Transicoil property contains the highest concentrations of groundwater contaminants. The owner of that property submitted residential use plans to the locality for review in 2008. The proposal has since expired and the developer has not resubmitted any proposal for development. If a new proposal is submitted, EPA will consider whether it is necessary to implement land use controls to prevent vapor intrusion at any proposed buildings.

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that calls into question the protectiveness of the remedy.

7.4 Technical Assessment Summary

The groundwater extraction and treatment system is operating as intended. The PRPs' plume maps suggest that the TCE plume has been stable or slightly shrinking in extent between 2011 and 2014. However, additional monitoring wells may be needed to confirm the delineation of the TCE plume. During the past five years, TCE, 1,1-DCE and PCE were detected at concentrations greater than their cleanup goals, including TCE as high as 340 μ g/L in 2013. During the most recent sampling event (November 2014), TCE was detected above its cleanup goal (5 μ g/L) in

16 of the 26 monitoring and extraction wells that were sampled. Institutional controls are in place to prevent exposure to contaminated groundwater.

The PRPs are evaluating the effectiveness of the groundwater extraction and treatment system to ensure it is capturing the full extent of the plume and to determine if modifications can be implemented to accelerate the cleanup.

EPA's assessment of the PRPs' 2012 vapor intrusion evaluation concluded that vapor intrusion was not a concern at the Site.

On a single occasion in the past five years, the Site's surface water discharge had TCE concentrations in excess of the Site's NPDES permit limits. PADEP is aware of the incident and has recorded it in their tracking database.

The PRPs do not collect air effluent samples or perform an emissions calculation analysis to determine if the system is compliant with the ARAR requirement that air emissions be below 1.4 kg/hr [kilograms per hour] and 2800 kg/yr [kilograms per year] (3.1 tons/year). The high efficiency of the remedy's vapor-phase carbon adsorption system likely meets these requirements, however direct sampling data or an emissions calculation analysis is necessary for confirmation.

8.0 Issues

Table 10 summarizes the current site issues.

Table 10: Current Site Issues

Issue	Affects Current Protectiveness?	Affects Future Protectiveness?
Need to evaluate air emissions from the treatment system to evaluate compliance with the federal air ARAR (40 C.F.R. Section 264.1032(a)).	No	Yes

9.0 Recommendations and Follow-up Actions

Table 11 provides recommendations to address the current site issues.

Issue	Recommendation / Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Affe Protectiv	Contraction of the second second	
A CALLER THE REAL PROPERTY.			8-1		Current	Future	
Need to evaluate air emissions from the treatment system to evaluate compliance with the federal air ARAR (40 C.F.R. Section 264.1032(a)).	Perform the required calculations and/or collect samples to demonstrate compliance with the federal air ARAR.	PRP	EPA	06/30/2016	No	Yes	

Table 11: Recommendations to Address Current Site Issues

10.0 Protectiveness Statement

The assessment of the third Five-Year Review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD), dated September 30, 1997, and is functioning as designed. There is no exposure to contaminated groundwater because residents are on a public water system, and institutional controls are in place to prevent use of contaminated groundwater as a source of drinking water. The current groundwater extraction system is effectively capturing the known plume. There is an ongoing optimization of the current groundwater extraction system which is described in this FYR. EPA has determined that the Site is protective of human health and the environment in the short term. EPA expects the Site will be fully protective of human health and the environment when the groundwater cleanup goals are met.

11.0 Next Review

The next FYR will be completed within five years of the completion date of this FYR report. The completion date is the date of the signature on the cover of this report.

Appendix A: List of Documents Reviewed

CH2M Hill, 1996. North Penn Area 12 Remedial Investigation Report. CH2M Hill, January, 1996.

CH2M Hill, 1997. North Penn Area 12 Feasibility Study Report. CH2M Hill, February, 1997.

United States Environmental Protection Agency (EPA), 1997. Record of Decision, Record of Decision for North Penn Area 12 Site, Worcester Township, Montgomery County, Pennsylvania, September 30, 1997.

EnviroGroup, 2012. Site Characterization Report Vapor Intrusion Evaluation, North Penn Area 12 Site, Worcester Township, Pennsylvania, May 2012.

EPA, 2005. Five-Year Review Report – Second Five-Year Review Report for North Penn Area 12 Site, Worcester Township, Montgomery County, Pennsylvania, September 2005.

EPA, 2010. Five-Year Review Report – Second Five-Year Review Report for North Penn Area 12 Site, Worcester Township, Montgomery County, Pennsylvania, September 2010.

TRC, 2012. Semiannual Performance Monitoring and NPDES Report, June to November 2011, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, January 2012.

TRC, 2012. Semiannual Performance Monitoring and NPDES Report, June 2012 to May 2012, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, July 2012.

TRC, 2013. Semiannual Performance Monitoring and NPDES Report, June to November 2012, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, January 2013.

TRC, 2013. Semiannual Performance Monitoring and NPDES Report, June 2012 to May 2013, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, July 2013.

TRC, 2014. Semiannual Performance Monitoring and NPDES Report, June to November 2013, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Penn'2sylvania, January 2014.

TRC, 2014. Semiannual Performance Monitoring and NPDES Report, June 2012 to May 2014, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, July 2014.

TRC, 2013. System Effectiveness Evaluation Report, North Penn Area 12 Superfund Site, Worcester Township, Montgomery County, Pennsylvania, October 2013.

Appendix B: Public Notification

2 OLOCALNEWS | me

LAW AND ORDER

Lansdale man accused in child porn investigation is released from jail Moises Perez-Gonzalez, 30, posted bail ahead of his scheduled preliminary hearing

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RELIMINARY READ

By Michael Goldberg

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Weapons charge dropped. drug charge held against Berks man

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Lucky for Life (April 27): 2-20-22-29-45 2-20-22-29-45 Doubler: 5 Hot Lotto (April 26) 8-22-24-3)-43 Hot Ball: 17

NEW JORGEY Pick 3 (April 28): 9-0-6 (Cey: 2-3-4)

Pick 4(April 20): 1-1-7-8 (Cay: 4-3-0-0)

Jersey Cash 5(April 28): 5-13-10-25-42 Pick 6 (April 27): 02-03-10-19-40-49

Cash 4 Life (April 23): 13-14-29-46-47

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LOTTERY

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0-4-3-6 lay: 6-2-6-7-2) Treasure Hunt (April 20) 19-20-22-27-28

Cash 8(April 28): 5-22-26-33-42

Match 6(April 26): 1-2-18-31-35-49

Powerball (April 25): 21-33-35-38-45 Powerbalt 12

Mega Millions (April 24): 24-25-29-47-67 Mega Bell: 04

Online: Check out the Intery Master's blog

EPA Reviews Cleanup

North Penn 12 Superfund Site

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PRELIMINARY REAL

Towamencin cook accused of stabbing fellow cook during kitchen fight waives hearing

By Mba mgoldba Aine com @mg_0 A cook at a restaurant in in who allegedly blow cook dur-

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STATE NEWS

Atheist group sues transit system over refusal to run ad

 Arteristi group succes transations system over reclusation of the system of t Multi-Win Latta (April 27): 14-21-26-26-30-34

STATE NEW

Ex-prosecutor's wife paroled in adopted children abuse

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ASSISTANT DISTRICT MANAGER PART TIME Eatly AM hours \$10.00 per hour to start plus mileage reimbursement. Up to 18 hours a waek on regultes a valid Driver's License, cle with current reginand insurance. player & have a positiv

THE REPORTER

For More Information Call Gar Webb 215.648.1148 or







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MACHINERY HAULERS NEEDED **Specialized Flatbed Carrie** MECOSCI

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EPA Reviews Cleanup North Penn 12 Superfund Site

The U.S. Environmental Protection Agency (EPA) is conducting a third Five-Year Review of North Penn Area 12 Superfund Site located in Worcester, Montgomery County, Pennsylvania. EPA inspects sites regularly to ensure that cleanups conducted remain fully protective of public health and the environment. Prior reviews have determined that while the cleanup remedy is protective in short-term, further study is needed to determine long-term protectiveness. More detail and results of this review will be available by September 2015.

To access results of the review (starting September 2015): http://epa.gov/5yr

To learn detailed site and contact information: http://go.usa.gov/3Wamw

To listen to a podcast about EPA Five-Year Reviews: http://go.usa.gov/9rkW

To ask questions or provide site information, contact: Vance Evans Phone: 215-814-5526 Email: evans.vance@epa.gov

Appendix C: Interview Forms

North Penn Area 12 Superfund Site		Five-Year Review Interview		
		· · ·	Form	
Site Name: North	Penn Area 12	EPA ID No.:	PAD057152365	
Interviewer Name:	Rombel Arquines,	Affiliation:	EPA	
	<u>Gina Soscia</u>			
Subject Name:	<u>Lee Mangan</u>	Affiliation:	Worcester Township	
			manager	
Subject Name:	<u>Joseph Nolan</u>	Affiliation:	<u>Worcester Township</u>	
			engineering consultant	
Time: <u>2:10 PM</u>		Date: 3/11/2	<u>2015</u>	
Interview	<u>Worcester Township A</u>	dministration B	uilding	
Location:		• .		
Interview Format (c	ircle one): In Person	Phone M	ail Other:	
Interview Category:	Local Government		1	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

No. Periodic email to township manager.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No.

- 4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?
 - Don't know. There is new thinking about other contaminants such as PFOS and PFOA [perfluorooctane sulfonate and perfluorooctanoic acid]. Could these contaminants be associated with the Site? [EPA responded that there are no plans to sample for PFOA or PFOS because there are no site-specific indicators for EPA to suspect that those contaminants would be present at this Site.]
- 5. Are you aware of any changes in projected land use(s) at the Site?

No. The parcel between Techni-Tool and the training center belongs to the Township. The Township plans passive recreation for Nike Park. The Township is doing environmental studies at Nike Park.

6. Have residents raised concerns about the Site?

No; none in the three and a half years that Mr. Mangan has been here.

7. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Maybe the Township could post an update on the Township website. [EPA stated that it could provide language for the update.]

Five-Year Review Interview Form

Interviewer Name:Gina SosciaAffiliation:EPASubject Name:Kathy ArnettAffiliation:CH2MHILLTime:11:50 AMDate:3/11/15InterviewSiteLocation:Interview Format (circle one):PhoneMailOther:	Site Name: North	Penn Area 12	EPA ID No.: <u>PAD057152365</u>	
Time:11:50 AMDate:3/11/15InterviewSiteLocation:	Interviewer Name:	<u>Gina Soscia</u>	Affiliation: <u>EPA</u>	
Interview <u>Site</u> Location:	Subject Name:	Kathy Arnett	Affiliation: <u>CH2MHILL</u>	
Location:	Time: <u>11:50 AM</u>	· · · ·	Date: <u>3/11/15</u>	
	Interview	<u>Site</u>	· · · · · · · · · · · · · · · · · · ·	
Interview Format (circle one): (In Person) Phone Mail Other:	Location:	· · ·		
	Interview Format (c	circle one): (In Person)	Phone Mail Other:	

Interview Category: O&M Contractor

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

We are pumping the three most effective wells. We seem to be capturing the plume. It is stable. Communication is good. We can continue to look at more optimization opportunities.

2. Has the project had effects on the community?

The PRPs looked at vapor intrusion. They installed a public water system. We are trying to reduce the plume size. We are going in a positive direction.

3. Have there been complaints from residents?

Not since CH2MHILL has been involved in the project. We communicate with Techni-Tool and the owner of the adjacent property to the west.

4. Do you feel well-informed regarding the Site's activities and remedial progress?

Yes.

5. Has the transition of O&M contractors been okay?

Yes. We talked to the previous contractor to get information. It was good to replace the SCADA [supervisory control and data acquisition] system.

6. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

No. It's good to have information on the EPA website.

Five-Year Review Interview

	Form
Site Name: North Penn Area 12	EPA ID No.: PAD057152365
Interviewer Name: <u>Gina Soscia</u>	Affiliation: <u>EPA</u>
Subject Name: William Haberstroh	Affiliation: <u>CH2MHILL</u>
Time: <u>12:30 PM</u>	Date: <u>3/11/15</u>
Interview <u>Site</u>	· · · ·
Location:	
Interview Format (circle one): (In Person	Phone Mail Other:
Lateration Cotecorry ORM Contractor	

Interview Category: O&M Contractor

1. What have been the effects of this Site on the surrounding community, if any?

Techni-Tool makes sure the trail is clear of debris. Techni-Tool has not had any concerns in 15 years. There has been no vandalism.

2. What is your assessment of the current performance of the remedy in place at the Site?

Good. It has cleared hurdles. It has proven itself over the winter. Mechanical operation is good. Some components have failed, which is typical. We conducted a safety assessment of the treatment building.

3. Do you feel well-informed regarding the Site's activities and remedial progress?

Yes.

4. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

No. It's a good site. The SCADA system is good; it enables us to stay on top of issues.

Five-Year Review Interview

Form PAD057152365 Site Name: North Penn Area 12 EPA ID No.: Interviewer Name: Vance Evans Affiliation: EPA Subject Name: Bill Kushner Affiliation: VP of Techni-Tool (Onsite business) Subject Contact 610-940-5444 **Information:** Time: 10:00 AM Date: 04/13/2015 Other: Phone Mail Interview Format (circle one): In Person

Interview Category: Residents

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

They've been active for 15 years. They come to the site to do testing once a quarter at least.

3. What have been the effects of this Site on the surrounding community, if any?

I don't know if there's been a lot of impacts after they've completed the install. As far as at the property, it's not fully remediated yet, there hasn't been much of an impact. The reports are telling us that the water is being cleaned up considerably.

- 4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?
 - No
- 5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

I don't know that. In the beginning we would get annual or 6 month reports on progress. I have not seen any updates recently.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

We use public water.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

We have a walking trail that our employees use. The contractors use the trail for monitoring and drive on it. I would recommend that they would pave the trail, as it is gravel now.

North Penn Are	a 12 Superfund Site		, i e
Site Name:	North Penn Area 12	EPA ID	PAD057152365
		No.:	
Interviewer Name:	Vance Evans	Affiliation:	EPA
Subject Name:	Property Owner	Affiliation:	Property Owner
Time: 03:0	0PM	Date: 04/2	1/2015

Interview Format (circle one): In Person Phone Mail Other:

Interview Category: Residents

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

I'm aware of the environmental issues, I'm not aware of all the activities that have taken place to date. I don't really know what the status is, I don't know anything.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I don't really have much of a comment. I don't really see what is going on. It's all subsurface so it doesn't really pertain to me.

3. What have been the effects of this Site on the surrounding community, if any?

It has had little to no effect that I can see. I'd love to get rid of the monitoring wells on the property.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

The new company that took over the monitoring got trucks stuck and left trash in my field, and I was annoyed and aggravated that no one came to tell me about it. Everything is fine now. The new project manager has emailed me and has been in communication.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Maybe I haven't really looked at it enough, but I think if EPA could email something on an annual basis, I think that would be good. Keep it simple. You can ask the property owners if they want to be informed. My property adjoins it so I like to know what's going on.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

I do not have a private well.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

I'm going to be selling the property shortly so it would be nice to have an update of the site. Communication through email would be great.

Five-Year Review Interview

Form

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Site Name:	<u>North Penn Area 12</u>		
Interviewer	Name:	Vance Evans	
Subject Nam	ie:	Resident 1	
Time: <u>03:3</u>	<u>0 PM</u>		

EPA ID No.:PAD057152365Affiliation:EPAAffiliation:ResidentDate:04/09/2015

Interview Category: Residents

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes. We've lived there since 1990-91. At the time when we moved in the process consisted of two huge carbon filters and the well water would flow through there. Once a month they would swap them out.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I'm neutral. We were told right away the site was heavily contaminated and it was going to be a long term fix. I didn't do any research to see if there were any other solutions.

3. What have been the effects of this Site on the surrounding community, if any?

Only 1 family has been there longer than us. When new neighbors came in they were told about it. I don't think there's a large negative effect. Personally, I really enjoyed our well water. I can't get used to the North Penn water. Public water is a minor inconvenience in the grand scheme of things.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

No not that I know of. There were some teenagers in the woods right near the site that the police were called on but it wasn't really a big issue and it wasn't on the site.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

The water testing organization sends us results each month, but we don't hear directly from the EPA. I don't think we've had enough information from the EPA. I would like to hear from the EPA by mail. I have read about the site on EPA's website.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

No

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Is it the final goal to clean the water table and make it drinkable, or just to clean it for nonpotable uses? We get results from water testing once a month. When I read those reports, I'm not sure if it's telling me how the progress of the cleanup is going. It would be nice to know how EPA thinks the project is going. You could be doing a great job but it might not be interpreted properly by the general public.

Five-Year Review Interview Form

Site Name: North Penn Area 12	EPA ID No.: <u>PAD057152365</u>
Interviewer Name: <u>Vance Evans</u>	Affiliation: <u>EPA</u>
Subject Name: <u>Resident 2</u>	Affiliation: <u>Resident</u>
Time: <u>01:00 PM</u>	Date: 04/13/2015
Interview Format (circle one): In Person	Phone Mail Other:

Interview Category: Residents

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

A very general sense. I do not know exactly what was going on up there, but I know it exists.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I'm not aware of anything ongoing. I have been contacted a couple times but I don't know exactly what is going on.

3. What have been the effects of this Site on the surrounding community, if any?

Not that I know of.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

Not that I know of.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

Yes. Contact by email would be more helpful.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

No.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

No I do not.

Appendix D: Site Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST				
I. SITE INF	ORMATION			
Site Name: North Penn Area 12	Date of Inspection: 03/11/2015			
Location and Region: Worcester Township, PA, Region 3	EPA ID: <u>PAD057152365</u>			
Agency, Office or Company Leading the Five-Year Review: <u>EPA</u>	Weather/Temperature: partly sunny, 45°F			
Remedy Includes: (Check all that apply) Image: Monitored natural attenuation Image: Landfill cover/containment Monitored natural attenuation Image: Access controls Ground water containment Image: Institutional controls Vertical barrier walls Image: Ground water pump and treatment Surface water collection and treatment Image: Other: extension of public water supply				
Attachments: Inspection team roster attached	Site map attached			
1. O&M Site Manager Kathy Arnett Name Name Interviewed ⊠ at site □ at office □ by phone P Problems, suggestions □ Report attached: see FYR S				
2. O&M Staff William Haberstroh CH2MHILL O&M staff 03/11/2015 Name Title Date Interviewed ⊠ at site □ at office □ by phone Phone: Problems/suggestions □ Report attached: see FYR Appendix C				
 3. Local Regulatory Authorities and Response Agencies (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply. Agency Worcester Township Contact Lee Mangan township manager 03/11/2015 Name Title Date Phone No. Problems/suggestions Report attached: see FYR Section 6.6 and Appendix C 				
Agency <u>Worcester Township</u> Contact <u>Joseph Nolan</u> <u>Worcester Township's</u> <u>03/11/2015</u> Name <u>engineering consultant</u> Date Phone No. Title Problems/suggestions Report attached: <u>see FYR Section 6.6 and Appendix C</u>				
4. Other Interviews (optional) 🛛 Report attache	od:			
Bill Kushner, VP of Techni-Tool				
owner of part of the Site	······································			
nearby residents	· · · · · · · · · · · · · · · · · · ·			

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)				
1.	O&M Documents		· · ·	
	⊠ O&M manual ⊠ Readily available	Up to date	1 🗌 ·	N/A
	As-built drawings Readily available	Up to date	1 🗌	N/A
	Maintenance logs Readily available	Up to date	1 🗌	N/A
	Remarks:			-
2.	Site-Specific Health and Safety Plan	Readily available	Up to date	□ N/A
	Contingency plan/emergency response plan	Readily available	Up to date	□ N/A
	Remarks:	· · · · · · · · · · · · · · · · · · ·	<u> </u>	·
3.	O&M and OSHA Training Records	Readily available	Up to date	🗌 N/A
	Remarks:	• .* 		<u> </u>
4.	Permits and Service Agreements	. '		
2	🔀 Air discharge permit	Readily available	Up to date	🗌 N/A
·	Effluent discharge	🔀 Readily available	Up to date	□ N/A
	Waste disposal, POTW	Readily available	Up to date	🛛 N/A
, .	Other permits:	Readily available	Up to date	🖾 N/A
	Remarks:	, 		
5.	Gas Generation Records	Readily available	Up to date	🛛 N/A
	Remarks:	۱ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰۰ ۲۰۰	· · · · · · · · · · · · · · · · · · ·	· · . ,
6.	Settlement Monument Records	Readily available	Up to date	N/A
	Remarks:	· · · · · · · · · · · · · · · · · · ·		·
7.	Ground Water Monitoring Records	🔀 Readily available	Up to date	N/A
	Remarks:		۱	`.
8.	Leachate Extraction Records	Readily available	Up to date	N/A
<u></u>	Remarks:		·	
9.	Discharge Compliance Records		, ,	
	Air Readily available	Up to date	N	I/A
	☑ Water (effluent)	🔀 Up to date	· · · N	I/A
	Remarks: The Site had two exceedances of the effluent limitations for TCE. PADEP was aware of the exceedances and recorded them in their Database.			vare of the
10.	Daily Access/Security Logs	Readily available	Up to date	N/A
•	Remarks:			
	IV. O&M (COSTS		
1.	O&M Organization			×.

	State in-house Contractor for state			
	PRP in-house		Contractor for PRP	
	Federal facility in-house		Contractor for Federal facility	
			· · · · · · · · · · · · · · · · · · ·	
2.	O&M Cost Records		· · ·	· · · · · · · · · · · · · · · · · · ·
	Readily available		Up to date	
-	🔀 Funding mechanis	m/agreement in place	🔲 Unavailable	
	Original O&M cost e	stimate: <u>\$29,000 per yea</u>	r 🗌 Breakdown a	ttached
		Total annual cost by y	ear for review perio	od if available
	From: <u>01/01/2010</u>	To: <u>12/31/2010</u>	\$245,000	Breakdown attached
	Date	Date	Total cost	
	From: <u>01/01/2011</u>	To: <u>12/31/2011</u>	<u>\$193,000</u>	Breakdown attached
	Date	Date	Total cost	
	From: <u>01/01/2012</u>	To: <u>12/31/2012</u>	\$246,000	Breakdown attached
	Date	Date	Total cost	:
	From: <u>01/01/2013</u>	To: <u>12/31/2013</u>	\$247,000	Breakdown attached
	Date	Date	Total cost	• • • • • • • • • • • • • • • • • • •
	From: 01/01/2014	To: <u>12/31/2014</u>	<u>\$252,000</u>	Breakdown attached
	Date	Date	Total cost	<u> </u>
3.	Unanticipated or Un	usually High O&M Co	sts during Review	Period
	Describe costs and rea	sons:	·	
L	V. ACCESS	AND INSTITUTIONA	L CONTROLS	Applicable N/A
A. Fen	icing			· · · · · · · · · · · · · · · · · · ·
1. Fencing Damaged Location shown on site map Gates secured N/A				
Remarks: The groundwater treatment building is surrounded by a locked fence. The Site's wells are not surrounded by a fence.				
B. Other Access Restrictions				
1.	Signs and Other Secu	irity Measures	Location	n shown on site map N/A
Remarks: The sign posted on the fence around the treatment building listed a phone number for the previous PRP contractor. The current PRP contractor, CH2MHILL, stated that a new sign had been ordered and would be posted. The new sign is currently posted.				
C. Institutional Controls (ICs)				

1.	Implementation and Enforcement		
	Site conditions imply ICs not properly implemented	🗌 Yes	🛛 No 🗌 N/A
	Site conditions imply ICs not being fully enforced	🗌 Yes	🛛 No 🗌 N/A
	Type of monitoring (e.g., self-reporting, drive by): Five-Year Reviews		n.
	Frequency: every 5 years		
ľ	Responsible party/agency: <u>EPA</u>		
	Contact <u>Rombel Arquines</u> <u>Remedial Project Manager</u>		<u>215-814-</u> <u>3182</u>
}	Name Title	Date	Phone no.
	Reporting is up to date	Yes.	🗌 No 🛛 🕅 N/A
	Reports are verified by the lead agency	🗌 Yes	🗌 No 🛛 N/A
	Specific requirements in deed or decision documents have been met	🛛 Yes	No N/A
	Violations have been reported	🗌 Yes	🗌 No 🛛 N/A
	Other problems or suggestions: Report attached	-	
2.	Adequacy 🛛 ICs are adequate 🗌 ICs are inade	quate	
	Remarks:		
D.	General		· · · · · · · · · · · · · · · · · · ·
1.	· · · · · · · · · · · · · · · · · · ·	vandalism	n evident
	Remarks:		
2.	Land Use Changes On Site Remarks: <u>Site is under reuse by Techni-Tool (warehouse electronics dis</u> (passive recreation park), and Center Point Training Center (adult traini		
3.	Land Use Changes Off Site		-
5.	Remarks: <u>Developer's plan to develop parcel west of Site has expired.</u>		· ·
┝──	VI. GENERAL SITE CONDITIONS		
<u> </u>	Roads \bigotimes Applicable \square N/A		
┣—			······································
1.		ds adequa	te 🗌 N/A
E	Remarks:		
<u>₿.</u>	Other Site Conditions		
<u> </u>	Remarks:		<u></u>
	VII. LANDFILL COVERS Applicable	N/A	· · · · · · · · · · · · · · · · · · ·
A .	Landfill Surface Applicable N/A	:	
B.	Benches		
	(Horizontally constructed mounds of earth placed across a steep landfill order to slow down the velocity of surface runoff and intercept and con-		
C.	Letdown Channels Applicable N/A		

(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
D. Cover Penetrations				
E. Gas Collection and Treatment Applicable XN/A				
F. Cover Drainage Layer Applicable N/A	· · · · · ·			
G. Detention/Sedimentation Ponds Applicable N	//A			
H. Retaining Walls Applicable N/A	· · · · · · ·			
I. Perimeter Ditches/Off-Site Discharge	//A			
VIII. VERTICAL BARRIER WALLS				
IX. GROUND WATER/SURFACE WATER REMEDIES Applicable N/A				
A. Ground Water Extraction Wells, Pumps and Pipelines Applicable N/A				
1. Pumps, Wellhead Plumbing and Electrical				
Good condition All required wells properly operating	Needs maintenance N/A			
Remarks:				
2. Extraction System Pipelines, Valves, Valve Boxes and Other App	urtenances			
Good condition I Needs maintenance				
Remarks:	· · · · · · · · · · · · · · · · · · ·			
3. Spare Parts and Equipment				
Readily available Good condition Requires up	ograde Needs to be provided			
Remarks:				
B. Surface Water Collection Structures, Pumps and Pipelines 🗌 Applicable 🔀 N/A				

.

L											
C. Tr	reatment System 🛛 Applicable 🗌 N/A										
1.	Treatment Train (check components that apply)										
	Metals removal Oil/water separation Bioremediation										
	Air stripping Carbon adsorbers										
	Filters:										
	Additive (e.g., chelation agent, flocculent):										
	□ Others:										
	Good condition										
	Sampling ports properly marked and functional										
	Sampling/maintenance log displayed and up to date										
	Equipment properly identified										
	Quantity of ground water treated annually:										
	Quantity of surface water treated annually:										
	Remarks: Air samples are not currently taken as part of the O&M.										
2.	Electrical Enclosures and Panels (properly rated and functional)										
	□ N/A										
 	Remarks:										
3.	Tanks, Vaults, Storage Vessels										
	\square N/A \square Good condition \square Proper secondary containment \square Needs maintenance										
	Remarks:										
[•] 4.	Discharge Structure and Appurtenances										
	N/A Good condition Needs maintenance										
	Remarks:										
5.	Treatment Building(s)										
	\square N/A \boxtimes Good condition (esp. roof and doorways) \square Needs repair										
	Chemicals and equipment properly stored										
	Remarks:										
6.	Monitoring Wells (pump and treatment remedy)										
	Properly secured/locked Functioning Routinely sampled Good condition										
.	All required wells located Needs maintenance N/A										
	Remarks: During the FYR site inspection, some of the monitoring and extraction well covers were either										
	unlocked, or locked but not attached to the well casing. Some of the power boxes adjacent to the extraction wells were missing locks. Some of the wells were not labeled. Site inspection participants were not able to										
	locate MW-20. All issues with well covers, locks and labels were resolved prior to the completion of the										
1	FYR (see Appendix E).										

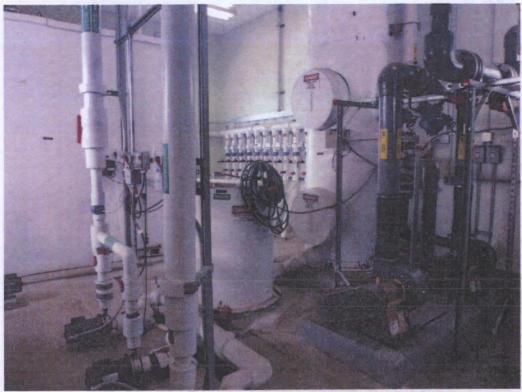
ι.

D. Mo	onitoring Data										
1.	Monitoring Data										
	Is routinely submitted on time Is of acceptable quality										
2.	Monitoring Data Suggests:										
	Ground water plume is effectively contained Contaminant concentrations are declining										
E. Monitored Natural Attenuation											
1.	Monitoring Wells (natural attenuation remedy)										
	Properly secured/locked Functioning Routinely sampled Good condition										
	All required wells located Needs maintenance N/A										
ł	Remarks:										
	X. OTHER REMEDIES										
	re are remedies applied at the site and not covered above, attach an inspection sheet describing the physical										
nature	and condition of any facility associated with the remedy. An example would be soil vapor extraction.										
	XI. OVERALL OBSERVATIONS										
<u>A.</u>	Implementation of the Remedy										
-	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant										
ł	plume, minimize infiltration and gas emissions).										
	Current data indicate the current extraction system is capturing the known plume. Preliminary data from										
	the Site's ongoing optimization support that conclusion. High concentrations of TCE are present in the										
	groundwater beneath the vacant property to the west of the former Transicoil property. The owner of that										
L	property had planned to develop it for residential use, but the proposal has since expired.										
<u>B.</u>	Adequacy of O&M										
	Describe issues and observations related to the implementation and scope of O&M procedures. In										
	particular, discuss their relationship to the current and long-term protectiveness of the remedy. The PRPs do not collect air effluent samples; therefore, EPA is not able to assess compliance with the										
	Site's air ARARs. The Site had one exceedance of the effluent limitations for TCE. PADEP was aware of										
	the exceedance and recorded it in their database.										
C.	Early Indicators of Potential Remedy Problems										
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high										
	frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromise in the future. <u>The ongoing optimization may adjust the cost or scope of the O&M due to adjustments to the current</u> system and potential pilots to investigate modifications to accelerate the cleanup.										
D.	Opportunities for Optimization										
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.										
	The ongoing optimization includes updating the conceptual site model, potentially adjusting the										
	monitoring/extraction well system, and exploring pilot modifications to speed up the cleanup.										
L											

Site inspection participants included:

- Rombel Arquines, EPA RPM
- Gina Soscia, EPA CIC
- Ellen Davies, PADEP project officer
- Katherine Arnett, CH2MHILL project manager (PRPs' O&M contractor)
- William Haberstroh and Paul Horigan, CH2MHILL O&M staff
- Ryan Burdge and Hagai Nassau, Skeo Solutions (EPA FYR contractors)

Appendix E: Site Photographs



Groundwater treatment building, interior



Groundwater treatment building, exterior

Authorized Personnel Only

This facility is operated and maintained as part of the **North Penn Area 12 Superfund Site**

ch2m.

In case of emergency call 610-751-0272

Updated Treatment Building Signage



Newest extraction well EW-10



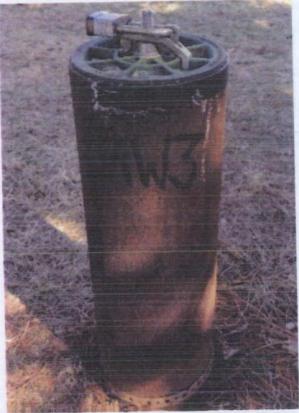
One of three new monitoring wells, MW-18, installed after newest extraction well





Unlabeled, Damaged MW-13 Cover (before)

MW-13 New Cover (after)



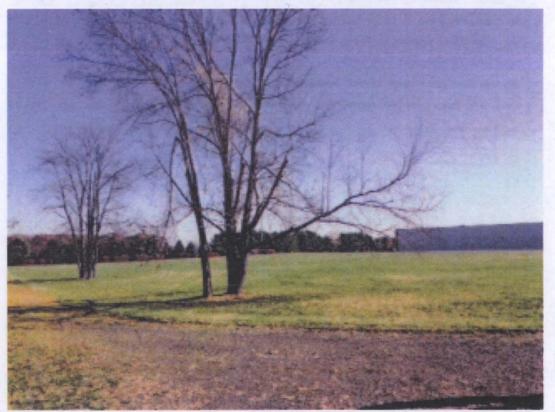
MW-3 Old Cover (before)



MW-3 New Cover (after)



Site Reuse: Techni-Tool Warehouse Electronics Distribution Facility



Techni-Tool Employee Walking Path behind the facility building

Appendix F: Notice of Use Restriction for Former Transicoil Property (Title Page)

225647

Audiosath Parcel Humber: 57-00-00164-00.7

Address: 1547 North Trooper Road, Worsseter Township, Montgomery County; Pennaylvania

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Prepared by: 0.8. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, 2A 13103

NOTICE OF DEE FESTRICTION

This Notice of Use Restriction is made this 17 day of incember 19 98. by TECHNI-TOOL, INC. and T-SQUARED REALTY, L.L.C. (collectively, "Owners"), having an address of 5 Apollo Road, Box 268, Plymouth Maeting, Papnaylvapia 19462-0368.

I. RECITALE

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55 GEC 31

EXATORY 4

WHEREAS, Owners are the owner and operator of the former Transicoil property ("Propercy"), a 25-acre percel of land and buildings located at 1547 North Trooper Road in Worcester Township, Nontycebry County, Papagylvania, and legally described in Exhibit A; and

WHEREAS, a portion of the Property is included in the North Fenc Area 12 Superfund Site ("Site"), which the United States Hovironmental Protection Agency placed on the National Priorities Met. 40 C.F.R. Part 300, Appendix B, parsuant to Section 105 of

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Appendix G: Declaration of Easements and Restrictions Agreement for Parcel West of Former Transicoil Property (Title Page)

Auxonment 4: Deciaration of Easements and Restriction Agreement

Prepared By & Return To:

Robert W. Gundlach, Jr., Esquire Inst # 2007122428 c/o Fox Rothschild, LLP 2700 Kelly Read Suits 300 Warrington, PA 18976

JULINI DUULITZ

Tax Parcel No.

67-00-00661-001

DECLARATION OF EASEMENTS AND RESTRICTIONS AGREEMENT

THIS DECLARATION OF EASEMENTS AND RESTRICTIONS AGREEMENT ("Declaration") is made this <u>Grin</u> day of <u>Tulu</u>, 2007, by and between STUMP HALL ROAD ASSOCIATES, L.P., a Pennsylvania limited partnership ("Grantor") and Schlumberger Technologies Corporation, a Texas corporation ("Schlumberger" or "Grantse").

BACKGROUND

A. Grantor is the owner of a cartain parcel of real property, consisting of approximately 54.60 acres and know as Tax Parcel No. 67-00-00661-001, situated on Township Line and Trooper Roads in Worcester Township, Montgomery County, Pennsylvania, as more particularly described in the legal description attached hereto as Exhibit "A" (the "Property").

B. Orantor has proposed to subdivide the property into 25 building lots and construct single family detached dwellings thereon (the "Proposed Residential Development") in accordance with the Master Subdivision and Site Plan for Phase 4 of the Reserve at Center Point, prepared by Langan Engineering and Environmental Sarvices, Inc., dated May 10, 2004, as revised October 23, 2006, and hereafter to be further revised, on file in the offices of Worcester Township (the "Subdivision Plane").

C. Oroundwater beneath the southeastern corner of the Property has been historically impacted by contaminants migrating from an adjacent property, located at 1547 North Trooper Road and known as tax parcel no. 67-00-00664-00-7 (the "Adjacent Property"). The U.S. Environmental Protection Agency has designated the area to which contamination has migrated or come to be located as the "North Penn Area 12 Superfined Site" ("Site"). The Site is currently undergoing environmental cleanup and remediation by Schlumberger, in accordance with that certain EPA Unilateral Order for Remedial Action (the "EPA Order"), issued by the U.S. Environmental Protection Agency ("EPA") to Schlumberger on July 22, 1998.

DTI 134769wi 06/25/07

Appendix H: TCE Concentration Data

Well ID	Base	May-	Nov-	May-	Nov-	May-	Nov-	May-	Nov-	May-	Oct/	May-	Nov
N CILL O	105	09	09	10	10	11	11	12	12	13	Nov-13	14	14
MW-3	185	41	30	39	38	43	31	18	24	28	25	21	25
MW-4	24.5	20	17	17	17	16	13	14	11	13	13	9.9	9
MW-5	2.5	0.3	0.2	<1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
MW-6S	NW	NS	NS	NS									
MW-6D	NW	3	1.9	1.7	1.3	1.4	1.1	1	1	1.2	0.8	0.8	0.7
MW-7	7	3.2	2.9	3.1	4.3	3.4	6.3	8.5	5.2	6.8	7.1	6.3	6
MW-8	3.4	4.2	3.9	3.8	4.3	4.4	4.1	4.3	3.6	7.1	4.2	3.9	4
MW-9	62.5	21	16	16	16	15	12	15	12	15	12	11	11
MW-10	ND	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW-11	8.8	19	16	15	13	11	9.8	10	8.4	7.4	8.4	8.2	7.6
MW-12	4.2	0.7	0.5	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5
MW-13	NW	74	66	96	60	59	43	58	41	41	43	40	32
MW-14	NW	0.1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW-15	NW	18	13	13	8.6	11	9.8	8.5	5.9	8.2	5.8	6.9	4.7
MW- 17S	NW	87	140	81	83	120	56	110	320	340	130	150	64
MW- 17D	NW	22	21	20	21	19	16	17	14	17	15	15	13
MW-18	NW	260	220	180	170	140							
MW-19	NW	12	18	19	17	36							
MW-20	NW	56	61	56	63	44							
T-3	12.3	4.1	1.1	0.2	1	1	0.6	0.3	0.4	1.1	0.5	0.5	0.4
T-5	7.4	1.7	1.1	1.7	2	1.6	1.6	1.9	1.4	1.3	2.6	1	2
EW-1	NW	23	9	6	15	5.9	8	17	10	.4	12	11	7
EW-2	12.6	23	14	15	22	14	16	17	20	16	24	96	8
EW-3	NW	14	4.4	3	8.4	4.8	6.2	12	11	8.5	26	12	4
EW-4	NW	8.2	120	180	170	190	210	230	120	310	310	240	100
EW-5	205	NS	NS	NS	NS	NS	NS.	NS	NS	NS	NS	NS	NS
EW-6	NW	NS	NS	NS									
EW-7	NW	NS	NS	NS									
EW-8	NW	50	49	51	48	51	46	70	55	59	53	54	39
EW-9	NW	NS	NS	NS									
EW-10	NW	130	120	150	110	160	110	170	150	140	110	130	95

Table H-1: TCE Concentrations, 2009-2014 (µg/L)

Notes:

NW = No well existed at this sampling date NS = Well not sampled <= less than the listed method detection limit

Appendix I: Plume Maps

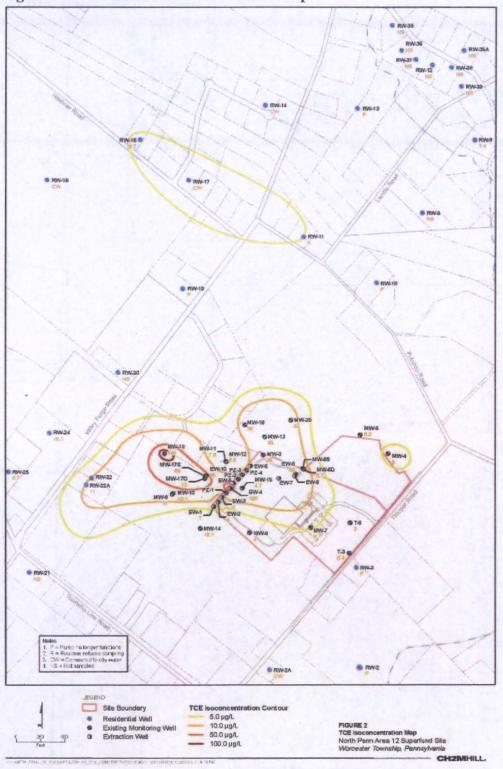


Figure I-1: November 2014 TCE Plume Map³

³ From Semiannual Performance Monitoring and NPDES Report—November 2014, dated January 2015, prepared by CH2MHILL

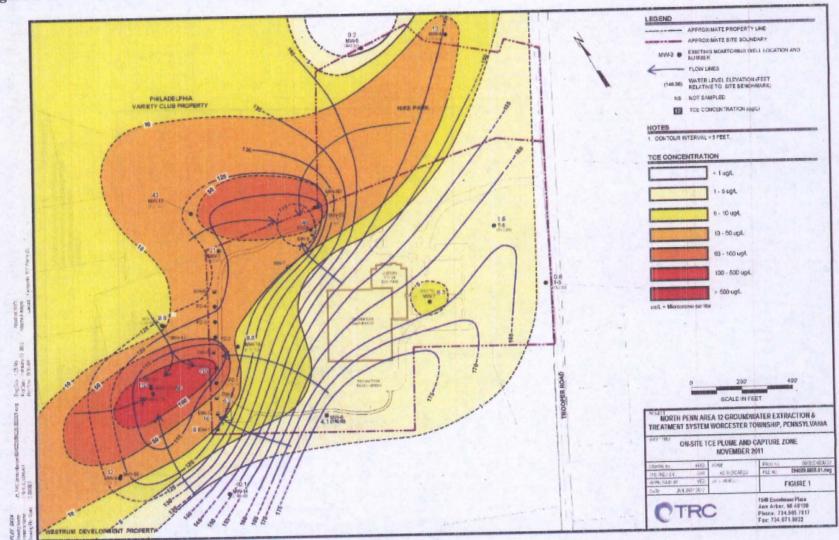


Figure I-2: November 2011 TCE Plume Map⁴

⁴ From Semi-Annual Performance Monitoring and NPDES Report, dated February 2012, prepared by TRC

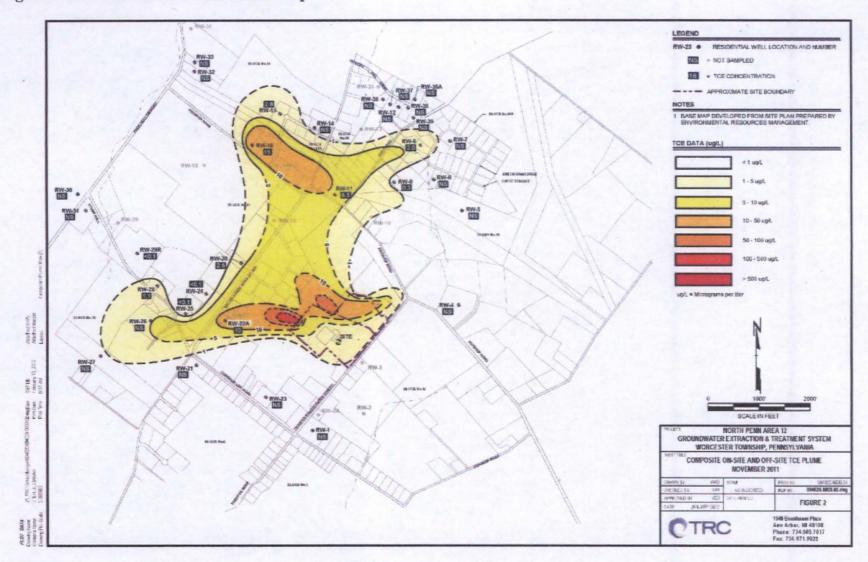


Figure I-3: November 2011 TCE Plume Map⁵

⁵ From Semi-Annual Performance Monitoring and NPDES Report, dated February 2012, prepared by TRC