Second Five-Year Review Report

for

Fischer & Porter Company Superfund Site

Warminster Bucks County, PA

EPA ID# PAD002345817

September 2008

Prepared By:
Environmental Protection Agency
Philadelphia, PA

Approved By:

James J. Burke, Director
Hazardous Site Cleanup Division
EPA, Region III

Date: 9/30/08

Table of Contents
Fischer & Porter Company Five-Year Review
Superfund Site

List of Acronyms

ARARs	Applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
COC	Contaminant of Concern
COE	U.S. Army Corps of Engineers
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
HDPE	High Density Polyethylene
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operations and Maintenance
OU	Operable Unit
PADEP	Pennsylvania Department of Environmental Protection
PADER	Pennsylvania Department of Environmental Resources
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Responsible Party
RPM	Remedial Project Manager
TAL	Target Analyte List
111TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
PCE	Tetrachloroethene (also "Perchloroethylene")
TCL	Target Compound List
UAO	Unilateral Administrative Order
VOCs	Volatile Organic Compounds

Executive Summary

This is the second Five-Year Review for the Fischer & Porter Company Superfund Site and was originally scheduled to be started and completed in 2008. However, five-year review investigation activities were initiated early, in 2005, in response to a potentially significant change in the operation of the remedy for this Site. A water supply well operated by the Warminster Heights Water Authority (WH1) that functioned to contain the northern (downgradient) end of the Fischer & Porter contaminated groundwater plume was shut down. Without that well operating, it became uncertain where the groundwater contamination could migrate. The initial investigation activities using existing monitoring wells could not determine the current extent of the contamination plume and were expanded to include the installation of additional monitoring wells in 2006. At the time of this Five-Year Review, the investigation is ongoing.

The remedy for the Fischer & Porter Company Superfund Site in Warminster, Pennsylvania was selected in the May 4, 1984 Record of Decision for Operable Unit 1 (OU1 ROD) of this Site, and confirmed in the 1998 "No Further Action" Record of Decision for Operable Unit 2 (OU2 ROD). The remedy includes ongoing extraction and treatment of groundwater from three wells (FP1, FP2 and FP7) located on the former Fischer & Porter Company property with discharge of the treated water to a tributary of Pennypack Creek. The remedy also required quarterly monitoring of the on-site extraction wells and the nearby water supply wells operated by the Warminster Heights Water Authority, one of which captured and treated the low level contamination in the northern end of the contaminant plume. The remedy did not, however, require that the Warminster Heights Water Authority wells continue to operate. The Site achieved construction completion with the signing of the No Further Action Record of Decision on September 28, 1998. The first Five-Year Review Report for this Site was issued in September 2003 concluding that the Remedy was operating as designed and was protective of human health and the environment.

EPA is deferring the determination of protectiveness of the Fischer & Porter Company Superfund Site due to insufficient data. The remedies implemented at this Site cannot be determined to be protective of human health and the environment at this time because the exact extent of the plume of contaminated groundwater is uncertain and volatile organic contaminants originating in the groundwater plume may represent a previously unevaluated pathway for vapor intrusion into buildings. Additionally, the presence or absence of 1,4-dioxane must be determined, and the 1997 risk assessment evaluation of air stripper emissions must be confirmed. A groundwater investigation to determine the extent of the plume was initiated and is ongoing. However, because of the use of municipal water supplies and a local ordinance prohibiting the installation of drinking water wells there are no human receptors currently exposed to unacceptable levels of Site contaminants in drinking water. Additionally, as it migrates away from the source area, the contamination in the groundwater is carried to deeper levels, unavailable to ecological receptors.

GPRA Measure Review

As part of this Five Year Review the GPRA Measures have also been reviewed. The GPRA Measures and their status are provided as follows:

Environmental Indicators

Human Health: HEID - Insufficient Data to Determine Human Exposure Control Status

Groundwater Migration: GMNC - Groundwater Migration Not Under Control

Sitewide RAU: The Site is not Site-Wide Ready for Anticipated Use (SWRAU) but is expected to achieve SWRAU on 3/31/2012.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name: Fischer & Porter Co.

EPA ID: PAD002345817

Region: 3	**State:** PA	**City/County:** Warminster, Bucks County

SITE STATUS

NPL status: ✓ Final ☐ Deleted ☐ Other (specify)_____

Remediation Status (choose all that apply): ☐ Under Construction ✓ Operating ☐ Complete

Multiple OUs?* ✓ YES ☐ NO	**Construction completion date:** September 28, 1998

Has site been put into reuse? ✓ YES ☐ NO ☐ NA

REVIEW STATUS

Lead agency: ✓ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____

Author name: ** Jim Feeney

Author title: Remedial Project Manager	**Author Affiliation:** U.S. EPA - Region 3

Review period:*** April 4, 2005 - September 30, 2008

Date(s) of site inspection: 04/04/2005, 07/11/2007

Type of review: ☐ Post-SARA ✓ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion

Review number: ☐ 1 (first) ✓ 2 (second) ☐ 3 (third) ☐ Other(specify)_____

Triggering action:

☐ Actual RA Onsite Construction at OU #1 ☐ Actual RA Start at OU# _____

☐ Construction Completion ✓ Previous Five-Year Review Report

☐ Other (specify) _____

Triggering action date: September 30, 2003

Due date (five years after triggering action date): September 30, 2008

* ("OU" refers to operable unit.)
** (If a contractor writes the report, the author name should be written as, "RPM w/ (contractor name) assistance.)
*** (Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.)

Five-Year Review Summary Form, continued.

Issues:

- The exact extent of the plume of groundwater contamination is now uncertain because of the shutdown of a Warminster Heights Water Authority production well, well WH1, that had operated to contain the northern (downgradient) end of the plume.
- Insufficient data is available to evaluate the potential for vapor intrusion.
- The potential presence of 1,4-Dioxane has not been evaluated at this site.
- The effectiveness of the remedy is uncertain and should be evaluated for potential optimization when the groundwater investigation is complete.
- Air monitoring has not been performed since the 1997 Remedial Investigation.

Recommendations and Follow-up Actions:

- Continue and finalize the ongoing groundwater investigation to determine the current extent of the contamination plume. Upon completion of the investigation, determine if additional response actions are necessary.
- Begin vapor intrusion investigation in the former source area at the Fischer & Porter property. Upon receipt of the groundwater investigation results, evaluate the potential for vapor intrusion beyond the property boundary.
- Begin a 1,4-dioxane investigation.
- The effectiveness of the remedy is uncertain and should be evaluated for potential optimization when the groundwater investigation is complete.
- Begin an air monitoring investigation to evaluate the risk from the treatment tower emissions.

Protectiveness Statement:

EPA is deferring the determination of protectiveness of this Site due to insufficient data. The remedial actions implemented for OU1 and confirmed by OU2 cannot be determined to be protective of human health and the environment at this time. Short-term and long-term protectiveness cannot be determined at this time because the exact extent of the plume of

contaminated groundwater is uncertain and volatile organic contaminants originating in the groundwater plume may represent a previously unevaluated pathway for vapor intrusion into buildings. Additionally, the presence or absence of 1,4-dioxane, a recently identified concern at some VOC sites, must be determined, and the 1997 risk assessment evaluation of air stripper emissions must be confirmed.

A vapor intrusion investigation will be initiated to determine if this is a pathway of concern. An investigation into 1,4-dioxane will be initiated to determine if this is a contaminant of concern at this Site. An air monitoring investigation will be initiated to verify the 1997 risk assessment of air stripper vapor emissions.

A groundwater investigation to determine the current extent of the groundwater contamination plume has been initiated and is ongoing. However, because of a local ordinance prohibiting the installation of drinking water wells there are no human receptors currently exposed to unacceptable levels of Site contaminants in drinking water. And as it migrates away from the source area, the contamination in the groundwater is carried to deeper levels, unavailable to ecological receptors.

Other Comments: None

U.S. Environmental Protection Agency Region III
Five -Year Review Report
Fischer & Porter Company
Superfund Site
Warminster Township,
Bucks County, Pennsylvania

I. Introduction

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them.

The Environmental Protection Agency (EPA) is preparing this Five-Year Review report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121states:

> *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 judgement of the President that action is appropriate at such site in accordance with section [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.*

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) 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 the initiation of the selected remedial action.*

EPA Region III, has conducted a five-year review of the remedial actions implemented at the Fischer & Porter Company Superfund Site, Warminster Township, Bucks County, Pennsylvania.

This review was conducted for the entire Site by the Remedial Project Manager (RPM) from April 2005 through September 2008. This report documents the results of the review.
This is the second five-year review for the Fischer & Porter Company Site. This review was initiated in 2005, earlier than planned, in response to a potentially significant change in the operation of the remedy at this Site. The due date, September 30, 2008, was triggered by the signature of the first five-year review. The five-year review was conducted as a matter of policy due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

II. Site Chronology

Table 1 lists the chronology of events for the Fischer & Porter Company Superfund Site.

Table 1: Chronology of Site Events

Event	Date
Site began operating as factory manufacturing flow meters	1941
Groundwater contamination discovered	1979
Complaint for Civil Action (Civil Action No. 80-3900) filed under RCRA against Fischer & Porter Company	October 8, 1980
Proposed to NPL List	December 30, 1982
NPL Listing	September 8, 1983
PRP Remedial Design for OU1 started	April 3, 1984
Record Of Decision (ROD) signature for OU1	May 4, 1984
Consent Decree (CD) for Civil Action (No. 80-3900) between EPA and Fischer Porter Company filed	November 14, 1984
PRP Remedial Design for OU1 completed	April 4, 1985
PRP Remedial Action for OU1 started	April 4, 1985
PRP Remedial Action for OU1 completed	March 30, 1986
Remedial Investigation for OU2 completed	September 1998
"No Further Action" ROD signature for OU2	September 28, 1998
Construction Completion achieved by signature of "No Further Action ROD for OU2	September 28, 1998

Event	Date
Blue Marlin Associates purchased an 8.4 acre subdivision of the property and entered into an Agreement and Covenant not to Sue ("Potential Purchaser Agreement") with EPA to build an office, manufacturing and warehouse facility	December 2000
First Five-year Review completed	September 2003
Notice of deactivation of municipal well WH1	December 6, 2004
Second Five-year Review initiated	April 4, 2005
Second Five-year Review completed	September 2008

III. Background

Physical Characteristics

The Fischer & Porter Company Superfund Site includes a source area on the property occupied by the former Fischer & Porter facility, located at Jacksonville and County Line Roads in Warminster, Pennsylvania (see Figure 1). The source area is the result of trichloroethene (TCE) and other solvents that leaked from storage tanks at the facility and are believed to have percolated into the water table settling into pockets in the bedrock as non-aqueous phase liquids (NAPLs). The Site also includes the plume of contaminated groundwater extending to the north of that facility. During the Remedial Investigation the plume of contaminated groundwater was determined to be beneath the facility as well as property owned by the Warminster Heights Home Ownership Association, a homeowners' co-op with their own water production wells and distribution system operating as the Warminster Heights Water Authority. Since the shutdown of the Warminster Heights Water Authority wells in 2004, the extent and boundaries of the contaminated groundwater plume are uncertain. The Site is surrounded by mixed commercial, and residential development.

Land and Resource Use

The facility that comprises the source area was originally developed as the Fischer & Porter Company's manufacturing facility and the location of their headquarters offices. The Fischer & Porter Company manufactured flow meters and process control equipment. However, most of Fischer & Porter's manufacturing operations have been transferred off-site and the buildings were sold to redevelopers and renovated into office space. The Fischer & Porter Company, which was purchased and is now ABB Instrumentation, still leases some of the space in the buildings. In 2000, an 8.4 acre subdivision of the undeveloped part of the property was sold Blue Marlin Associates to build an office, manufacturing and warehouse facility of approximately 80,000

square feet. Blue Marlin Associates entered into a Agreement and Covenant not to Sue ("Potential Purchaser Agreement") with EPA to compromise and settle claims of the United States in regard to the Fischer and Porter Superfund Site.

History of Contamination

The contamination of the local groundwater was first recorded in 1979. That year, two organic solvents, trichloroethylene (TCE) and perchloroethylene (PCE), were identified in the industrial water supply wells on the Fischer & Porter property and in municipal water supply wells operated by the Hatboro Borough Water Authority and the Warminster Heights Water Authority. Subsequently, the affected wells were either shut down or fitted with treatment equipment. It was originally believed that the contamination in the Hatboro wells was coming from the Site, however subsequent hydrologic investigations showed that those wells were being impacted by a separate source not related to Fischer & Porter. Up until 2004 and the shutdown of the Warminster Heights Water Authority wells, groundwater studies showed that the plume of contamination did not change significantly over time, except for seasonal variations due to weather and precipitation patterns. With the shutdown of those wells, which were significant influences on the local groundwater, the established groundwater flow and contaminant migration patterns are expected to have changed. Investigations to determine the current patterns have been initiated as part of this five-year review and are ongoing.

Initial Response

This Site has been on the list of Superfund Sites (National Priorities List, or NPL) since September 1983. In 1984, EPA selected a remedy and entered into a Consent Decree with the Fischer & Porter Company to extract the groundwater from three on-site wells to contain the plume. The extracted groundwater is then treated in an air stripper to remove the contaminants and discharged to the unnamed tributary of the Pennypack Creek located north of the property. The Consent Decree also required the Company to give $500,000 to the Hatboro Borough Water Authority and $46,200 to the Warminster Heights Water Authority to be used in the construction of air strippers on their water supply wells. The Company implemented all of the requirements of the Consent Decree, including the monetary payments, and finished construction of the remedy in 1986.

In 1992, as part of the long-term monitoring requirements for Superfund sites, EPA started a Five-Year Review of the remedy at this Site. The preliminary results of that review indicated that the plume of contamination had not been confined to the property boundaries as had been anticipated in the 1984 remedy decision. Furthermore, the range in the levels of contamination in the untreated water in the three extraction wells and the two Warminster Heights Water Authority wells had not declined, but instead had remained relatively steady over the long term. Relatively large fluctuations in month to month measurements are seen, however, caused by seasonal changes in the water table, precipitation events and municipal well pumping rates.

As a result of these findings, it was determined that more investigations into the source area were necessary. Subsequently, the Five-Year Review was expanded into a Remedial Investigation focused on the source of contamination and the effectiveness of the 1984 remedy. The result of that Remedial Investigation was the determination that although the plume was not confined to the property as originally anticipated, the (see Figure 4) was being captured by the combination of the three facility wells and well WH1, one of the Warminster Heights Water Authority wells. With the continued operation and treatment of these four wells there was no significant risk to human health of the environment. It was also determined that the Hatboro Water Authority wells, originally thought to be contaminated by the Fischer & Porter Site, were actually contaminated by a completely different source; those wells are no longer considered part of the Fischer & Porter Site. Based on these determinations, a "No Further Action" Record of Decision was signed September 28, 1998. However, language in that Record of Decision required an immediate investigation of Site conditions if the operation of the Warminster Heights Water Authority wells were significantly changed.

Basis for Taking Action

Prior to implementing the 1984 remedy, the two water supply wells of the Warminster Heights Water Authority were contaminated with levels of TCE and PCE above the Maximum Contaminant Levels specified for those compound by the Safe Drinking Water Act. At that time the water from those wells was being provided, untreated, to the Warminster Heights community.

IV. Remedial Actions

Remedy Selection

The first ROD, which was later designated Operable Unit 1, was issued on May 4, 1984. That ROD specified the following components:

- Facility improvements to eliminate future releases of TCE and PCE;
- Continuous pumping of three existing facility wells (FP-1, FP-2 and FP-7) with treatment of the contaminated groundwater by packed column aeration to reduce effluent levels of TCE and PCE to 4.5 and 3.5 parts per billion respectively. The three wells to be pumped at a minimum combined rate of 75 gallons per minute to extend the existing cone of influence to perimeter monitoring wells and contain further migration of contaminants from the Site. This recovery process shall continue until such time that the above treatment standards are attained in the groundwater or contaminants stabilize over a 26 month monitoring period;
- Discharge of treated effluent to surface water according to state discharge requirements;
- Funding for the installation of treatment for contaminated municipal wells by packed column aeration towers; and
- Long-term groundwater monitoring using the three facility wells, and two municipal wells (WH-1 and WH-2). See Figure 4 for well locations.

Although not expressly identified as goals in the ROD for Operable Unit 1, the remedial objectives were containment of the plume of contaminated groundwater, and the protection of human health by treatment of impacted public water supplies.

Following the Remedial Investigation, a ROD for OU2 , investigation of source and effectiveness of operating remedy, was issued on September 28, 1998. The OU2 ROD confirmed that the measures specified in the 1984 ROD were sufficient to protect human health and the environment. The groundwater contaminant plume was contained to a specific identified area by the extraction and treatment of the three facility wells in conjunction with the two municipal wells and no untreated drinking water wells existed in the area of the plume. Additionally, new drinking water wells are prohibited in the area by local Ordinance Number 32 of Warminster Township which grants the Warminster Township Municipal Authority the right to issue well permits and refuse new well permits in the areas serviced by a water main of the Warminster Municipal Authority. Ordinance Number 32 makes it unlawful for any person to drill a new well without a permit.

Remedy Implementation

Following the May 4, 1984 ROD, a consent decree was signed between EPA and the Fischer & Porter Company to implement the selected remedy. That consent decree was filed November 14, 1984. Improvements to the facility to prevent further releases, and physical construction of the packed column aeration tower for the facility wells were completed March 30 1986. Fischer & Porter also contributed $46,200 to the Warminster Heights Water Authority and $500,000 to the Hatboro Water Authority to be used for the installation of packed column aeration towers on those affected wells to reduce the effluent concentrations of TCE and PCE to 4.5 and 3.5 parts per billion respectively. These actions were confirmed as the final remedial action in the 1998 No Further Action ROD. The No Further Action ROD also serves to document the Construction Completion achieved at this Site.

System Operation/Operation and Maintenance

ABB Instrumentation as the successor to Fischer & Porter Company continues to conduct the Operation and Maintenance (O&M) activities as specified in the 1984 ROD. The O&M activities include operating and maintaining the three facility wells (FP1, FP2 and FP7) and packed column aeration tower that comprise the on-site remediation as well as monthly monitoring for TCE and PCE levels in those three wells, the levels in the treated discharge, and up until 2004, when they were shut down, the levels in the two Warminster Heights wells.

Samples for monthly monitoring are taken from the combined influent water stream of FP1 and FP2, the single stream from FP7, the combined influent stream from all three wells (FP1, FP2 and FP7), the treated effluent stream from the packed column aeration tower, and the effluent stream at the point at which it discharges to the local tributary. Samples were also taken from the Warminster Heights Authority wells WH1 and WH2, until they were shut down in 2004. The

initial notification of the shutdown of wells WH1 and WH2 was a result of the periodic performance of the O&M tasks.

The results of the monitoring are sent to EPA in quarterly reports for evaluation. In addition, EPA is notified of any irregularities (e.g. short-term mechanical failures or pump replacement) in the operation of the wells. Over the years, the O&M results have shown wide variation in the contaminant levels in the source areas beneath the property, presumably due to the affects of precipitation events and overall seasonal groundwater variation. For example, in the most recent year of O&M results (Attachment 1), TCE has ranged from 27.90 ppb to 1190.00 ppb in the combined stream of wells FP1 and FP2, and these values were observed in consecutive months, November and December 2007. The levels of PCE in the site wells are also variable but in a lower range of concentrations; occasionally undetectable and rarely exceeding 100 ppb.

Following treatment in packed column aeration tower, the treated effluent is piped to an open channel which directs the water by gravity flow to the final discharge point at a local tributary. This discharge is pursuant to the terms of a permit under the National Pollution Discharge Elimination System issued by Pennsylvania Department of Environmental Protection. The current permit expires September 30, 2011, and the discharge levels have consistently been in compliance with the Maximum Daily Concentrations specified in that permit: 35 ppb for TCE and 10 ppb for PCE as can be seen in the most recent monitoring results in Attachment 1.

V. Progress Since Last Five-Year Review

On December 6, 2004, ABB Instrumentation notified EPA that the Warminster Heights Water Authority wells, including well WH1, were decommissioned and could not be sampled during the regularly scheduled sampling event. The existing Warminster Heights Water Authority water distribution system had been connected to and was being supplied by the local municipality's water authority.

As an initial response EPA hired environmental consultant, TetraTech EM, Inc. to sample and evaluate water from the existing monitoring wells on the former Fischer & Porter property (see Figure 2). The samples were evaluated to determine if, without the influence of the now shut down Warminster Heights wells, the groundwater contamination was being contained on the property by the pumping of the three facility wells. The final report of this investigation, dated June 29, 2005 (Attachment 2), concluded that the concentrations of contaminants in the existing property wells have decreased significantly over time, but groundwater contamination is still not contained within the property boundaries. Without WH1 actively drawing and extracting the water at the northern (downgradient) end of the plume, it was no longer possible to delineate the area of contaminated groundwater migrating beyond the boundaries of the former Fischer & Porter property.

EPA determined that additional investigation was necessary to delineate the current extent of the contaminated groundwater plume. In July 2006, EPA contracted the United States Geological Survey to review the history of Site contamination, and in consideration of local geologic conditions, to plan, install and sample additional monitoring wells outside the boundaries of the former Fischer & Porter property. At the time of this five-year review, five new monitoring wells have been installed downgradient and outside the property boundaries (see Figure 3), but all of the water sampling results have not been received. At the time of this five-year review, this work is ongoing.

Issue from 2003 Five-Year Review - The 2003 five-year review of this Site identified as an issue that no split samples had been taken to compare with the monthly monitoring samples collected for O&M by ABB Instrumentation. In response to this issue, and as part of the initial response to the loss of well WH1 discussed above, on April 27, 2005 TetraTech EM collected and analyzed water samples from the on-site wells, including split samples from the combined influent stream of wells FP1 and FP2, and the influent stream from well FP7 collected and analyzed. The TetraTech EM results (Attachment 2) for TCE and PCE were similar to the results reported by ABB (Attachment 3) for their samples collected the same day. All results for that day were also well within the ranges reported over the years for TCE and PCE.

VI. Five-Year Review Process

Administrative Components

The Fischer & Porter Five-Year Review was conducted by James Feeney, EPA's Remedial Project Manager for the Fischer & Porter Co. Superfund Site. An initial site inspection for this was conducted on April 4, 2005 by Rashmi Mathur of the EPA. Representatives from the Pennsylvania Department of Environmental Protection, the Warminster Township Municipal Authority, and the Responsible Party were in attendance. A follow-up site inspection was conducted on July 11, 2007 by James Feeney of the EPA, with Mr. Ronald Sloto, of the United States Geological Survey also present during the inspection.

Community Involvement

EPA has received no inquiries on the Site in the last several years and the local public information repository, the Union Library Company of Hatboro, also reported that no one has looked at the Site information in years. Interviews held with local property owners in July 2007 indicate that the Site has been largely forgotten since the site activities were completed in 1998. The Management Office of the Warminster Heights Home Ownership Association was contacted on September 22, 2008. Warminster Heights is the property adjacent to the Fischer & Porter facility which operated the groundwater supply well contaminated by the Fischer & Porter contamination plume. Even though they are the community entity closest and potentially most affected by the Site, the Management Office reports that there has been no community interest or inquiry about the Site, especially since the Association's drinking water system was switched from their own source to the local municipality's water authority in 2004.

When this five-year review is issued, an advertisement will be prepared for publication in The Intelligencer, the primary local newspaper, announcing the availability of the five-year review and describing the ongoing groundwater investigation. When the results of the ongoing groundwater investigation are received and evaluated, a second advertisement will be prepared to describe the established current limits of groundwater contamination and any other conclusions of the investigation.

Document Review

The five-year review consisted of a review of relevant documents including the 1984 ROD for OU1, the 1998 ROD for OU2 to review the specific requirements of these decision documents. The Operation and Maintenance reports from the last five years were reviewed for the monitoring results and to review the temporary deviations from the procedures that had occurred in the review period. Additionally, the work products and final report of TetraTech EM, Inc. produced in support of this five-year report were evaluated. The final report (Attachment 2)concluded that the concentrations of contaminants in the existing property wells have decreased significantly over time, but groundwater contamination is still not contained within the property boundaries. And the workplans and interim reports from the United States Geological Survey's ongoing investigation, in which the new monitoring well locations were proposed.

Data Review

As part of the selected remedy for this Site, groundwater sampling has been conducted monthly since 1986. The sampling is conducted on three facility pumping wells and the two Warminster Heights production wells (through 2004). The groundwater samples are analyzed for TCE and PCE and quarterly reports of the results are sent to EPA for review. Each quarterly O&M Sampling Report contains a table presenting results of the previous twelve months of data for all sample locations.

The influent concentrations from all wells in the O&M program show significant variation due to seasonal effects, but have been consistently within the range of historical concentrations detected in groundwater in the area. EPA also reviewed the results of the existing wells sampled by TetraTech EM, Inc as part of the initial investigation conducted for this five-year review.

Over the years, the O&M results have shown wide variation in the contaminant levels in the source areas beneath the property, presumably due to the affects of precipitation events and overall seasonal groundwater variation. In the most recent year of O&M results (Attachment 1), TCE has ranged from 27.90 ppb to 1190.00 ppb in the combined stream of wells FP1 and FP2, and these values were observed in consecutive months, November and December 2007. The levels of PCE in the site wells are also variable but lower; occasionally undetectable and rarely exceeding 100 ppb.

Comparison of recent O&M sample results to prior years appears to indicate a declining trend in the concentrations in the pumping wells that monitored, however, due to the wide variations caused by seasonal and precipitation influences, it is impossible to make a definitive statement without a statistical analysis of the data. The levels in the wells continue to exceed the standards required in the RODs.

Site Inspection

An initial site inspection for this five-year review was conducted on April 4, 2005 by Rashmi Mathur of the EPA. Representatives from the Pennsylvania Department of Environmental Protection, the Warminster Township Municipal Authority, and the Responsible Party were in attendance.

A follow-up site inspection was conducted on July 11, 2007 by Jim Feeney of the EPA, with Mr. Ronald Sloto, of the United States Geological Survey also present during the inspection. Potential sites for additional monitoring wells outside of the former Fischer & Porter property boundaries were also discussed during the site inspection. The inspections did not identify any issues with the components of the remedy that are still operating.

Interviews

On July 11, 2007, RPM Jim Feeney discussed the details of the Site and the additional investigations planned for this five-year review with a number of nearby property owners, including the owner of Tri-county Electric Supply on Jacksonville Road, a representative of Conta Luna Foods on Jacksonville Road and the pastor of Grace Bible Chapel located along County Line Road. All of the property owners indicated that there has not been general public interest in the "Superfund Site" in years.

On September 19, 2008 RPM Jim Feeney discussed the details of the Site and the five-year review with a representative of the Warminster Township Department of Administration , who reported

that there has been no recent community interest in the Site. Also on September 19, 2008, RPM Jim Feeney discussed the Site with a representative of the Warminster Township Water and Sewer Authority, who reported that although he did not think the Authority had any current issues with the Site, there could be some site involvement in the potential restart of two nearby production wells the Authority had acquired. He is contacting his environmental consultant and anticipates providing a written statement summarizing any current or potential issues or concerns of the Authority.

On September 22, 2008, Jim Feeney contacted the Management Office of the Warminster Heights Home Ownership Association. The Home Ownership Association occupies the property immediately adjacent to the former Fischer & Porter property and operated the Warminster Heights Water Authority, including well WH1, until 2004. A representative of that office reported that there has been no recent interest, inquiries or concerns about the Site, especially since the Association's drinking water system was switched from their own source to the local municipality's water authority in 2004.

VII. Technical Assessment

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

No. A review of documents, ARARs, and the results of the Site inspection indicates that the remedy is not functioning as intended by the OU1 ROD and the OU2 No Further Action ROD. With the loss of the Warminster Heights Water Authority well WH1, the plume of groundwater contamination is likely no longer contained in the area described in the RODs. Further investigation is required to delineate the current extent of the plume of groundwater contamination. The necessary investigation has been initiated and is ongoing. In addition, review of the monitoring results suggests that the overall contaminant concentrations in the underlying groundwater have not decreased significantly over the past decade. Therefore, the current investigation will also consider the potential for optimization of the existing remedy.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy still valid?

No. The exact extent of the plume of groundwater contamination is now uncertain because of the shutdown of Warminster Heights Water Authority well WH1. However, there are still no potential human exposures to groundwater contaminated by the site due to a local ordinance prohibiting drinking water wells in the area. The cleanup requirements specified in the OU1 ROD for the contaminants TCE (4.5 ppb) and PCE (3.5 ppb) remain more conservative than the MCLs for those contaminants. There have been no changes in the physical conditions of the Site or the continuing operation of the remedy that would affect protectiveness. Additionally, vapor intrusion is an exposure pathway that was not evaluated as part of the remedy selection process and will require further evaluation.

Changes in Standards and To Be Considereds

Have standards identified in the ROD been revised, and does this call into question the protectiveness of the remedy? Do newly promulgated standards call into question the protectiveness of the remedy? Have TBCs used in selecting cleanup levels at the site changed, and could this affect the protectiveness of the remedy?

The 1984 ROD specified that the levels in the Consent Decree should be met; these were 4.5 ppb for TCE and 3.5 ppb for PCE. However, the Consent Decree also stated, "In the event the United States promulgates regulations establishing MCLs for drinking water for TCE or PCE under the Safe Drinking Water Act ... such levels shall supersede the concentrations listed above." Since EPA has promulgated maximum contaminant levels (MCLs) for both contaminants, this implies that the current performance standards are actually 5 ppb for TCE and 5 ppb for PCE. Either set of performance standards would meet the current MCLs. Neither set of performance standards is currently met by the monitored groundwater, but at present, there are no human receptors exposed to unacceptable levels of Site Contaminants in drinking water.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

Has land use or expected land use on or near the site changed?

No. The former Fischer & Porter property remains a commercial property and the surrounding community continues to be comprised of mixed commercial and residential properties.

Have human health or ecological routes of exposure or receptors been newly identified or changed in a way that could affect the protectiveness of the remedy? Are there newly identified contaminants or contaminant sources? Are there unanticipated toxic byproducts of the remedy not previously addressed by the decision documents? Have physical site conditions or the understanding of these conditions changed in a way that could affect the protectiveness of the remedy?

Yes. With the shutdown of well WH1, the exact extent of the plume of groundwater contamination is now uncertain. However the surrounding community is supplied by public water and a local ordinance prohibits the installation of drinking water wells. Therefore, there are no human receptors exposed to unacceptable levels of Site contaminants in drinking water. Also, as it migrates away from the source area, the contamination in the groundwater is carried to deeper levels, unavailable to ecological receptors.

However the potential for exposure to site contaminants from vapor intrusion has not been determined. Vapor intrusion is a potential exposure pathway that environmental agencies have recently begun to explore. It is of concern where volatile organic compounds (VOCs) such as TCE and PCE are present in subsurface soils or groundwater and have the potential to migrate as a gas into the overlying buildings. At the Site, VOCs are present in the contaminated groundwater

plume that originates beneath the former Fischer & Porter Property, and has migrated past the property boundaries to the north. At the time of this five-year review because of the shutdown of production well WH1, the current extent of the contaminated groundwater plume and the potential area of potential vapor intrusion can not be determined.. However the investigation necessary to determine this information has been initiated and is ongoing.

Another issue is that of 1,4-dioxane. EPA has recently become aware that sites with VOCs sometimes have this solvent stabilizer as well. This can be of concern since, unlike the VOCs, 1,4-dioxane is not removed by air stripping. 1,4-Dioxane can also travel ahead of a VOC groundwater plume. The VOC most closely associated with 1,4-dioxane is 1,1,1-trichloroethane (111TCA). The 1998 ROD for Fischer & Porter shows that 111TCA was one of the chemicals of concern. Given the history of solvents at this site and the presence of 111TCA, 1,4-dioxane is a possibility, and some samples should be collected to verify its presence or absence.

The air stripper vapors are released to the local environment. During the Remedial Investigation in 1997, a risk assessment was performed and verified that these emissions did not produce unacceptable risks. However, given that more than ten years have passed since then, and that risk assessment factors for both TCE and PCE have changed in the interim, a current assessment is recommended to ensure that air risks remain in the acceptable range.

Changes in Risk Assessment Methods

Have standardized risk assessment methodologies changed in a way that could affect the protectiveness of the remedy?

There have been changes in EPA's risk assessment guidance since the latest risk assessment for the site was performed in 1997 (e.g., new dermal guidance has been issued; new inhalation guidance is being developed). However, the groundwater standards (whether 4.5 and 3.5 ppb, for TCE and PCE respectively; or 5 ppb each) are still expected to be protective. The air stripper emissions should be reassessed to confirm that they are still in the acceptable range.

In addition, the potential for vapor intrusion needs to be assessed.

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

On December 6, 2004, ABB Instrumentation notified EPA that the Warminster Heights Water Authority well WH1, which functioned as part of the remedy, was shut down. Without WH1 actively drawing and extracting the water at the end of the plume, it is no longer possible to delineate the area of contaminated groundwater migrating beyond the boundaries of the former Fischer & Porter property. Initial sampling of the existing wells on the property revealed that groundwater contamination continued to migrate past the property boundaries. As part of the current groundwater investigation, new monitoring wells have been installed outside the

boundaries of the former Fischer & Porter property and are scheduled for sampling and analysis to delineate the current extent of the contaminated groundwater contaminant plume.

Additionally, since the remedy was implemented EPA has identified vapor intrusion as a potential exposure pathway. The investigation necessary to determine the area of potential vapor intrusion has been initiated and is ongoing.

Technical Assessment Summary

According to the data reviewed, the Site inspection, the interviews and the ongoing investigations being conducted specifically for this five-year review, the remedy is not functioning as intended by the OU1 and OU2 RODs. One well, Warminster Heights Water Authority well WH1, that functioned as part of the remedy, has been taken out of service leaving the extent of the contamination plume uncertain. An ongoing investigation, including newly installed monitoring wells is being conducted to determine the current extent of the plume. However, because of the use of municipal water supplies and a local ordinance prohibiting the installation of drinking water wells there are no human receptors currently exposed to unacceptable levels of Site contaminants in drinking water. Additionally, as it migrates away from the source area, the contamination in the groundwater is carried to deeper levels, unavailable to ecological receptors.

The cleanup requirements specified in the RODs for the contaminants TCE and PCE remain more conservative than the current MCLs for those contaminants.

Vapor intrusion, which was not evaluated as part of the remedy selection process, will require further evaluation.

VIII. Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. The exact extent of the plume of groundwater contamination is now uncertain because of the shutdown of well WH1	N	Y
2. Insufficient data is available to evaluate the potential area for vapor intrusion.	Y	Y
3. The potential presence of 1,4-Dioxane has not been evaluated at this site.	Y	Y

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
4. The effectiveness of the remedy is uncertain and should be evaluated for potential optimization when the groundwater investigation is complete	N	Y
5. Air monitoring has not been performed since the 1997 Remedial Investigation.	Y	Y

IX. Recommendations and Follow-Up Actions

Issue	Recommendations, Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
1.	Continue and finalize the ongoing groundwater investigation to determine the current extent of the contamination plume.	EPA	EPA	September 2009	N	Y
2.	Begin a vapor intrusion investigation in the source area at the former F&P property. Use the results of the groundwater investigation to evaluate the potential for vapor intrusion.	EPA	EPA	Begin investigation in fiscal year 2009	Y	Y
3.	Begin a 1,4-dioxane investigation.			Begin investigation in fiscal year 2009	Y	Y

Issue	Recommendations, Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
4.	Upon completion of the groundwater investigation, evaluate the potential for optimization of the remedy.			September 2009	N	N
5.	Begin an air monitoring investigation to evaluate the risk from the treatment tower emissions.			Begin investigation in fiscal year 2009	Y	Y

X. Protectiveness Statement

EPA is deferring the determination of protectiveness of this Site due to insufficient data. The remedial actions implemented for OU1 and confirmed by OU2 cannot be determined to be protective of human health and the environment at this time. Short-term and long-term protectiveness cannot be determined at this time because the exact extent of the plume of contaminated groundwater is uncertain and volatile organic contaminants originating in the groundwater plume may represent a previously unevaluated pathway for vapor intrusion into buildings. Additionally, the presence or absence of 1,4-dioxane, a recently identified concern at some VOC sites, must be determined, and the 1997 risk assessment evaluation of air stripper emissions must be confirmed.

A vapor intrusion investigation will be initiated to determine if this is a pathway of concern. An investigation into 1,4-dioxane will be initiated to determine if this is a contaminant of concern at this Site. An air monitoring investigation will be initiated to verify the 1997 risk assessment of air stripper vapor emissions.

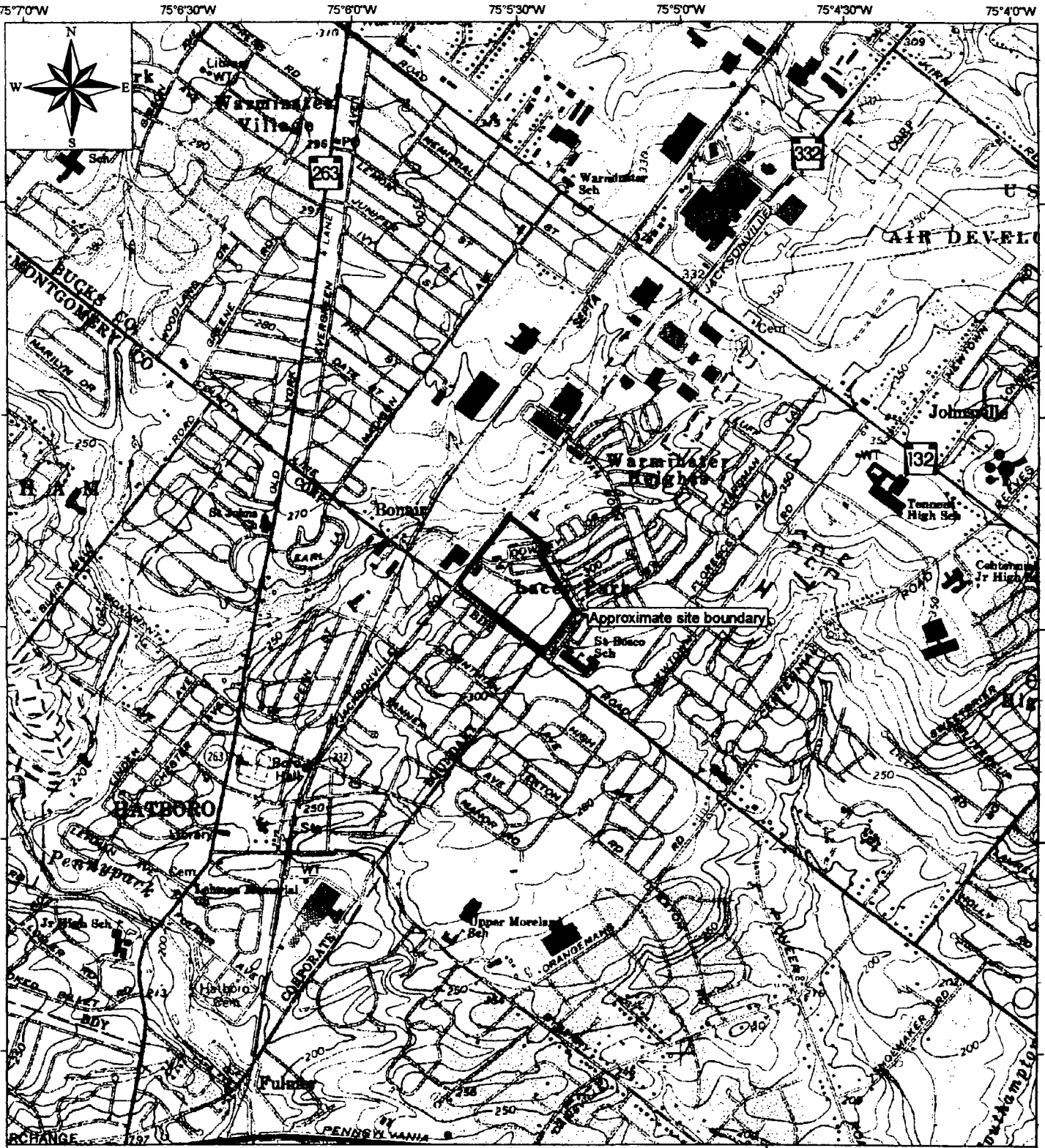
A groundwater investigation to determine the current extent of the groundwater contamination plume has been initiated and is ongoing. However, because of a local ordinance prohibiting the installation of drinking water wells there are no human receptors currently exposed to unacceptable levels of Site contaminants in drinking water. And as it migrates away from the source area, the contamination in the groundwater is carried to deeper levels, unavailable to ecological receptors.

XI. Next Review

The next five-year review for the Fischer & Porter Superfund Site is required by September 2013, five years from the signature date of this review.

FIGURES

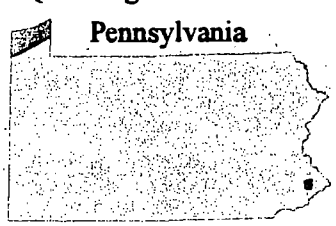
for the Fischer & Porter Site
Five-Year Review



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangle, Hatboro, Pennsylvania, 1966, Photorevised 1983

0 0.25 0.5 Miles

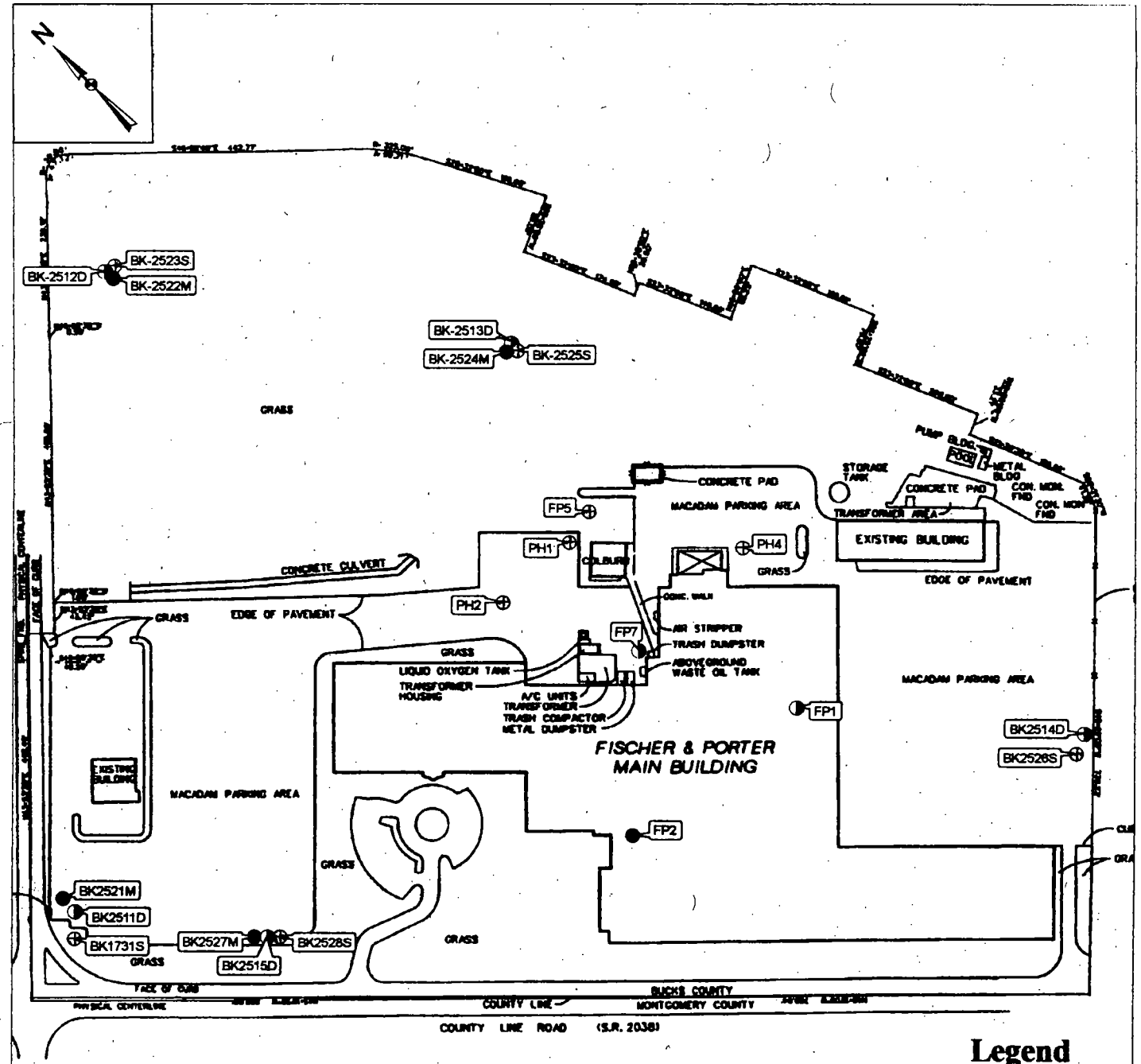
Quadrangle Location =



Fischer & Porter Co. Site
Warminster, Bucks County, Pennsylvania

Figure 1
Site Location Map

TDD No. SE3-05-02-002 EPA Contract No. 68-S3-00-02	Map created on April 12, 2005 by D. Call, Tetra Tech START	Tetra Tech EM Inc.



Legend

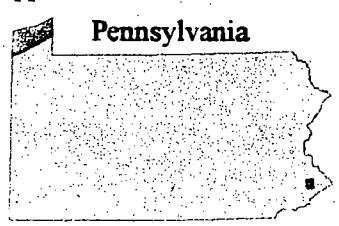
Wells by depth

- ◑ Deep
- ● Intermediate
- ⊕ Shallow

Source: Modified from Figure 4-8, Summary of Volatile Organics in Groundwater, CH2M Hill, January 22, 1997

Not to Scale

Approximate Site Location = ■



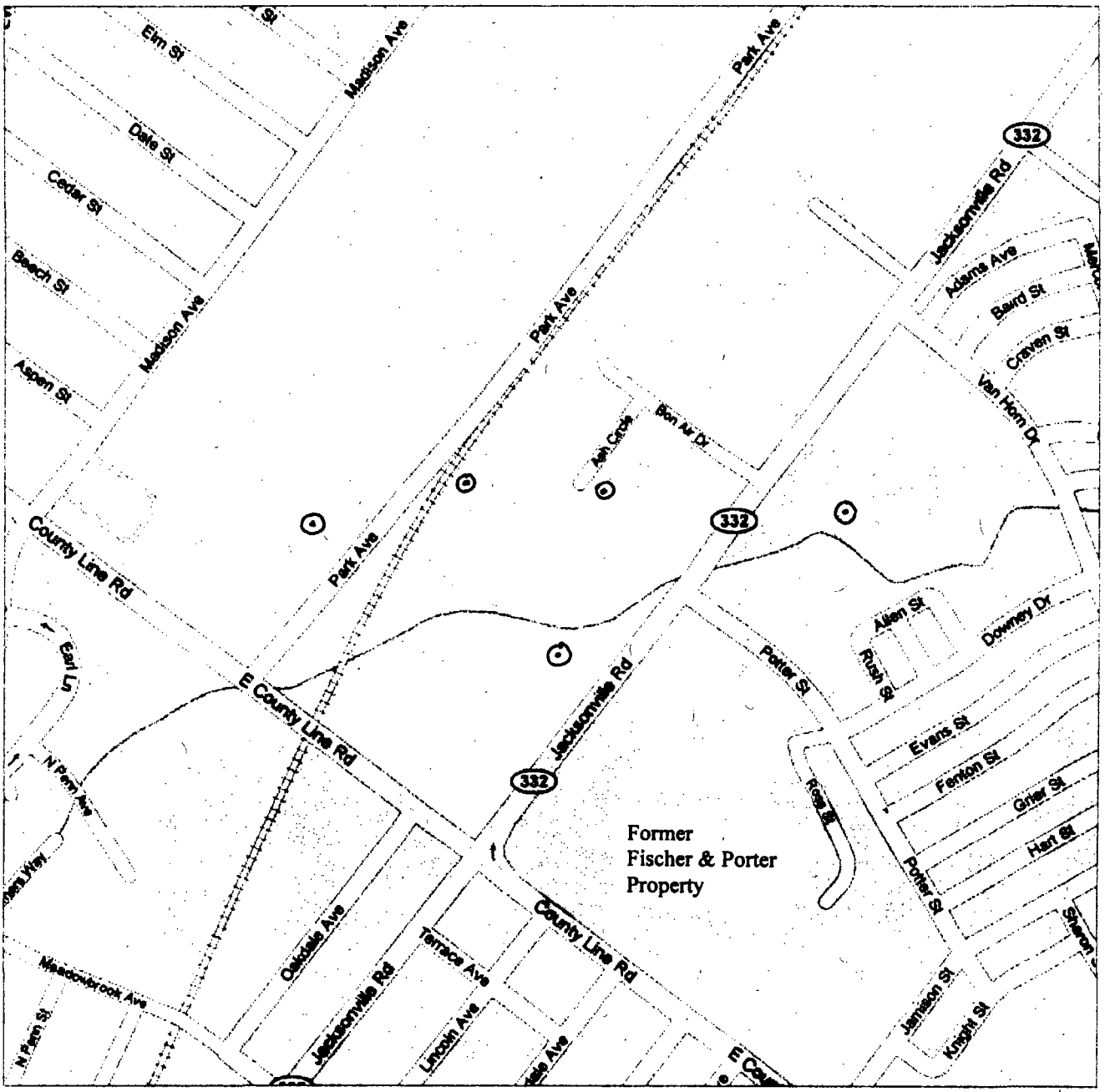
Fischer & Porter Co. Site
Warminster, Bucks County, Pennsylvania

Figure 2
Site Well Location Map

TDD No. SE3-05-02-002
EPA Contract No. 68-S3-00-02

Map created on June 22, 2005
by D. Call, Tetra Tech START

Tetra Tech EM Inc.



Approximate Locations of Newly Installed Monitoring Wells ⊙

Figure 3.

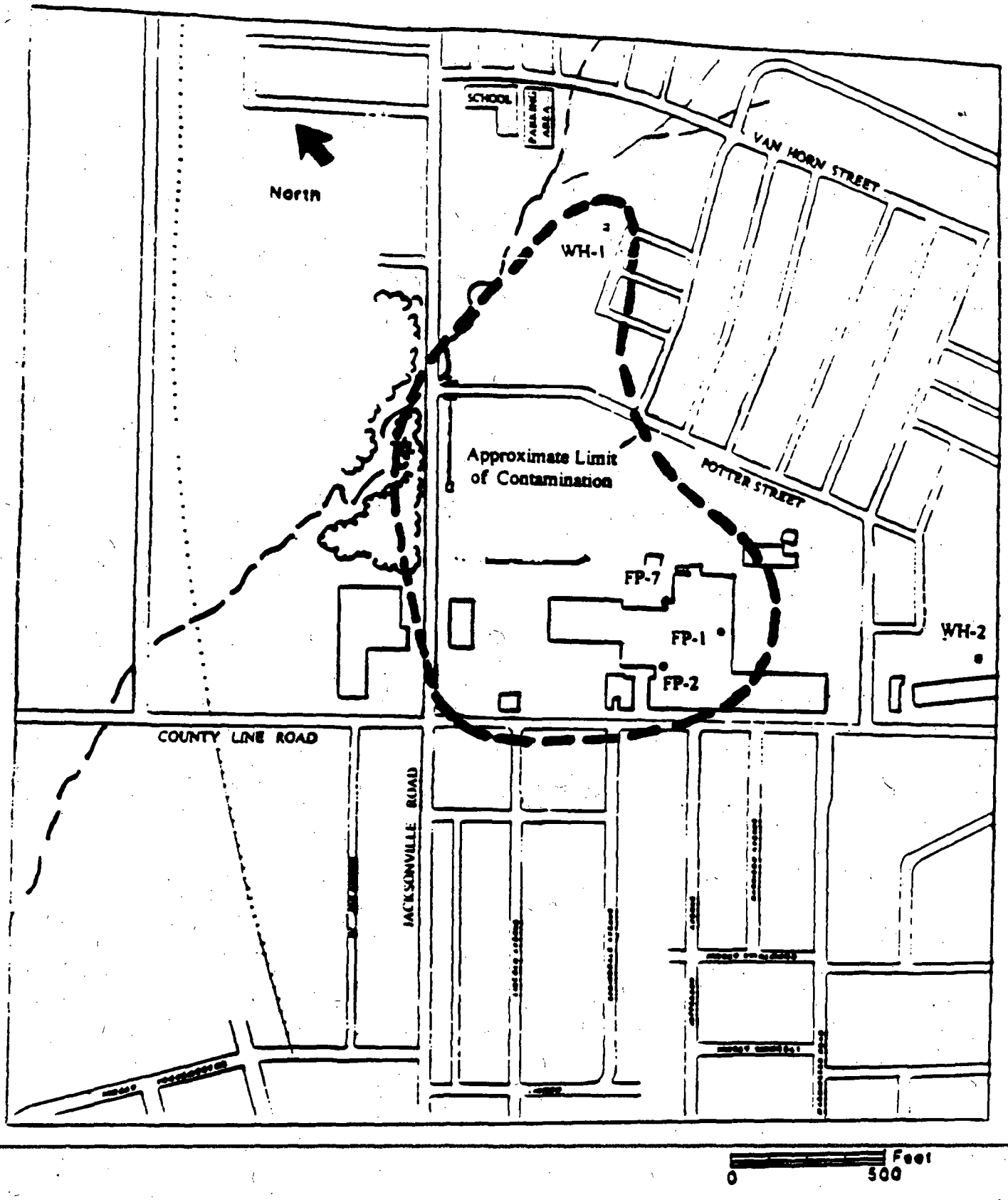


Figure 4. Site Location Map

Fischer & Porter Company Superfund Site

ATTACHMENT 1

Most Recent Groundwater Monitoring Report for the Fischer & Porter Site

Attachments and Appendices to this report are not included, but are available at EPA Region III office.

ABB

Jim Feeney, EPA Remedial Manager
U.S. Environmental Protection Agency, Region III
Mail Code 3HW21
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

14-Jul-08

RE: Quarterly Report: Underground Recovery System

Dear Mr. Feeney:

1. Sampling & Testing:
Wells 1 & 2 are combined for sampling with Well 7 sampled separately. The results are combined for a mathematical average using flow as a weighted function in accordance with the following formula.

Total Influent = {[Wells 1&2 Contaminate x Wells 1&2 Flow] + [Well 7 Contaminate x Well 7 Flow]}/Total Flow

2. Data:

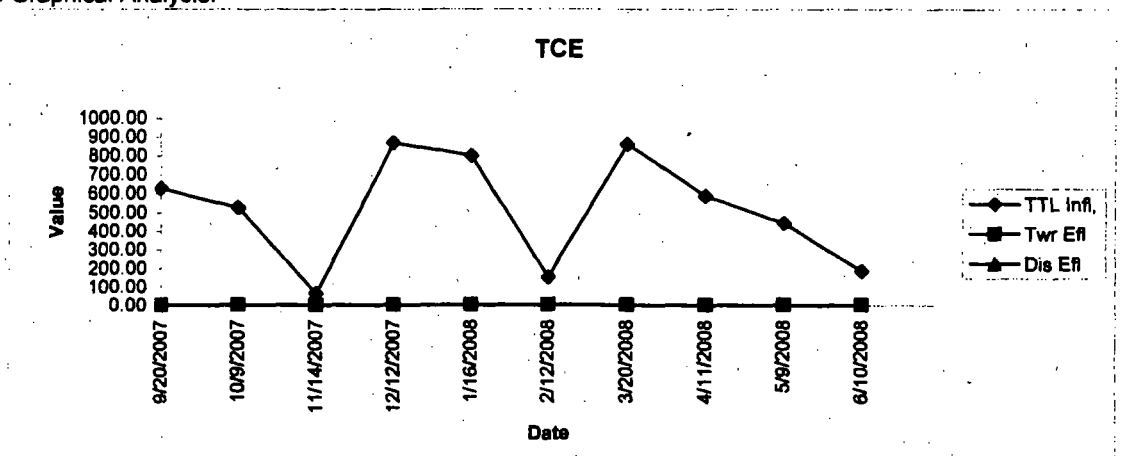
Trichloroethylene

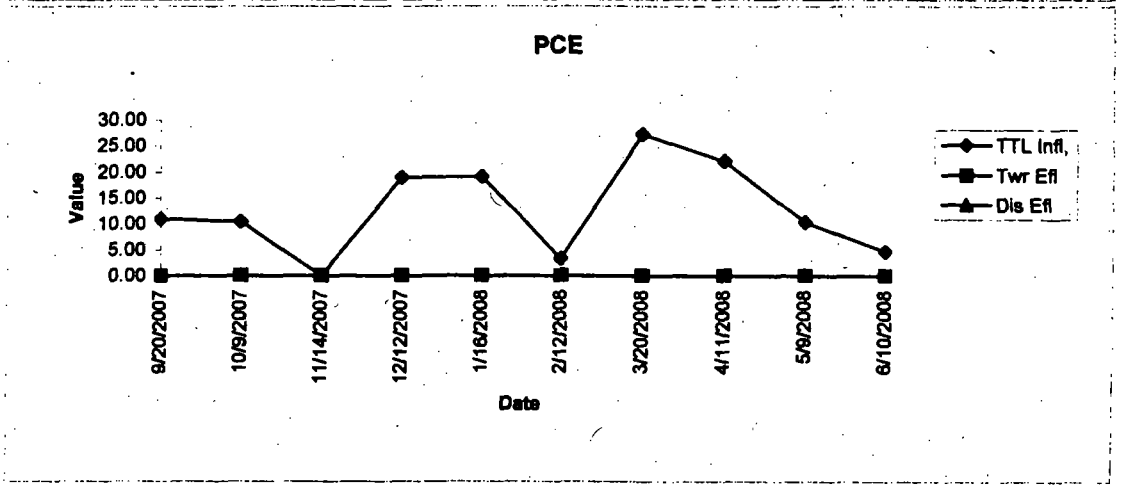
Date	Infl. 1 & 2	Infl. 7	TTL Infl,	Twr Efl	Dis Efl	WH1	WH2	TCE 3pma
9/20/2007	773.00	168.00	627.80	1.58	0.00	NA	NA	806.39
10/9/2007	606.00	271.00	525.60	1.19	0.00	NA	NA	794.47
11/14/2007	27.90	179.00	64.16	1.25	0.00	NA	NA	405.85
12/12/2007	1100.00	141.00	869.84	2.31	0.00	NA	NA	486.53
1/16/2008	1010.00	130.00	798.80	1.96	0.00	NA	NA	577.60
2/12/2008	138.00	194.00	151.44	1.76	0.00	NA	NA	606.69
3/20/2008	1090.00	132.00	860.08	2.11	0.00	NA	NA	603.44
4/11/2008	710.00	205.00	588.80	1.52	0.00	NA	NA	533.44
5/9/2008	520.00	193.00	441.52	0.95	0.20	NA	NA	630.13
6/10/2008	192.00	167.00	186.00	1.70	0.00	NA	NA	405.44

Perchloroethylene

Date	Infl. 1 & 2	Infl. 7	TTL Infl,	Twr Efl	Dis Efl	WH1	WH2	PCE 3pma
9/20/2007	13.00	4.75	11.02	0.00	0.00	NA	NA	15.48
10/9/2007	10.80	9.40	10.46	0.00	0.00	NA	NA	15.16
11/14/2007	0.00	0.00	0.00	0.00	0.00	NA	NA	7.16
12/12/2007	23.60	4.50	19.02	0.00	0.00	NA	NA	9.83
1/16/2008	23.80	4.25	19.11	0.00	0.00	NA	NA	12.71
2/12/2008	2.46	6.12	3.34	0.00	0.00	NA	NA	13.82
3/20/2008	34.00	5.70	27.21	0.00	0.00	NA	NA	16.55
4/11/2008	29.10	0.00	22.12	0.00	0.00	NA	NA	17.55
5/9/2008	11.50	6.90	10.40	0.00	0.00	NA	NA	19.91
6/10/2008	4.52	5.40	4.73	0.00	0.00	NA	NA	12.41

3. Graphical Analysis:





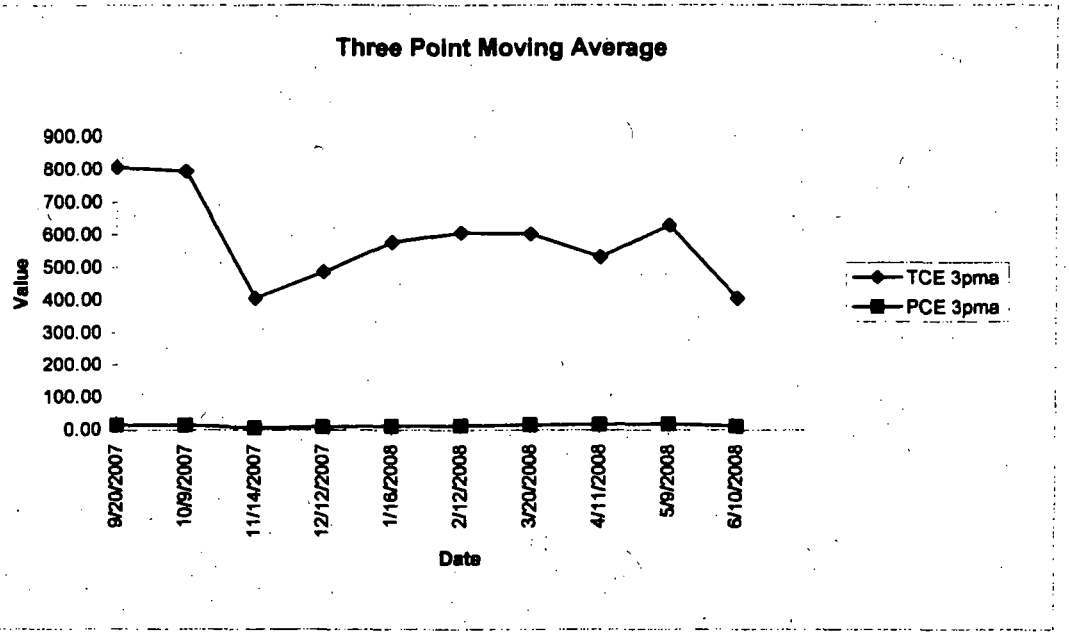
4. Three Point Moving Averages

Three Point Moving Average applied to the Total Influent data calculated based on the following formula.

$$Z(ave)n = Z(ave)n-1 + \{[Zn - Zn-3]/3\}$$

Where Z(ave)n is the nth calculated three point moving average
Zn is the actual data point

Note: As mentioned above, the first Z(ave) is calculated using a straight arithmetic average, or
Z(ave)n=1 = {Zn=1 + Zn=2 + Zn=3}/3



5. General Description of Operation:

The system consists of three deep underground wells, pumping to a combined total effluence of 75 gallons per minute. Two of the wells (#1 & 2) are directed into the stripper tower for removal of volatile contaminates TCE and PCE. The third well (#7) utilizes a coalescent and physical strainer sand filtering system for the removal of lower level oil contamination. The sand filters are steam cleaned when necessary, and backwashed with city line water on a bi-monthly basis to assure continuous effectiveness. The oil collected by this system is added to the hazardous waste oils. The city line water used during the backwash is redirected through the system for removal of any residual contaminates. The total system also includes several hundred feet of open drainage way to the out fall at Jacksonville and Potter Roads.

---

6. Pumping Rates:

Pumping rates are regulated by the Consent Decree to at least 75 gpm, and by the DRBC to no more the 75 gpm. Real world constraints do cause the system to vary, however, a few gpm at any specific point in time. Present settings are:

Well # 1	47 gpm
Well # 2	10 gpm
Well # 7	18 gpm

7. The following definitions are provided for interpreting the data provided above.

DATE	Dates shown are the date the sample was taken.
WH1	Warminster Heights Well #1 (Data represents untreated water)
WH2	Warminster Heights Well #2 (Data represents untreated water)
DIS.EFL.	Discharge point of effluent from Fischer & Porter Property. (Property Line)
TWR EFL	Discharge from the Stripper Tower. Two are taken and the highest is reported.
INFL 1+2	Influent from Wells 1 & 2 combined
INFL 7	Influent from Well 7

8. Operational Notes
none-

Regards,

John R. Engel
Safety Manager
Phone: 215-674-7173
Fax: 215-674-6882
E-Mail: john.engel@us.abb.com

Attachments;
1 Analytical reports

ATTACHMENT 2

June 2005 TetraTech EM Groundwater Investigation Report for the Fischer & Porter Site

Attachments and Appendices to this report are not included, but are available at EPA Region III office.

Tetra Tech EM Inc.

709 Chelsea Parkway ◆ Boothwyn, PA 19061 ◆ (610) 485-6410 ◆ FAX (610) 485-8587

June 29, 2005

Ms. Rashmi Mathur
Remedial Project Manager
U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, PA 19103

Subject: **Final Trip Report for the Fischer and Porter Co. Site**
EPA Contract No. 68-S3-00-02
Technical Direction Document No. SE3-05-02-002
Document Tracking No. 3710

Dear Mrs. Mathur:

Tetra Tech EM Inc. is submitting the Final Trip Report for the Fischer and Porter Co. site . Your comments on the Draft Trip Report have been incorporated into the final report.

If you have any questions regarding this draft report, please call me at (215) 397-8984.

Sincerely,

Lawrence Fang
Project Manager

Enclosure

cc: TDD File

TRIP REPORT
FOR THE
FISCHER AND PORTER CO. SITE
WARMINSTER, BUCKS COUNTY, PENNSYLVANNIA

Prepared for

U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, PA 19103

Submitted by

Tetra Tech EM Inc.
709 Chelsea Parkway
Boothwyn, PA 19061

EPA Contract No. 68-S3-00-02
Technical Direction Document No. SE3-05-03-002
Document Tracking No. 3710

June 29, 2005

Prepared by

Lawrence Fang
Project Manager

Approved by

Marian Murphy
START Program Manager

CONTENTS

FIGURES

TABLES

1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. 68-S3-00-02, Technical Direction Document (TDD) No. SE3-04-07-003, U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc. (Tetra Tech) to conduct surface water, and groundwater sampling at the Fischer and Porter Co. (F & P) site in Warminster, Bucks County, Pennsylvania. The purpose of the sampling event was to provide EPA with analytical data for the site for a 5-year remedy assessment. Samples were collected to measure total concentrations of volatile organic compounds (VOC), specifically trichloroethylene (TCE) and tetrachloroethene (PCE). Tetra Tech collected samples in the field on April 25, 26. 27, and May 18, 2005.

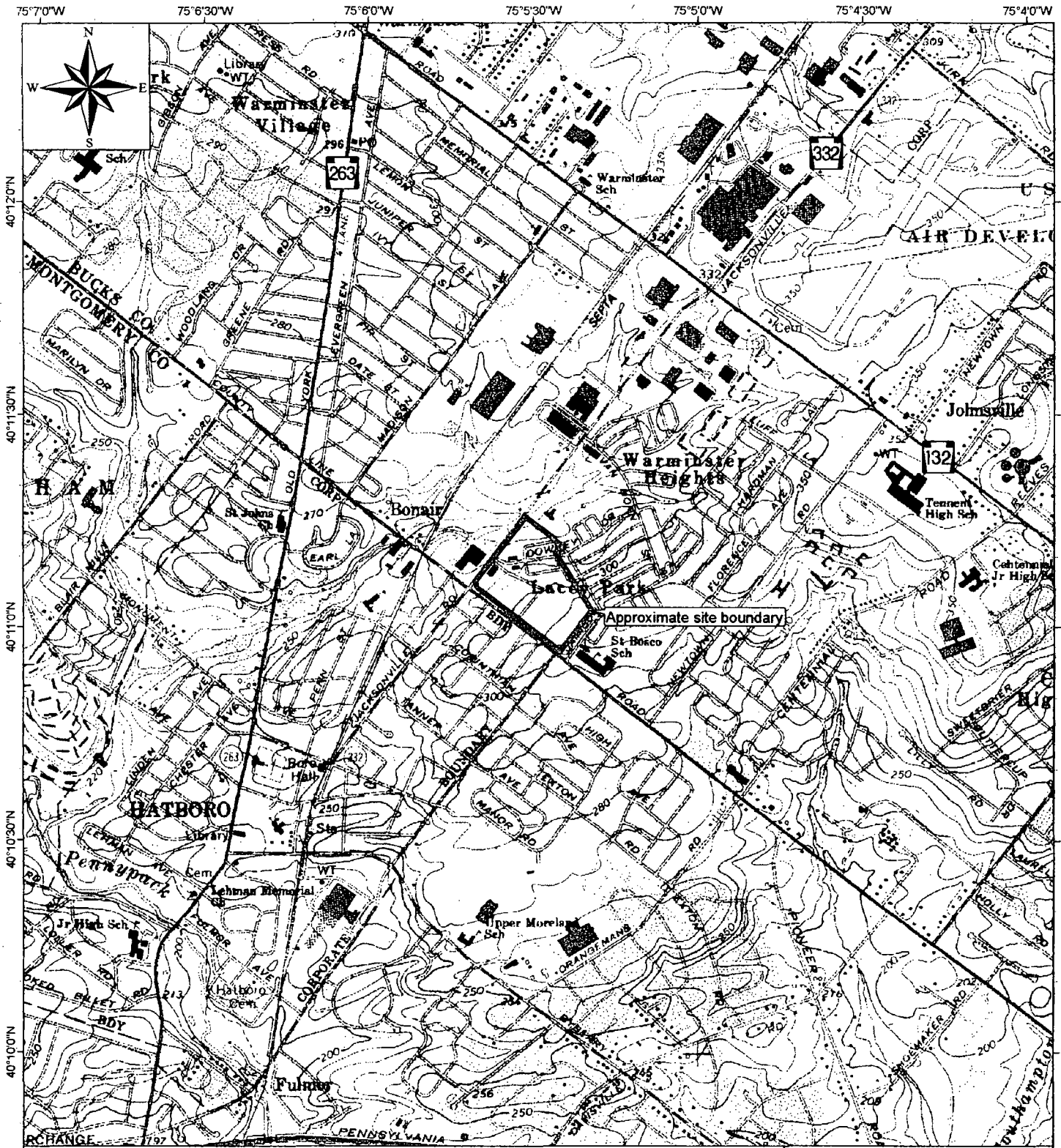
This trip report provides the site background in Section 2.0, describes site activities in Section 3.0, discusses deviation from sampling and analysis plan in Section 4.0, describes problems encountered during the sampling event in Section 5.0, summarizes analytical results in Section 6.0, and summarizes the sampling event in Section 7.0. All references cited in this report are listed after Section 7.0.

2.0 BACKGROUND

This section discusses the site location, description, and history.

2.1 SITE LOCATION

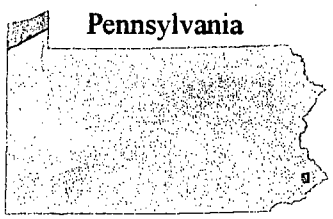
The F & P site is located at 125 East County Line Road in Warminster, Bucks County, Pennsylvania as shown on Figure 1, Site Location Map. The approximate center of the site is located at 300 feet above mean sea level at 40.18500° north latitude and 75.09083° west longitude (U.S. Geological Survey [USGS] 1983).



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangle, Hatboro, Pennsylvania, 1966, Photorevised 1983

0 0.25 0.5 miles

Quadrangle Location =



Fischer & Porter Co. Site
Warminster, Bucks County, Pennsylvania

Figure 1
Site Location Map

TDD No. SE3-05-02-002
EPA Contract No. 68-S3-00-02

Map created on April 12, 2005
by D. Call, Tetra Tech START

Tetra Tech EM Inc.

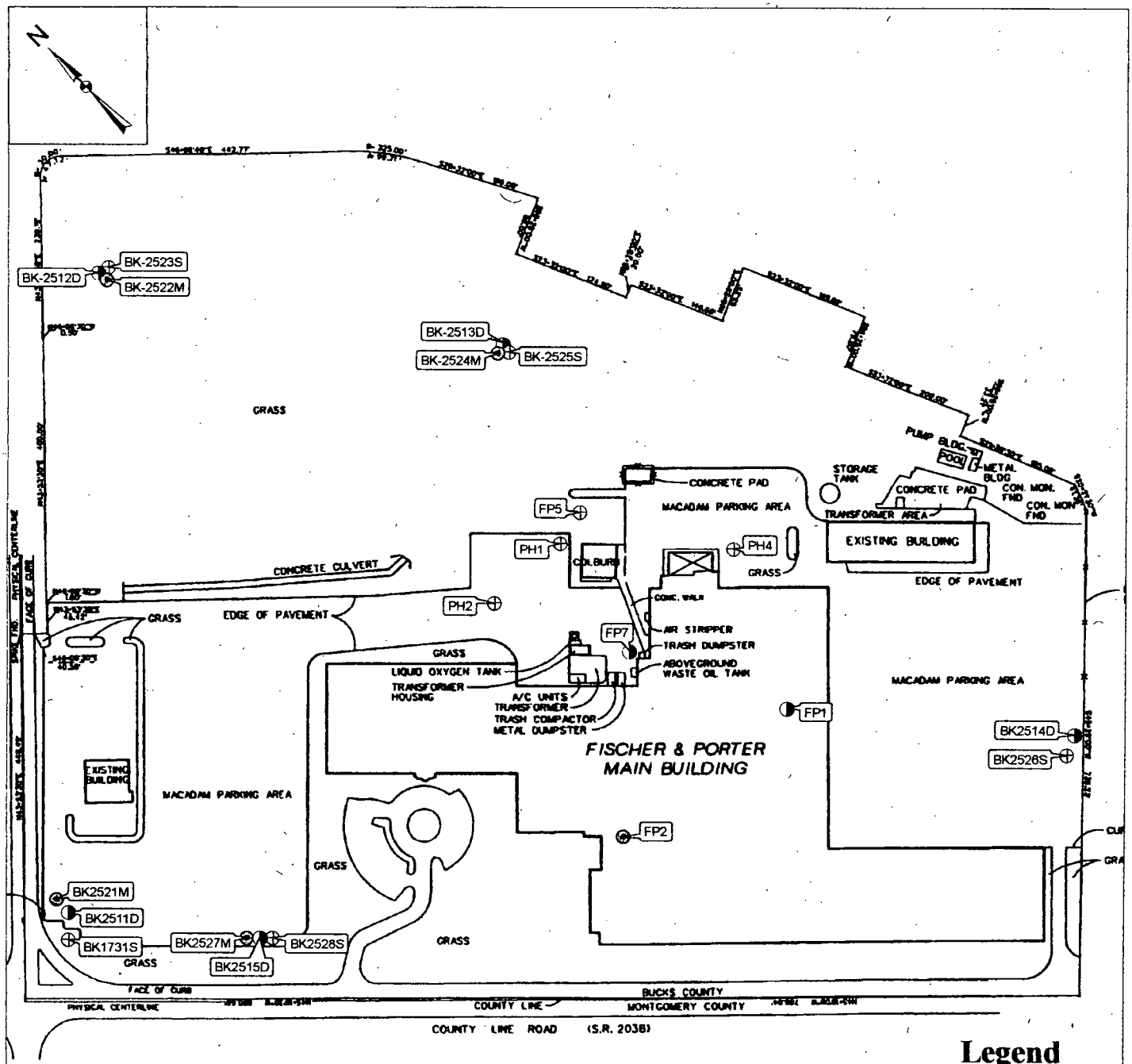
2.2 SITE DESCRIPTION

The site property is owned by The ABB Group (ABB), a manufacturer of water flow and process flow equipment. One main building and several smaller buildings are located on the southern portion of the site, as outlined on Figure 2, Site Well Location Map. Asphalt-paved parking areas are located southeast and northwest of the main building, and lawns are maintained on the northern half of the site and southwest of the main building, near the facility's main public entrance. The site is surrounded by residential, commercial, and industrial properties. County Line Road and Jacksonville Road bound the site to the southwest and northwest, respectively (CH2M Hill 1998; USGS 1983).

The site is listed in the EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) as PAD002345817. A plume of groundwater contaminated with chlorinated solvents is located beneath the site. The plume extends north and underlies properties owned by the Warminster Heights Home Ownership Association (Warminster Heights). Warminster Heights formerly used bedrock wells north of the F & P site as a source of drinking water (EPA 2003). During the site reconnaissance on April 4, 2005, Tetra Tech was advised that the wells are no longer used; although, the internal pumps have not been removed.

2.3 SITE HISTORY

Reportedly, the existing improved structures on site were constructed in 1940 and 1941 and were renovated in the late 1980s. F & P historically used various aromatic and chlorinated solvents, including TCE and PCE, as part of the manufacturing processes. On October 11, 1979, the Bucks County Department of Health sampled water from the F & P plant production well and cooling water discharge. Pennsylvania Department of Environmental Protection (PADEP, formerly Pennsylvania Department of Environmental Resources) laboratory results indicated that water from the plant production well and cooling water discharge contained more than 3,200 and



Legend

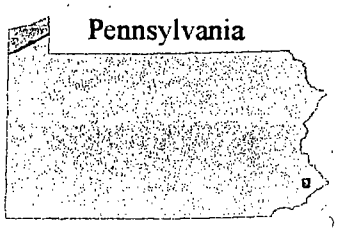
Wells by depth

- Deep
- Intermediate
- Shallow

Source: Modified from Figure 4-8. Summary of Volatile Organics in Groundwater. CH2M Hill, January 22, 1997

Not to Scale

Approximate Site Location =



Fischer & Porter Co. Site
Warminster, Bucks County, Pennsylvania

Figure 2
Site Well Location Map

TDD No. SE3-05-02-002 EPA Contract No. 68-S3-00-02	Map created on June 22, 2005 by D. Call, Tetra Tech START	Tetra Tech EM Inc.

580 parts per billion (ppb) of TCE (CH2M Hill 1998), respectively. In addition, PCE was detected in the on-site, non-potable production wells and in nearby municipal water supply wells for the towns of Hatboro and Warminster Heights (U.S. Department of Health and Human Services 1993).

In September 1983, the site was added to the National Priorities List (NPL). In May 1984, F&P entered into a consent decree with EPA to pump three on-site wells and to operate an air stripper to treat the contaminated water from the three wells and reduce concentrations of contaminants to 4.5 ppb TCE and 3.5 ppb PCE. The tasks were outlined in a record of decision (ROD) that designated operable unit (OU)-1. Effluent from the air stripper was directed through a concrete conduit and was discharged to an unnamed tributary of Pennypack Creek. Construction of the system for remedial action was completed in 1986 (EPA 2003).

In 1992, EPA initiated its first 5-year review of the remedy at the site. Based on the results of the review, EPA concluded that the plume of contamination was not confined to the boundaries of the property and that contaminant concentrations in untreated water from three on-site extraction wells had remained steady rather than declined, as was anticipated. Subsequently, a remedial investigation (RI) was implemented to further study the contamination in the source area. The RI report indicated that the plume was properly intercepted by facility wells downgradient of the source area. Additionally, it was determined during the RI that the wells of the Hatboro Borough Water Authority were affected by a source other than the F & P site. Based on this determination, a "No Further Action" ROD (designated OU-2) was signed on September 28, 1998 (EPA 2003).

Recently, most of F & P's former manufacturing operations have been transferred off site; the buildings were sold to redevelopers and renovated into office space. F & P, which was purchased and is currently operated by ABB, still leases space in the on-site buildings (EPA 2003). The treatment system and other tasks outlined in OU-1 remain active.

3.0 SITE ACTIVITIES

Tetra Tech collected surface water, monitoring well water (groundwater), and field quality control (QC) samples at the F & P site on April 25, 26, 27, and May 18, 2005.
This section summarizes sample collection and handling procedures. Figure 3, Sampling Location Map, shows all sampling locations. Table 1 provides a sampling summary for this assessment, including the sample identifiers, matrices, types, sampling dates and times, and additional comments. Each sampling location was noted in the F & P logbook in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 024, "Recording of Notes in Field Logbook" (Tetra Tech 1999a). Photographs of the sampling event are presented in the Appendix.

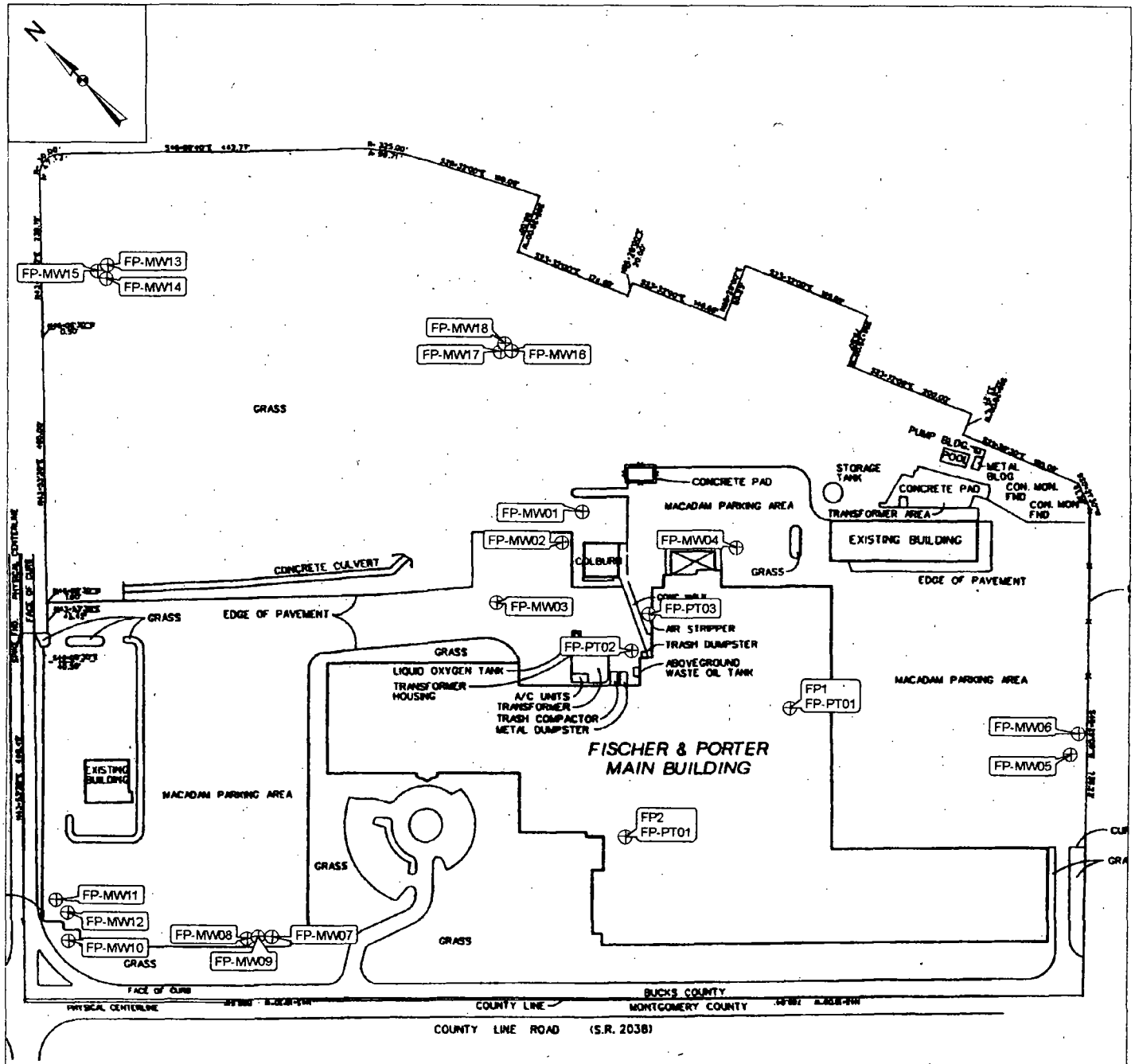
3.1 SURFACE WATER SAMPLING

On April 27, 2005, Tetra Tech collected one surface water sample (FP-PT-03) from an outfall located at the corner of Jacksonville and Potter Road. The sample was collected directly into sample containers placed at the water surface with jar openings facing upstream. The sample was placed into three 40-milliliter glass, certified-clean laboratory containers with open-septum closures preserved with hydrochloric acid to a pH less than 2. The surface water sample was analyzed for VOCs.

The surface water sample was collected in accordance with Tetra Tech SOP No. 009, "Surface Water Sampling" (Tetra Tech 1999b).

3.2 GROUNDWATER SAMPLING

On April 25, 26, 27, and May 18, 2005, Tetra Tech collected 17 monitoring well samples (FP-MW-01 through FP-MW-18) from 17 permanent on-site monitoring wells. Sample FP-MW-21



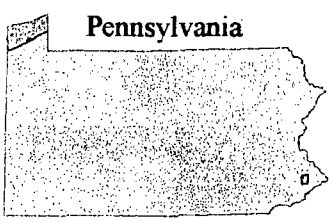
Legend

⊕ Monitoring well sampling location

Source: Modified from Figure 4-8, Summary of Volatile Organics in Groundwater, CH2M Hill, January 22, 1997

Not to Scale

Approximate Site Location =



Fischer & Porter Co. Site
Warminster, Bucks County, Pennsylvania

Figure 3
Sampling Location Map

TDD No. SE3-05-02-002
EPA Contract No. 68-S3-00-02

Map created on June 22, 2005
by D. Call, Tetra Tech START

Tetra Tech EM Inc.

TABLE 1

SAMPLING SUMMARY FOR FISCHER AND PORTER CO. SITE

Sample Identifier	Sample Matrix	Sample Type	Sampling Date and Time		Comments (if any)
FP-MW-01	Aqueous	Grab	4/25/05	1312	From FP-5
FP-MW-02	Aqueous	Grab	5/18/05	1535	From PH-1
FP-MW-03	Aqueous	Grab	4/26/05	1755	From PH-3 PH-2
FP-MW-04	Aqueous	Grab	4/25/05	1539	From PH-4
FP-MW-05	Aqueous	Grab	4/25/05	1155	From BK2526S
FP-MW-06	Aqueous	Grab	NA	NA	From BK2514D Not collected
FP-MW-07	Aqueous	Grab	4/26/05	1330	From BK2528S
FP-MW-08	Aqueous	Grab	4/26/05	1100	From BK2527M
FP-MW-09	Aqueous	Grab	4/26/05	1225	From BK2515D
FP-MW-10	Aqueous	Grab	4/25/05	1805	From BK1731S
FP-MW-11	Aqueous	Grab	4/26/05	951	From BK2531M
FP-MW-12	Aqueous	Grab	4/25/05	1550	From BK2511D
FP-MW-13	Aqueous	Grab	4/26/05	1131	From BK2523S
FP-MW-14	Aqueous	Grab	4/26/05	1338	From BK2522M
FP-MW-15	Aqueous	Grab	4/26/05	1300	From BK2512D
FP-MW-16	Aqueous	Grab	4/25/05	1713	From BK2525S
FP-MW-17	Aqueous	Grab	4/26/05	1645	From BK2524M
FP-MW-18	Aqueous	Grab	4/26/05	1640	From BK2513D
FP-MW-19	Aqueous	Grab	NA	NA	From FP-8 Not collected
FP-MW-20	Aqueous	Grab	NA	NA	From FP-12 Not collected
FP-MW-21	Aqueous	Grab; duplicate of FP-MW-10	4/25/05	1500	From BK1731S
FP-PT-01	Aqueous	Grab	4/27/05	1247	From FP-1 & FP-2
FP-PT-02	Aqueous	Grab	4/27/05	1251	From FP-7
FP-PT-03	Aqueous	Grab	4/27/05	1300	From effluent discharge
FP-PT-04	Aqueous	Grab	4/27/05	1235	From stripper
FP-PT-05	Aqueous	Grab; duplicate of FP-PT-04	4/27/05	1348	From stripper
PH-1	Oil	Grab	4/27/05	1340	Product From PH-1
FP-WA-01	Aqueous	Waste	4/27/05	1400	From 55-gallon purged water
FP-TB-01	Aqueous	QC trip blank	4/27/05	919	
FP-TB-02	Aqueous	QC trip blank	5/18/05	1140	
FP-RB-01	Aqueous	QC rinsate blank	4/27/05	1115	

Notes:

FP	Fischer and Porter Co. Site	QC	Quality control
MW	Monitoring well	RB	Rinsate blank
NA	Not applicable	TB	Trip blank
PT	Pump and treatment system	WA	Investigation-derived waste

was a duplicate of sample FP-MW-10. Samples were collected using a low-flow micropurge sample collection technique. A water level meter was used to determine the groundwater elevation. Based on the well screening data from the RI report by CH2M HILL, a sampling depth was calculated and a pump was placed in the well at this depth. A peristaltic pump or bladder pump forced groundwater through an YSI water quality meter to monitor water quality parameters (temperature, pH, conductivity, oxidation-reduction potential, turbidity, and dissolved oxygen). Tetra Tech recorded the water quality parameter results on a sample log sheet. A peristaltic pump was used when depth to water was 25 feet below ground surface (bgs) or less. A bladder pump was used in each well with a depth to groundwater greater than 25 feet bgs.

Once water parameters stabilized, 17 groundwater samples and one duplicate sample were collected from each of the 17 monitoring wells. Stable water parameters are defined as monitored chemistry values that do not fluctuate by more than the following ranges over three successive readings at 3-minute intervals: ±0.1 pH unit; ±3 percent for specific conductance; ±10 millivolts for oxidation-reduction potential; and ±10 percent for turbidity and dissolved oxygen. Samples were placed into three 40-milliliter glass, certified-clean laboratory containers with open-septum closures preserved with hydrochloric acid to a pH less than 2. Monitoring well samples were analyzed for VOCs.

Groundwater samples were collected in accordance with Tetra Tech SOP No.015, "Groundwater Sample Collection Using Micropurge Technology" (Tetra Tech 2000a).

3.3 ON-SITE TREATMENT SYSTEM SAMPLING

Tetra Tech collected five aqueous samples, including one field duplicate sample, from the on-site treatment system. Sample FP-PT-05 was a duplicate of sample FP-PT-04. Samples were collected using two different sampling methods, depending on the sampling location. Samples were collected at three locations from a spigot using a procedure similar to that used for potable water sampling, as outlined in Section 8 of the EPA Region 4 document "Standard Operating Procedures and Quality Assurance Manual" (EPA 1996). However, the pump and treat system

may not be purged for a minimum period as specified in the SOP. A sample was collected at the remaining location from an outfall as outlined in Tetra Tech SOP No. 009, "Surface Water Sampling" (Tetra Tech 1999b). All five samples were collected in conjunction with ABB's environmental consultant (ST Environmental).

3.4 QC SAMPLES

During this assessment, duplicate field samples FP-MW-21, and FP-PT-05 were collected in addition to a trip blank (FP-TB-01), and a rinsate sample (FP-RB-01). The duplicate samples, trip blank, and rinsate blank were analyzed for the same parameters as the field samples. During the resampling of PH-MW-02 (PH-1) a trip blank (FP-TB-02) was collected.

3.5 SAMPLE HANDLING PROCEDURES

Samples were handled and packaged in accordance with the Tetra Tech SOP No. 019, "Packaging and Shipping Samples" and with Tetra Tech's "Quality Assurance Project Plan (QAPP) for START" (Tetra Tech 2000b and 2001, respectively). All sample containers were properly labeled with EPA custody seals and delivered to the approved Contract Laboratory Program (CLP) laboratories with signed chain-of-custody forms and hidden hazard warnings for laboratory personnel. Samples were preserved as appropriate, and all samples were kept on ice during delivery.

3.6 INVESTIGATION-DERIVED WASTE DISPOSAL

A 55-gallon drum of purge water was generated during this sampling event. The drum was left on site until lab data was obtained. One sample, FP-WA-01, was collected from the drum and used by the waste hauler to determine disposal. Elk Environmental picked up the drum for disposal on June 24, 2005.

4.0 DEVIATION FROM SAMPLING & ANALYSIS PLAN

A sample was not collected from monitoring well PH-MW-06 (BK2514D). Tetra Tech did not collect samples from wells FP-MW-19 (FP-8) and FP-MW-20 (FP-12). During the sampling event, Tetra Tech discovered that wells FP-8 and FP-12 were filled in and samples could not be obtained from these wells. In addition, a product sample was collected when Tetra Tech discovered approximately a 3-foot layer of a light non-aqueous phase liquid (LNAPL) in FP-MW-02 (PH-1). This sample was sent to the EPA Region 3 laboratory for analysis.

5.0 PROBLEMS ENCOUNTERED

Since Tetra Tech used a peristaltic pump at the site, field personnel could not collect a sample from monitoring well PH-MW-06 (BK2514D) because the depth to water was greater than 25 feet bgs and therefore proper purging could not be achieved. The bladder pump that Tetra Tech had on site could not be used due to the length of cord; it was only 200 feet long. A Wattera pump was also used as an attempt to purge the well and collect a sample; however, field personnel could not pump any water out of the well.

During shipment of samples to the lab, two of the three volatile organic analysis vials for sample FP MW-02 (PH-1) broke in transit to lab. As a result, the well was resampled on May 18, 2005.

6.0 ANALYTICAL RESULTS

The following sections present the analytical results for water samples collected during the F & P site 5-year remedy assessment. Table 2 summarizes the sampling results and compares with the 1997 results and also includes the EPA's MCL standard. Attachment B to this report provides the complete validated analytical packages from the CLP laboratories.

TABLE 2
ANALYTICAL SUMMARY FOR FISCHER AND PORTER CO. SITE

Sample ID:			FP-MW01		FP-MW02		FP-MW03		FP-MW04		FP-MW05		FP-MW07		FP-MW08		FP-MW09		FP-MW10		FP-MW11		FP-MW12		FP-MW13		FP-MW14		FP-MW15		FP-MW16	
Sampling Location :			FP-5		PH-1		PH-2		PH-4		BK2526S		BK2528S		BK2527M		BK2515D		BK1731S		BK2531M		BK2511D		BK2523S		BK2522M		BK2512D		BK2525S	
Field QC :																																
Matrix :			Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water	
Units :		ug/L	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
Date Sampled :			4/25/2005		5/18/2005		4/26/2005		4/25/2005		4/25/2005		4/26/2005		4/26/2005		4/26/2005		4/25/2005		4/26/2005		4/25/2005		4/26/2005		4/26/2005		4/26/2005		4/25/2005	
Time Sampled :			13:12		15:35		17:55		15:39		11:55		13:30		11:00		12:25		18:05		09:51		15:50		11:31		13:38		13:00		17:13	
pH :			1		1		1		1		1		1		1		1		1		1		1		1		1		1		1	
Dilution Factor :			8.3		6.2		250.0		3.6		1.0		1.0		25.0		1.0		1.0		8.3		1.0		2.3		50.0		7.1		1.0	
Volatile Compound	CRQL	MCL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Tetrachloroethene	0.50	5			1.2	B	**34**	J	**13**						4.3	J	0.11	J			2.6	J			1.9		**17**	J	3.0	J	0.43	J
1,1,1-Trichloroethane	0.50	200							2.2																							
Trichloroethene	0.50	5			**130**		**1500**		**14**		0.34	J	2.7		**230**		**11**				**84**				**27**		**490**		**82**		**5.2**	
1,1-Dichloroethene	0.50	7					**97**	J	0.77	J			0.27	J	**8.2**	J	0.72				2.5	J			0.39	J	**8.8**	J	1.2	J		
trans-1,2-Dichloroethene	0.50	100			1.1	J	54	J									0.17	J							0.40	J						
cis-1,2-Dichloroethene	0.50	70			**120**		**5100**		54				1.5		20		8.7				15				17		**360**		11		1.0	
Vinyl Chloride	0.50	2			**29**	J	**2700**		0.49	J							0.23	J									**25**					
Benzene	0.50	5	**5.4**		1.8	J																										
Date Sampled :		MCL	1997		1997		1997		1997		1997		1997		1997		1997		1997		1997		1997		1997		1997		1997		1997	
Tetrachloroethene		5			**38**	B	**970**	JD							**10**		1	J			2	J					**21**	J	**13**		2	J
1,1,1-Trichloroethane		200					78																						1	J		
Trichloroethene		5	2	B	**720**		**34,000**	D					4	B	**210**	D	**46**				51	B	8	J			**390**		**190**		**8**	J
1,1-Dichloroethene		7					**350**	JD					1	J	**7**		2	J			1	J					**7**	J	4	J		
1,2-Dichloroethene		70	1	J	**70**	B	**7700**	JD					3	J	21		9	J			6	J					**220**		36		2	J
Vinyl Chloride		2			**5**	J	**920**	JD																								
Benzene		5	5	J			**5**	J																								

Notes:
Results in **bold** are above the MCL
µg/L = micrograms per Liter
MCL =EPA's Maximum Contaminate Level
B = Not detected above level reported in laboratory or field blanks
CRQL = Contract Required Quantitation Limit
J = Anayte present. Reported value may not be accurate or precise

TABLE 2 (Continued)
ANALYTICAL SUMMARY FOR FISCHER AND PORTER CO. SITE

Sample ID:		FP-MW17		FP-MW18		FP-MW21		FP-PT01		FP-PT02		FP-PT03		FP-PT04		FP-PT05		FP-RB01		FP-TB01		FP-WA01	
Sampling Location :		BK2524M		BK2513D		BK1731S		FP-1 & FP-2		FP-7		Effluent outfall		Effluent stripper		Effluent stripper		FP-RB01		FP-TB01		55-gallon drum of purge water	
Field QC :						Dup. of MW10										Dup. of PT04		Rinsate Blank		Trip Blank			
Matrix :		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water		Water	
Units :		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
Date Sampled :		4/26/2005		4/26/2005		4/25/2005		4/27/2005		4/27/2005		4/27/2005		4/27/2005		4/27/2005		4/27/2005		4/25/2005		4/27/2005	
Time Sampled :		16:45		16:40		15:00		12:47		12:51		13:00		12:35		13:48		11:15		09:19		14:00	
pH :		1		1		1		1		1		1		1		1		1		1		1	
Dilution Factor :		1.0		1.0		1:0		250.0		41.7		1.0		3.6		4.2		1.0		1.0		2500.0	
Volatile Compound	MCL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Tetrachloroethene	5	0.67						32	J	12	J			0.69	J	1.1	J						
1,1,1-Trichloroethane	200	0.12	J							15	J												
Trichloroethene	5	3.7		1.4				1900		430		1.9		54		64							
1,1-Dichloroethene	7									18	J												
trans-1,2-Dichloroethene	100																						
cis-1,2-Dichloroethene	70	0.18	J	0.63				40	J	400		0.49	J	12		12							
Vinyl Chloride	2									55													
Benzene	5																						
Date Sampled :	MCL	1997		1997		1997		8/13/1997		8/13/1997		8/13/1997		8/13/1997		8/13/1997							
Tetrachloroethene	5	13						210		68.6				4.17		3.34							
1,1,1-Trichloroethane	200																						
Trichloroethene	5	55		3	B			5230		3650		3.4		209		199							
1,1-Dichloroethene	7	1	J																				
1,2-Dichloroethene	70	2	J																				
Vinyl Chloride	2																						
Benzene	5																						

Notes:
Results in bold are above the MCL
µg/L = micrograms per Liter
MCL =EPA's Maximum Contaminate Level
B = Not detected above level reported in laboratory or field blanks
CRQL = Contract Required Quantitation Limit
J = Anayte present. Reported value may not be accurate or precise

TCE was detected in samples collected from all of the monitoring wells, except, FP-5, BK1731S, and BK2511D. The highest concentration of TCE monitoring well sample was 1,500 micrograms per liter (µg/L), which was detected in a sample collected from monitoring well PH-3.

PCE was detected in samples collected from all of the monitoring wells, except FP-5, BK2526S, BK2528M, BK1731S, BK2513D, and BK2511D. The highest concentration of PCE detected was 34 µg/L, which was detected in a sample from monitoring well PH-3. TCE concentrations for the influent wells of the on-site treatment system were 1,900 µg/L and 430 µg/L for FP-1 + FP-2 and FP-7, respectively. The TCE concentrations were 1.9 µg/L for the effluent from the stripper and 54 µg/L from the effluent outfall. PCE concentrations for the influent wells of on-site treatment system were 32 µg/L and 12 µg/L for FP-1 + FP-2 and FP-7, respectively. TCE was not detected from the stripper effluent and was found at a concentration of 0.69 µg/L from the effluent outfall. The complete data packages are presented as Attachment B.

The field duplicate sample results confirmed the precision of field sampling activities and laboratory analyses. The field blank result indicated no evidence of contamination of sample containers or preservatives used during sampling activities. All water sampling equipment was dedicated to prevent cross-contamination.

7.0 SUMMARY

Tetra Tech conducted surface water and groundwater sampling at the F &P site in Warminster, Bucks County, Pennsylvania. The purpose of the sampling event was to provide EPA with analytical data for the site for a 5-year remedy assessment. Samples were collected to measure total concentrations of VOCs, specifically TCE and PCE. Tetra Tech collected samples in the field on April 25, 26, 27, and May 18, 2005.

Based on the ROD dated September 28, 1998, a former production well, FP-7, was the only well which contained LNAPL. During Tetra Tech's April 2005 sampling event, a 3-foot layer of

LNAPL was discovered in FP-MW-02 (PH-1). Analytical results for this sample can found in the Attachment.B

Comparing this round of sampling results to the sampling of the monitoring wells completed in 1997, there has been a decrease in on-site levels of TCE and PCE over the past 8 years. In 1997, PH-1 had a TCE concentration of 720 µg/L. In 2005, PH-1 had a TCE concentration of 130 µg/L. In 1997, PH-2 had a TCE concentration of 22,000 µg/L. In 2005, PH-2 had a TCE concentration of 1,500 µg/L. PCE concentrations also dropped in PH-2 from 970 µg/L in 1997 to 34 µg/L in 2005.

Comparing this round of sampling results to the sampling of the on-site treatment system completed in August of 1997, there has been a decrease in on-site levels of TCE over the past 8 years. In August of 1997, FP-1 and FP-2 had a TCE concentration of 5,230 µg/L. In 2005, FP-1 and FP-2 had a TCE concentration of 1,900 µg/L. In 1997, FP-7 had a TCE concentration of 3,650 µg/L. In 2005, FP-7 had a TCE concentration of 430 µg/L. PCE concentrations have also dropped slightly.

Comparing Tetra Tech's sample results with ABB's sample results for April 27, 2005 for TCE and PCE, there were no significant differences in the results. Samples results are summarized in Table 2 and ABB's results are presented in Attachment A.

TCE and PCE concentrations for the remaining monitoring wells located outside of the treatment area which would indicate if the plume has shifted have decreased slightly.

Based on the analytical data, Tetra Tech agrees with the remedy proposed in the ROD and recommends continued monitoring of the on-site treatment system to ensure the remedy remains protective of the environment.

REFERENCES

CH2M Hill. 1998. "Fischer and Porter Site Remedial Investigation Report." Work Assignment No. 90-67-SL08. February.

Tetra Tech EM Inc. (Tetra Tech). 1999a. "Recording of Notes in Field Logbook." Standard Operating Procedure (SOP) No. 024. November.

Tetra Tech. 1999b. "Surface Water Sampling." SOP No. 009. December.

Tetra Tech. 2000a. "Groundwater Sample Collection Using Micropurge Technology." SOP No. 015. January.

Tetra Tech. 2000b. "Packaging and Shipping Samples." SOP No. 019. January.

Tetra Tech. 2001. "Quality Assurance Project Plan (QAPP) for START." Boothwyn, Pennsylvania. March.

U.S. Department of Health and Human Services. 1993. "Fischer & Porter, Site Review and Update." August.

U.S. Environmental Protection Agency (EPA). 1996. "Standard Operating Procedures and Quality Assurance Manual, Section 8, Sampling of Potable Water Supplies." EPA Region 4. May.

EPA. 2003. " Fischer & Porter Company Superfund Site." First Five-Year Review Report. November.

U.S. Geological Survey (USGS). 1983. Hatboro, Pennsylvania 7.5-Minute Topographic Quadrangle. Scale 1:24,000.

ATTACHMENT 3

October 2005 Groundwater Monitoring Report for the Fischer & Porter Site

Attachments and Appendices to this report are not included, but are available at EPA Region III office.

Rashmi Mathur, EPA Remedial Manager
U.S. Environmental Protection Agency, Region III
Mail Code 3HW21
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

7-Oct-05

RE: Quarterly Report: Underground Recovery System

Dear Rashmi:

1. Sampling & Testing:

Wells 1 & 2 are combined for sampling with Well 7 sampled separately. The results are combined for a mathematical average using flow as a weighted function in accordance with the following formula.

Total Influent = {[Wells 1&2 Contaminate x Wells 1&2 Flow] + [Well 7 Contaminate x Well 7 Flow]}/Total Flow

2. Data:

Trichloroethylene

Date	Infl. 1 & 2	Infl. 7	TTL Infl,	Twr Efl	Dis Efl	WH1	WH2	TCE 3pma
12/17/2004	3030.00	510.00	2425.20	34.90	0.70	NA	NA	1678.19
1/12/2005	2200.00	364.00	1759.36	31.90	2.16	NA	NA	1902.99
2/7/2005	1290.00	314.00	1055.76	19.90	1.19	NA	NA	1746.77
3/2/2005	2670.00	479.00	2144.16	28.60	1.08	NA	NA	1653.09
4/27/2005	1140.00	417.00	966.48	65.30	1.80	NA	NA	1388.80
5/24/2005	1070.00	340.00	894.80	10.20	0.00	NA	NA	1335.15
7/6/2005	1550.00	298.00	1249.52	18.40	0.65	NA	NA	1036.93
7/29/2005	1890.00	318.00	1512.72	22.10	0.51	NA	NA	1219.01
8/25/2005	1160.00	312.00	956.48	9.87	0.00	NA	NA	1239.57
9/12/2005	844.00	314.00	716.80	8.97	0.00	NA	NA	1062.00

Perchloroethylene

Date	Infl. 1 & 2	Infl. 7	TTL Infl,	Twr Efl	Dis Efl	WH1	WH2	PCE 3pma
12/17/2004	49.00	15.20	40.89	0.00	0.00	NA	NA	31.82
1/12/2005	26.80	8.25	22.35	0.00	0.00	NA	NA	32.04
2/7/2005	29.50	11.50	25.18	0.00	0.00	NA	NA	29.47
3/2/2005	31.00	10.00	25.96	0.00	0.00	NA	NA	24.50
4/27/2005	27.00	14.50	24.00	1.01	0.00	NA	NA	25.05
5/24/2005	14.80	10.40	13.74	0.00	0.00	NA	NA	21.23
7/6/2005	26.00	9.70	22.09	0.00	0.00	NA	NA	19.94
7/29/2005	34.30	11.10	28.73	0.00	0.00	NA	NA	21.52
8/25/2005	16.80	10.10	15.19	0.00	0.00	NA	NA	23.00
9/12/2005	13.80	11.00	13.13	0.00	0.00	NA	NA	19.02

ABB Inc.

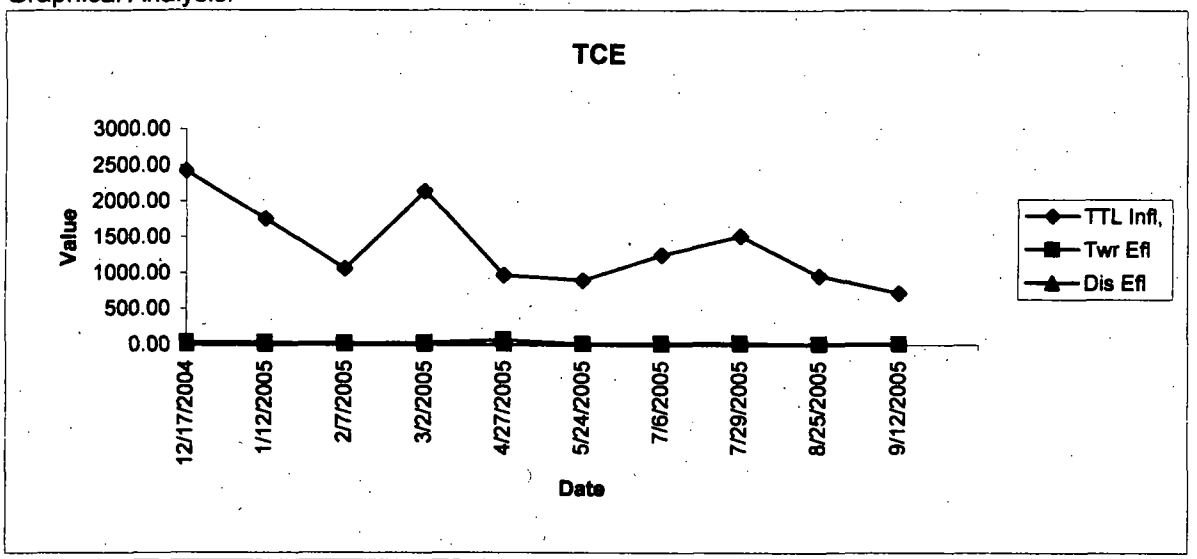
Automation Technology
Products Division
Business Unit Instrumentation

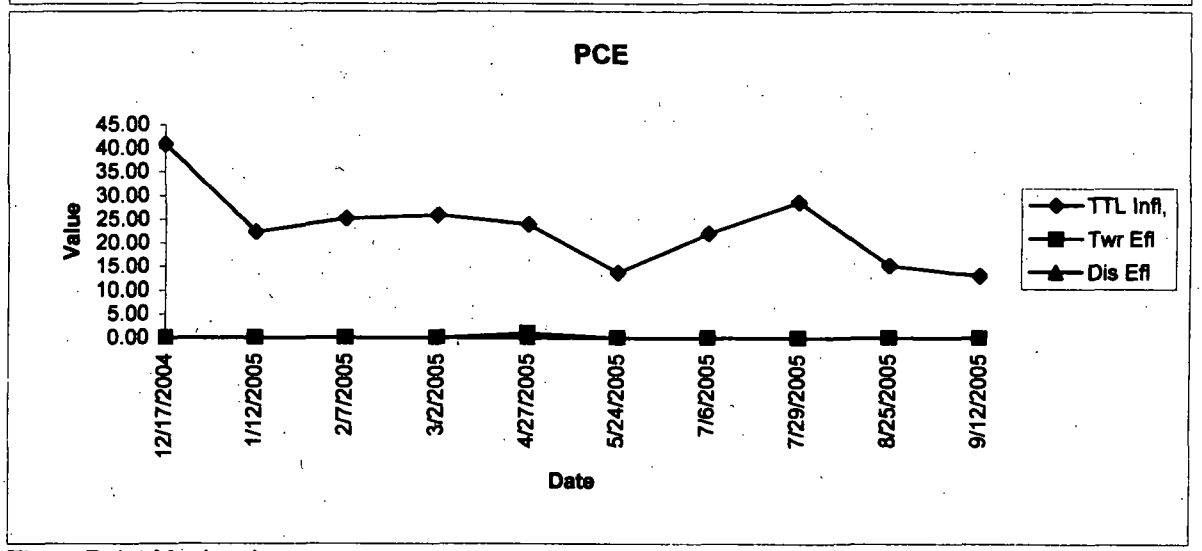
125 East County Line Road
Warminster, PA 18974-4995
USA

Telephone
(215) 674-6000
Fax
(215) 674-7183

Internet
www.abb.com/instrumentation
E-mail
Instrumentation@us.abb.com

3. Graphical Analysis:





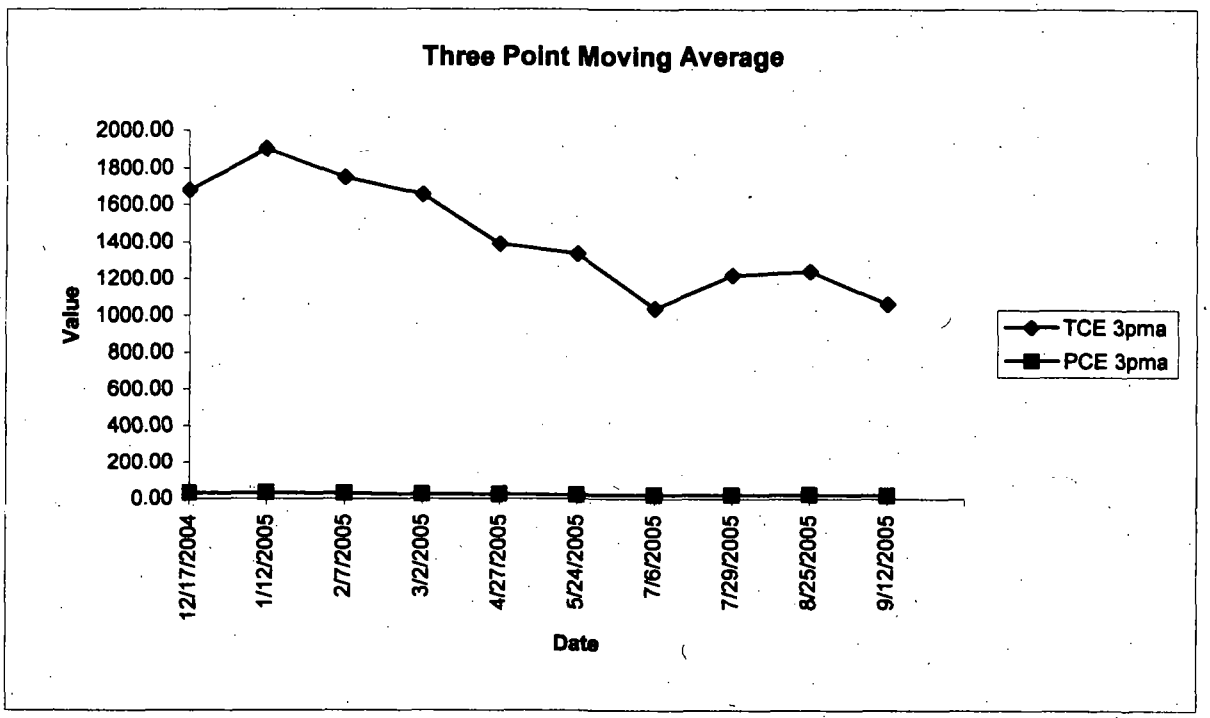
4. Three Point Moving Averages

Three Point Moving Average applied to the Total Influent data calculated based on the following formula.

$$Z(ave)n = Z(ave)n-1 + \{[Zn - Zn-3]/3\}$$

Where Z(ave)n is the nth calculated three point moving average
Zn is the actual data point

Note: As mentioned above, the first Z(ave) is calculated using a straight arithmetic average, or
$Z(ave)n=1 = \{Zn=1 + Zn=2 + Zn=3\}/3$



5. General Description of Operation:

The system consists of three deep underground wells, pumping to a combined total effluence of 75 gallons per minute. Two of the wells (#1 & 2) are directed into the stripper tower for removal of volatile contaminates TCE and PCE. The third well (#7) utilizes a coalescent and physical strainer sand filtering system for the removal of lower level oil contamination. The sand filters are steam cleaned when necessary, and backwashed with city line water on a bi-monthly basis to assure continuous effectiveness. The oil collected by this system is added to the hazardous waste oils. The city line water used during the backwash is redirected through the system for removal of any residual contaminates. The total system also includes several hundred feet of open drainage way to the out fall at Jacksonville and Potter Roads.

6. Pumping Rates:

Pumping rates are regulated by the Consent Decree to at least 75 gpm, and by the DRBC to no more the 75 gpm. Real world constraints do cause the system to vary, however, a few gpm at any specific point in time. Present settings are:

Well # 1	47 gpm
Well # 2	10 gpm
Well # 7	18 gpm

7. The following definitions are provided for interpreting the data provided above.

DATE	Dates shown are the date the sample was taken.
WH1	Warminster Heights Well #1 (Data represents untreated water)
WH2	Warminster Heights Well #2 (Data represents untreated water)
DIS.EFL.	Discharge point of effluent from Fischer & Porter Property. (Property Line)
TWR EFL	Discharge from the Stripper Tower. Two are taken and the highest is reported.
INFL 1+2	Influent from Wells 1 & 2 combined
INFL 7	Influent from Well 7

Regards,

John R. Engel
Safety Manager
Phone: 215-674-7173
Fax: 215-674-6393
E-Mail: john.engel@us.abb.com