On-Base Groundwater Remediation
Performance Monitoring
Former Griffiss Air Force Base
Rome, New York

Final
SPRING 2010
ANNUAL REPORT
PERFORMANCE MONITORING

Contract No. W912DQ-06-D-0012

Revision 0.0
December 2011

FPM group

FPM group — Engineering and Environmental Science

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December 27, 2011

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RE: Final Spring 2010
Annual Report
Performance Monitoring
On-Base Groundwater Remediation
Former Griffiss Air Force Base, Rome, New York
Contract No. W912DQ-06-D-0012-0001
December 2011

Dear Ms. Higginbotham,

FPM Group, Ltd. (FPM) is pleased to submit four (4) hard copies and CDs including all appendices of the above-referenced annual report for performance monitoring sampling for On-Base Groundwater Remediation at the former Griffiss Air Force Base, Rome, New York.

If you have any questions or require additional information, please call me 315-336-7721 ext. 205, or e-mail me at n.vanhoesel@fpm-group.com.

Very truly yours,

Niels D. L. van Hoesel, PE
Environmental Engineer

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Certification of Compliance

On behalf of FPM Group, Ltd. (FPM), the undersigned certify that the document(s) listed below were developed in conformance with FPM's Quality Control Plan, and further, that the work was performed in accordance with acceptable standards of engineering and scientific practice. Comments made by reviewers will be maintained in the project files in accordance with company policy.

Final
Spring 2010
Annual Report
Performance Monitoring
On Base Groundwater Remediation
Former Griffiss Air Force Base
Rome, New York
December 2011

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Prepared for:

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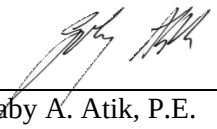

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FINAL

SPRING 2010
ANNUAL REPORT
PERFORMANCE MONITORING

Prepared for:

On-Base Groundwater Remediation
On-Base Groundwater Areas of Concern
Former Griffiss Air Force Base
Rome, New York

through

United States Army Corps of Engineers
Kansas City District
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TABLE OF CONTENTS

PAGE

LIST OF FIGURES

LIST OF TABLES

APPENDICES
All Appendices are included in electronic copy only

LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFCEE	Air Force Center for Engineering and the Environment
AOC	Area of Concern
bgs	Below ground surface
CoC	Chain of Custody
CQCR	Chemical Quality Control Report
DCA	Dichloroethane
DCE	Dichloroethene
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
EEEPC	Ecology and Environment Engineering, P.C.
EPA	Environmental Protection Agency
FPM	FPM Group. Ltd.
FSP	Field Sampling Plan
ft	feet
gpm	Gallon per minute
ISCO	In-situ chemical oxidation
LF6 TCE	Landfill 6 Trichloroethene
MDL	Method Detection Limit
MEE	Methane/Ethane/Ethene
mg/L	Milligram per liter
MNA	Monitored natural attenuation
MTBE	Methyl Tert Butyl Ether
mV	Millivolt
µg/L	Microgram per liter
NTU	Nephelometric Turbidity Unit
NYS	New York State
OBGW	On-Base Groundwater
ORP	Oxygen Reduction Potential

Parsons	Parsons Infrastructure and Technology Group, Inc.
PCE	Perchloroethylene
PDI	Pre Design Investigation
PM	Performance Monitoring
PM WP	Performance Monitoring Work Plan
QAPP	Quality Assurance/ Project Plan
RA WP	Remedial Action Work Plan
RD WP	Remedial Design Work Plan
RL	Reporting Limit
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SMC	Six Mile Creek
sq. ft.	square feet
SSHP	Site Safety and Health Plan
TCA	Trichloroethane
TCE	Trichloroethene
TMC	Three Mile Creek
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VC	Vinyl chloride
VOC	Volatile Organic Compound
WP	Work Plan
WPCF	Water Pollution Control Facility
WSA	Weapon Storage Area

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1 Introduction

This Annual Performance Monitoring (PM) Report has been prepared by FPM Group, Ltd. (FPM) in association with Parsons Infrastructure and Technology Group, Inc. (Parsons), under contract to the United States Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-06-D-0012. FPM is conducting performance monitoring at the following on-base groundwater (OBGW) Areas of Concern (AOCs) at the former Griffiss Air Force Base (AFB):

- Landfill 6 Trichloroethene (Landfill 6 TCE) Site,
- Building 817/WSA Site,
- Building 775/Pumphouse 3, and
- The Nosedocks/ Apron 2 Chlorinated Plume.

The above sites will be referred to in the text as Landfill 6 TCE, Building 817/WSA, Building 775 and Apron 2 Chlorinated Plume, respectively (Figure 1-1). This report provides all site activities and groundwater monitoring data from the Fall 2009 PM and Spring 2010 PM sampling rounds. This Annual PM Report includes the sampling results of the seven rounds of PM sampling from the LF6 TCE, Building 817/WSA, and Apron 2 Chlorinated Plume Sites and the six rounds of PM sampling from the Building 775/Pumphouse 3 Site. Discussion of the previous four or five PM sampling rounds has been removed from the text for readability; only the last two sampling rounds (Fall 2009 and Spring 2010) are included in the discussions.

1.1 Objectives

The objective of performance monitoring is to collect groundwater data to support decision making and assessment of the implemented remedy. This assessment will be made based on the results from performance sampling while applying the criteria as discussed in the Final Remedial Design Work Plan (RD WP) and Design Drawings (Ecology and Environment Engineering, P.C. [EEEPC], February 2008). The performance monitoring networks follow the RD WP. A more detailed history of each of the sites is provided in separate sections below, along with a brief synopsis of the implemented remedial action.

The Annual PM Report is intended to summarize the sampling results of the six or seven PM sampling rounds in tabular format. Discussions are limited to the last two sampling rounds (Fall 2009 and Spring 2010). This report contains the following required information:

- Summary of field sampling activities (including field documentation logs in Appendix A);
- Data assessment information (including data validation reports (Appendix B) and laboratory results (Appendix C);
- A comparison between current data, past data, and established performance criteria;
- Updated plume contour maps (Figure Section);
- Updated water-level contour maps (included on the plume contour maps in the Figure Section);

- Summary of analytical results in tables (Table Section); and
- Trend charts (Figure Section).

The above requirements are addressed in the following site-specific sections. Each site-specific section contains the following subsections:

- Site Background;
- Remedial Action Summary;
- PM Sampling Plan;
- Field Activities;
- PM Results;
- Analysis and Discussion; and
- Conclusion.

1.2 Applicable Requirements

FPM performed the sampling as detailed in the Final PM Work Plan [PM WP] (FPM, September 2008).

Groundwater samples were generally collected using bladder pumps, but bailers were used at 1-inch direct-push wells at the Landfill 6 TCE Site due to the size of the bladder pumps being larger than the diameter of the direct-push wells. Sampling was performed in accordance with United States Environmental Protection Agency (USEPA) recommended practices [USEPA, March 1998] (bladder pump sampling only) and the Field Sampling Plan (FSP), Long-Term Monitoring Program (FPM, March 2005). Details on the sampling methodology are described in Section 6 of the PM WP (FPM, September 2008). All data obtained from the sampling events were reviewed and evaluated in accordance with the Basewide Air Force Center for Engineering and the Environment (AFCEE) Quality Assurance Project Plan (QAPP) Version 4.0, Long-Term Monitoring Program (FPM, October 2006), with AFCEE-approved and USACE-approved variances, and the AFCEE QAPP 4.0 qualifiers. The QAPP and the FSP form the Sampling and Analysis Plan (SAP).

During sampling, daily Chemical Quality Control Reports (CQCRs) were prepared to log all daily activities and to provide a record of any deviations from the approved SAP. These CQCRs contain all completed field sampling forms (from Appendix B of the Final PM WP [FPM, September 2008]), calibration data, signed Chains of Custody (CoCs), and applicable health and safety forms (Appendix A of the final PM WP). The CQCRs are included in this Annual PM report in Appendix A.

During groundwater sampling, all work practices complied with the Site Safety and Health Plan (SSHP), Long-Term Monitoring Program (FPM, June 2003), Accident Prevention Plan (Parsons, June 2006), and operating requirements from the Remedial Action Work Plan (RA WP) (Parsons, July 2008) to ensure that the most conservative approach towards workers' health, site safety and protection of the environment is utilized. Project health and safety forms were completed during sampling and are included in the daily CQCRs.

2 Landfill 6 TCE Site

2.1 Site Background

The Landfill 6 TCE Site plume is located downgradient to the west of Landfill 6. The most contaminated portion of the plume is located southwest of the landfill beneath the floodplain of Three Mile Creek (TMC). The contaminants exceeding New York State (NYS) Class GA Groundwater Standards (NYSDEC, June 1998) are TCE, dichloroethene (DCE), and vinyl chloride (VC). In March 2004, the maximum TCE concentration was 2,140 micrograms per liter (µg/L) and the maximum DCE concentration was 346 µg/L. Both of these maximums were detected in wells located within a 1,600-square-foot (sq. ft.) area centered around well LF6MW-12 as shown on Figure 2-1 (EEEPC, February 2008).

The contaminated aquifer is comprised of silty sands with an average saturated thickness extending from 19 feet (ft) below ground surface (bgs) to 80 ft bgs, where shale bedrock is encountered. Contamination is not found in the bedrock. Due to a flat gradient, groundwater velocities at this site are extremely slow and have been estimated at less than 4 ft per year. In general, the direction of groundwater flow at the site is southwest. Groundwater studies at the site found relatively aerobic conditions and low dissolved organic carbon (DOC) within the TCE/DCE plume. The cis-1,2-DCE present in the plume may have been formed years ago when the TCE degraded in the presence of landfill organics. There is evidence that reductive dechlorination is occurring in a limited downgradient section of the plume (LF6VMW-26 and LF6MW-12) (EEEPC, February 2008).

Treatability studies were performed at Landfill 6 TCE Site consisting of a bench-scale study in June 2002 and a field pilot-scale study in November 2002 through November 2003 to evaluate the effectiveness of in-situ chemical oxidation (ISCO). The bench-scale study injected potassium permanganate as the oxidant, resulting in successful destruction of TCE and DCE. The positive results prompted the field pilot-scale study where two rounds of injections occurred using six injection points located in the vicinity of LF6MW-12. The baseline results compared to the post-treatment analytical results showed that the initial injection had a minimal effect on the destruction of the contaminants and the majority of the oxidant reacted with the natural oxidant demand of the groundwater. The results of the second injection exhibited 50 % total VOC reduction, after rebound occurred. Based on these results, Landfill 6 TCE site conditions are conducive for contaminants to be treated with ISCO (EEEPC, December 2006).

FPM sampled the LF6 TCE Site on November 16, 2006 in accordance with the final Baseline Letter Work Plan (WP) (FPM, November 2006). FPM sampled six monitoring wells. The samples were analyzed for the following parameters: VOCs, sulfate, DOC, and methane/ethane/ethene (MEE). Field parameters collected were oxygen reduction potential (ORP), dissolved oxygen (DO), pH and water levels. EEEPC installed and sampled seven new monitoring wells. The samples collected by EEEPC were analyzed for VOCs only. Results confirmed significant cis-1,2-DCE and TCE detections exceeding the NYS Class GA Groundwater Standards in a

relatively small area centered around LF6MW-12. Results are discussed in detail in the Final Monitoring Report, Baseline and Pre Design Investigation (PDI) 2 Sampling for OBGW AOC (FPM, August 2007).

A groundwater and surface water sampling event was performed from February through April 2007. This sampling event was performed in accordance with the Final WP for PDIs (EEEPC, July 2006). Five additional direct-push wells at Landfill 6 TCE (LF6TW-33 through -38) were installed in February 2007 and sampled in April 2007. The results showed a relatively low concentration TCE plume with a smaller central area (hot spot) with much higher TCE concentrations. This hot spot is an approximately 1,600 sq. ft. area around monitoring well LF6MW-12. Detailed monitoring well results can be found in the Final Monitoring Report (FPM, August 2007).

2.2 Remedial Action Summary

The remedy for the Landfill 6 TCE Site is enhanced bioremediation. As listed in the final RA WP (Parsons, July 2008), this process is intended to increase biodegradation of the groundwater contaminants by injecting a vegetable oil emulsion. The vegetable oil emulsion increases the natural breakdown of the chemicals, reducing the concentration of contaminants.

The vegetable oil injection was performed at injection wells LF6IW-01 through -06 in July 2008 (Figure 2-2). These injections wells are located in a cluster slightly upgradient of the cluster of monitoring wells in the hot spot (LF6MW-12, -16, -17, and -20). These are the identical injection wells used for the permanganate injections in 2002/2003. A total volume of 7,375 gallons of water were injected with a total of 156 gallons vegetable oil, 72 gallons of lactate, and 102 gallons of buffer solution, as detailed in the table below.

Date	Injection Well	Volume water (gallons)	Volume veg. oil (gallons)	Volume lactate (gallons)	Volume buffer (gallons)
7/24/08	LF6IW-05	1,255	26	12	17
7/25/08	LF6IW-02	1,255	26	12	17
7/28/08	LF6IW-01	1,205	26	12	17
7/28-29/08	LF6IW-03	1,205	26	12	17
7/29/08	LF6IW-06	1,205	26	12	17
7/30-31/08	LF6IW-04	1,250	26	12	17
	Total:	**7,375**	**156**	**72**	**102**

One additional monitoring well (LF6MW-39) was installed by Parsons at the Landfill 6 TCE Site in July 2008 in accordance with the final RA WP (Parsons, July 2008).

2.3 PM Sampling Plan

Performance monitoring includes sampling of eight monitoring wells and five direct-push wells as listed in Table 2-1 and as shown on Figure 2-1 to evaluate the effectiveness of the remedial approach. All samples collected are analyzed for VOCs (EPA Method SW8260B), sulfate (EPA Method SW9056), DOC (Standard Method SM5310B), and MEE (EPA Method RSK-175). Field parameters collected are ORP, DO, pH, and water levels. Additional details on the sampling are provided in the PM Work Plan (FPM, September 2008).

All performance monitoring was conducted by FPM personnel and all sampling documentation was included in the associated CQCRs (Appendix A). Performance monitoring was conducted quarterly for the first year following the initial injection in July 2008 and semi-annually after that. Any deviations from the work plan are detailed below.

2.4 Field Activities

Two semi-annual PM sampling rounds were performed in Fall 2009 and Spring 2010. Field sampling was performed September 17, 23, and 24, 2009 and April 20 and 21, 2010. Daily field activities are summarized on daily CQCRs (Appendix A).

Groundwater samples were collected at the eight monitoring wells (LF6VMW-13, -13RD, -26, LF6MW-16, -17, -20, -31, and -39) with dedicated bladder pumps according to the USEPA Low Stress (Low Flow) Purging and Sampling Ground Water Sampling Procedure for Region II (USEPA, March 1998). At the five direct-push wells (LF6TW-33, -34, -35, -36, and -38), the groundwater was evacuated with a check valve attached to tubing. Stability readings were collected from the evacuated water. After stability was reached, the tubing was removed and a disposable bailer was used to collect ground water for the samples.

Several observations were made which are detailed below:

- In the Fall 2009 sampling round, at monitoring wells LF6VMW-13R, -13RD, and -31, the turbidity did not reach the typically observed value of 50 Nephelometric Turbidity Unit (NTU) or below. It stabilized around 100 NTU for monitoring wells LF6VMW-13R and -13RD and 54 NTU for monitoring well LF6MW-31. All other parameters also reached stability and a sample was collected. In the Spring 2010 sampling round, only the turbidity at LF6VMW-13 was not below 50 NTU. It stabilized around 370 NTU.
- All direct-push wells had turbidity levels above 999 NTU and high DO levels, even if the ORP readings were low or negative. The latter combination is typically not observed but is likely the result of the evacuation procedure with a check valve and tubing, where the water column is forcefully mixed. This procedure raised DO levels rapidly.

2.5 PM Results

2.5.1 Fall 2009

The daily CQCRs for this semi-annual PM sampling round detailing the daily sampling activities are attached in Appendix A. The validated data are attached in Appendix B and the raw lab data are provided in Appendix C.

The Landfill 6 TCE Site PM sampling results are provided in Table 2-2. These results include the baseline sampling results collected in 2006-2007 and the results of the first four quarterly PM sampling rounds and the latest semi-annual sampling round. The results are compared to the prior sampling round. All monitoring and direct-push wells identified in Table 2-1 were sampled. No deviations of the sampling plan were reported.

Monitoring wells located within the hot spot (LF6MW-12, -16, and -17) showed cis- and, trans-1,2-DCE, and TCE exceedances of the NYS Class GA Groundwater Standards. The reported concentrations were in line with past results, except for monitoring well LF6MW-16, where a much lower cis-1,2-DCE (232 µg/L) and a much higher TCE concentration (588 µg/L) were reported. Significant methane levels were reported in monitoring wells LF6MW-17 (25 µg/L), which appear to show an increasing trend (from 11 µg/L). DOC concentrations were relatively low (between 1.9 and 18 milligrams per liter [mg/L]) and appear to show a decreasing trend (from between 1.7 and 69 mg/L). ORP levels are negative to strongly negative and DO readings are around 3.5 mg/L.

Direct-push well LF6TW-33 cis-1,2-DCE concentration increased to 83.4 µg/L (from 44.0 µg/L), while the TCE concentration remained constant. The methane concentration increased to 20 µg/L (from 5.2 µg/L), DOC increased to 15 mg/L (from 2.5 mg/L) and sulfate remained constant. ORP became negative at -85 millivolt (mV), DO increased to 9.32 mg/L (from 9.27 mg/L) and pH increased to 7.90 (from 7.06).

Monitoring well LF6MW-31 showed stable readings for VOCs (three detections), methane (4.5 F µg/L), DOC (2.8 mg/L), and sulfate (63 mg/L). The three VOC detections were acetone at 2.26 F µg/L, cis-1,2-DCE at 0.19 F µg/L, and VC at 0.48 F µg/L. ORP increased but remained negative at -89 mV (from -176mV), DO increased to 4.86 mg/L (from 0.82 mg/L) and pH decreased to 6.54 (from 7.98).

Direct-push well LF6TW-34 showed an increasing exceedances for cis-1,2-DCE (105 µg/L from 25.6 µg/L), trans-1,2-DCE (26 µg/L from 6.55 µg/L), and TCE (226 µg/L from 93.4 µg/L). Methane slightly increased to 16 µg/L (from 14 µg/L), DOC increased to 6.9 mg/L (from 3.5 mg/L) and sulfate decreased to 67 mg/L (from 78 mg/L). ORP decreased to -49 mV (from -4mV), DO increased to 8.88 mg/L (from 5.98 mg/L) and pH increased to 7.80 (from 7.07).

Direct-push well LF6TW-35 showed stable cis-1,2-DCE (5.01 µg/L) and TCE (34.0 µg/L) exceedances. Methane increased to 19 µg/L (from 9.4 µg/L), DOC increased to 34 mg/L (from 1.8 mg/L) and sulfate increased to 79 mg/L (from 74 mg/L). ORP became positive at 69 mV, DO increased to 10.11 mg/L (from 2.85 mg/L) and pH decreased to 7.60 (from 7.82).

Direct-push well LF6TW-36 (roughly 60 ft away from the hot spot) showed stable cis-1,2-DCE and TCE exceedances (47.7 µg/L and 284 µg/L respectively), methane increased at 7.7 µg/L (from 4.9 F µg/L), increased DOC at 8.9 mg/L (from 1.7 mg/L) and stable sulfate at 59 mg/L . ORP became positive at 42 mV, DO increased to 9.51 mg/L (from 5.70 mg/L) and pH remained stable at 7.84.

Monitoring well LF6TW-38 (approximately 120 ft from the hot spot), showed stable cis-1,2-DCE (34.2 µg/L) readings and stable TCE at 128 µg/L. Methane was stable at 5.7 µg/L, DOC increased to 11 mg/L (from 0.67 F mg/L) and sulfate was stable at 41 mg/L. ORP became positive at 97 mV, DO increased to 10.05 mg/L (from 5.70 mg/L) and pH decreased to 7.58 (from 7.62).

Monitoring well LF6VMW-26 (approximately 180 ft from the hot spot), showed stable cis-1,2-DCE concentrations (101 µg/L). No methane was reported, DOC remained stable at 0.44 F mg/L and sulfate was stable at 52 mg/L. ORP decreased to -85 mV (from -60 mV), DO decreased to 1.58 mg/L (from 2.48 mg/L) and pH increased to 7.49 (from 7.20).

The downgradient wells (LF6VMW-13R, -13RD, and LF6MW-39) all showed a VOC detection for acetone. There was little or no methane reported, DOC concentrations were low and sulfate concentrations were high. ORP readings were strongly negative (-117 or less mV) along with relatively low DO readings (less than 4.03 mg/L) and stable pH around 7.

Surface water location LF6-SW1PM was sampled for the first time in September 2009. Two VOCs (acetone at 2.28 F µg/L and chlorobenzene at 0.130 F µg/L) were detected but concentrations did not exceed the NYS Class GA Groundwater Standards. Methane was reported at 5.5 µg/L, DOC was 6.9 mg/L and sulfate was 42 mg/L. ORP was positive at 73 mV, DO was 10.28 mg/L and the pH was 7.44.

2.5.2 Spring 2010

The daily CQCRs for this semi-annual PM sampling round detailing the daily sampling activities are attached in Appendix A. The validated data are attached in Appendix B and the raw lab data are provided in Appendix C.

The Landfill 6 TCE Site PM sampling results are provided in Table 2-2. These results include the baseline sampling results collected in 2006-2007, and the results of the first four quarterly PM sampling rounds and the latest semi-annual sampling rounds. The results are compared to

the prior sampling round. All monitoring and direct-push wells identified in Table 2-1 were sampled. No deviations of the sampling plan were reported.

Monitoring wells located within the hot spot (LF6MW-12, -16, and -17) showed cis-, trans-1,2-DCE, and TCE exceedances of the NYS Class GA Groundwater Standards. The reported concentrations were in line with past results, except for monitoring well LF6MW-16, where a much lower cis-1,2-DCE (248 µg/L) and a much higher TCE concentration (1,010 µg/L) were reported. In addition to the chlorinated VOC exceedances, monitoring well LF6MW-17 also showed a minor benzene exceedance of 1.20 F µg/L. Methane levels in monitoring well LF6MW-17 (8.3 µg/L) decreased from the Fall 2009 methane data (25 µg/L). DOC concentrations were low (between 2.7 mg/L and 4.5 mg/L) and appear to show a decreasing trend (from between 1.9 and 18 mg/L). ORP levels are negative (-82 mV to -232 mV) and DO readings are 0.00 mg/L.

Direct-push well LF6TW-33 showed decreasing cis-1,2-DCE and TCE concentrations (68.4 µg/L and 218 µg/L, respectively from 83.4 µg/L and 256 µg/L, respectively). The methane concentration decreased to 13 µg/L (from 20 µg/L), DOC decreased to 3.4 mg/L (from 15 mg/L) and sulfate remained constant at 58 mg/L. ORP remained negative at -91 mV, DO decreased to 1.12 mg/L (from 9.32 mg/L) and pH decreased to 7.09 (from 7.90).

Monitoring well LF6MW-31 showed stable VOCs detections (cis-1,2-DCE at 0.210 F µg/L and VC at 0.380 F µg/L). Methane increased to 15 µg/L (from 4.5 F µg/L). DOC remained stable at 2.8 mg/L and sulfate was stable at 60 mg/L. ORP decreased to -106 mV (from -89 mV) and DO decreased to 0.00 mg/L (from 4.86 mg/L), while pH increased to 7.27 (from 6.54).

Direct-push well LF6TW-34 showed a decreasing cis-1,2-DCE concentration (87.6 µg/L from 105 µg/L) and stable exceedances for TCE (221 µg/L) and for trans-1,2-DCE (26.2 µg/L). Methane decreased to 11 µg/L (from 16 µg/L), DOC decreased to 2.9 mg/L (from 6.9 mg/L) and sulfate increased to 82 mg/L (from 67 mg/L). ORP decreased to -69 mV (from -49 mV), DO decreased to 3.05 mg/L (from 8.88 mg/L) and pH decreased to 7.07 (from 7.80).

Direct-push well LF6TW-35 showed an increased cis-1,2-DCE exceedance (6.68 µg/L from 5.01 µg/L) and a decreased TCE exceedance (28.6 µg/L from 34.0 µg/L). Methane decreased to 12 µg/L (from 19 µg/L), DOC decreased to 2.3 mg/L (from 34 mg/L) and sulfate decreased to 71 mg/L (from 79 mg/L). ORP increased to 93 mV (from 69 mV), DO decreased to 0.86 mg/L (from 10.11 mg/L) and pH decreased to 7.16 (from 7.60).

Direct-push well LF6TW-36 (roughly 60 ft away from the hot spot) showed an increased cis-1,2-DCE concentration (57.5 µg/L from 47.7 µg/L) and a decreased TCE concentration (246 µg/L from 284 µg/L). Methane decreased to 2.0 F µg/L (from 7.7 µg/L), DOC decreased to 1.9 mg/L (8.9 mg/L), and sulfate remained stable at 55 mg/L. ORP decreased to 13 mV (from 42 mV), DO decreased to 1.11 mg/L (from 9.51 mg/L) and pH decreased to 7.06 (from 7.84).

Monitoring well LF6TW-38 (approximately 120 ft from the hot spot), showed an increased cis-1,2-DCE concentration (42.2 µg/L from 34.2 µg/L) and a decreased TCE concentration (114 µg/L from 128 µg/L). Methane decreased to 4.0 F µg/L (from 5.7 µg/L), DOC decreased to 1.3 mg/L (from 11 mg/L) and sulfate was stable at 42 mg/L. ORP decreased to 87 mV (from 97 mV), DO decreased to 4.21 mg/L (from 10.05 mg/L) and pH was stable at 7.54.

Monitoring well LF6VMW-26 (approximately 180 ft from the hot spot), showed stable a cis-1,2-DCE reading (101 µg/L). No methane was reported, DOC increased to 1.1 mg/L (from 0.44 F mg/L) and sulfate was stable at 50 mg/L. ORP decreased to -107 mV (from -85 mV), DO decreased to 0.00 mg/L (from 1.58 mg/L) and pH increased to 7.73 (from 7.49).

No VOC detections were reported for the downgradient wells (LF6VMW-13R, -13RD, and LF6MW-39). There was little or no methane reported (0 to 1.8 µg/L), DOC concentrations were low (0.68 F to 1.4 mg/L) and sulfate concentrations were high (14 to 51 mg/L). ORP readings at LF6VMW-13R and 13RD were strongly negative (-143 mV and -131 mV, respectively) and positive at LF6MW-39 (73 mV). In addition, low DO readings (0.00 mg/L) and stable pH around 7.5 were reported at all three wells.

Three VOCs (acetone at 2.14 F µg/L, benzene at 0.130 F µg/L, and chlorobenzene at 0.330 F µg/L) were detected at surface water location LF6-SW1PM but none exceeded the NYS Class GA Groundwater Standards. Methane increased to 33 µg/L (from 5.5 µg/L), DOC decreased to 4.2 mg/L (from 6.9 mg/L) and sulfate was stable at 40 mg/L. ORP increased to 98 mV (from 73 mV), DO increased to 11.83 mg/L (from 10.28 mg/L) and the pH increased to 8.04 (from 7.44).

2.6 Analysis and Discussion

Three chlorinated VOCs exceeded the NYS Class GA Groundwater Standards during each sampling round at the Landfill 6 TCE Site: cis-1,2-DCE, trans-1,2-DCE, and TCE. A relatively small hot spot exists with concentrations at approximately 700 - 1,000 µg/L for all three VOCs combined. Concentrations have fluctuated but not changed significantly.

VOC results at upgradient direct-push well LF6TW-34 showed an increase in TCE and cis-1,2-DCE concentrations. VOC concentrations fluctuate significantly at this sampling location and continued sampling will determine if this is an anomaly, a fluctuation, or an increasing trend.

Methane is reported at moderate levels in virtually all monitoring wells, with the highest concentrations reported for monitoring well LF6MW-17. No ethane and ethene were reported in any of the monitoring wells.

DOC levels should be maintained within the range suggested for enhanced bioremediation (20-50 mg/L) in the Principles and Practices document (AFCEE, November 2004). DOC levels for wells within the hot spot (which was the area targeted for emulsified vegetable oil injection) decreased to below this suggested range. As recommended in the Final Summer 2009 Annual

Report (FPM, November 2010), additional vegetable oil injection was performed in August 2010.

Sulfate levels across the site are generally high and stable (14 - 82 mg/L), which indicates that sulfate reduction is most likely not competing with reductive dechlorination. In the past, a sulfur odor was observed at the monitoring wells in the hot spot (Summer 2009) due to sulfate reduction. However this odor was not observed in the most recent sampling rounds (Fall 2009 and Spring 2010).

ORP levels are typically negative to strongly negative across the site with the lower readings reported in wells in the hot spot. DO levels are typically low (0.00 - 4.86 mg/L) across the site, except for the direct-push monitoring wells, which showed higher DO levels up to 11 mg/L, likely the result of the sampling method. pH levels varied between 6.54 and 8.36. These levels are optimal for reductive dechlorination.

The surface water sample did not show any influence of the chlorinated plume reaching the creek. The benzene detection is believed to be related to the storm water received in TMC, because TMC received storm water from the southern part of the former Griffiss AFB, which includes large parking lots and many roads. The chlorobenzene detection is deemed not related to the LF6 TCE site, because chlorobenzene has never been detected in any of the monitoring wells at the LF6 TCE site. It is difficult to determine the source of the acetone detection reported in the TMC surface water sample because it can be a low laboratory contaminant detection, a low natural source detection or the outer fringes of a high acetone plume. High acetone detections have been reported in the injection area as a result of hydrocarbon fermentation. Since vegetable oil has been injected at the site, and anaerobic conditions have been shown, fermentation occurs and accounts for the high acetone levels reported in the samples. In addition, other sources of acetone are plants and trees and plant material decomposition. TMC is well vegetated along its entire length which could explain the low acetone detection. Laboratories have reported lists of typical lab contaminants, which include acetone, methylene chloride, 2-butanone, etc.

2.6.1 Trend Chart

Trend charts were prepared which included the COCs cis-1,2-DCE, trans-1,2-DCE, and TCE and the total VOCs (all three COCs combined) versus time. The trend charts are provided in Figure 2-3 through 2-12. Other VOCs exceeding the NYS Class GA Groundwater Standards were excluded from trending, because they were products formed during enhanced bioremediation (acetone, 2-butanone), artifacts from well installation (chloroform), or a one-time minor detection (benzene). VC was also excluded because this VOC never exceeded the NYS Class GA Groundwater Standards. The trend charts include all analytical results from previous investigations for the monitoring wells at the Landfill 6 Site, dating back to 2002. The trend charts include groundwater elevation data, which could assist in explaining possible changes in COC concentrations. Monitoring wells LF6MW-31, -39, LF6VMW-13R, and -13RD are not

included in the trend charts because they had no or only minor VOC detections. The trend charts also shows the different injection events (permanganate and vegetable oil emulsion) which occurred at the site.

The trend charts in Figures 2-3 through 2-12 show an overall decreasing trend in total VOCs results between 2004 and 2010, especially for wells with higher contamination levels (LF6MW-12, -16, and -17, inside the hot spot). The trend charts also depict a calculated total VOCs trend line based on historical natural attenuation rates. All monitoring wells, for which this calculation was performed, show actual VOCs greater than the calculated trend.

2.7 Conclusion

Few changes were reported between the first four quarterly PM sampling rounds and the last two semi-annual sampling rounds. The surface water is not influenced by the chlorinated solvent plume as reported VOC detections in the creek are lab contaminants or compounds not previously reported at the LF6 TCE site.

As recommended in the Final Summer 2009 Annual Report (FPM, November 2010), additional vegetable oil injection was performed in August 2010. The injection is discussed in detail in the OBGW Completion Report (Parsons, December 2010, Appendix D). The first semi-annual PM sampling round after the additional injection was performed at the end of September/beginning of October 2010, which allowed for an approximate two-month period between the additional injection event and the sampling round. Per the Final PM WP (FPM, September 2008), future sampling for the next year at the Landfill 6 TCE site is planned for semi-annual performance in Fall 2010 and Spring 2011.

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3 Building 817/WSA Site

3.1 Site Background

The Building 817/WSA Site is located on the north side of the main runway between Building 817 and the culverted section of Six Mile Creek (SMC) south of the former weapon storage area (WSA). Building 817 was formerly used for electronic parts maintenance. Perchloroethylene (PCE) and TCE were solvents used in small quantities at this location. The contaminants exceeding NYS Class GA Groundwater Standards are PCE and TCE. In September 2004, the maximum PCE concentration was 72 µg/L and the maximum TCE concentration was 90 µg/L. Site groundwater flows in south-southwesterly direction toward the culverted section of SMC. The contaminated aquifer is composed of relatively uniform fine sands that begin 5 ft bgs and extend to shale bedrock at approximately 20 to 25 ft bgs. Contamination is not found in the bedrock. Groundwater velocities at this site have been estimated as high as 110 ft per year. In September 2004, a TCE concentration of 90 µg/L was detected in downgradient well WSA-VMW17, shown on Figure 3-1. Although there is no indication that the plume has migrated to SMC, the level of contamination at WSA-VMW17 does indicate the potential for additional migration. The TCE/PCE plume does not contain other petroleum-based organics to stimulate reductive dechlorination. There is no significant cis-1,2-DCE in the plume (EEEPC, February 2008).

Treatability studies were performed at Building 817/WSA consisting of a bench-scale study in June 2002 and a field pilot-scale study in November 2002 to evaluate ISCO effectiveness. The bench-scale study injected potassium permanganate as the oxidant, resulting in successful destruction of PCE and TCE. The positive results prompted the pilot-scale study including one round of injections in the vicinity of WSA-MW11 (located next to WSAMW-16). The baseline results compared to the post-treatment analytical results indicated an estimated reduction in TCE and PCE of 47 % and 36 % respectively after rebound. Based on these results Building 817/WSA site conditions have the presence of a lithological preferential pathway surrounding the injection points, therefore advection occurred through gravely till layers moving the oxidant away from the treatment zone (EEEPC, December 2006).

In October/November 2006, FPM and EEEPC performed sampling at the Building 817/WSA Site in accordance with the final Baseline Letter WP (FPM, November 2006). The sampling was performed so that sampling did not interfere with the planned injection pilot study performed at the same time (October 2006). FPM sampled five monitoring wells. The samples were analyzed for the following parameters: VOCs, sulfate, DOC, and MEE. Field parameters collected were ORP, DO, and pH. EEEPC installed and sampled four monitoring wells and Parsons installed and sampled three monitoring wells. The samples collected by EEEPC and Parsons were analyzed for VOCs only. Results confirmed the PCE and TCE detections exceeding NYS Class GA Groundwater Standards within the plume. Results are discussed in detail in the Final Monitoring Report (FPM, August 2007).

Additional sampling was performed February 2007, to monitor the effect of an initial soybean oil emulsion/high fructose corn syrup injection in October 2006. This injection was a 1,000-gallon mixture containing 143 pounds of a 60 % soybean oil emulsion, 150 pounds of an 80 % high fructose corn syrup, and drinking water. FPM collected four samples at B817-MW-001 through -003 and monitoring well WSA-MW18. The analytical results showed PCE and TCE contamination extending from Building 817 to monitoring well WSA-VMW17. Monitoring well results are summarized in Table 3-2 and detailed results are reported in the Final Monitoring Report (FPM, August 2007).

3.2 Remedial Action Summary

The remedy for the Building 817/WSA Site is enhanced bioremediation. As listed in the final RA WP (Parsons, July 2008), this process is intended to increase biodegradation of the groundwater contaminants by injecting a vegetable oil emulsion into the ground. The vegetable oil emulsion increases the biological breakdown of the chemicals, thereby reducing the concentration of contaminants.

The vegetable oil was injected at the Building 817/WSA Site in injection wells B817IW-1 through -8 in July 2008. These injections wells are located in a row approximately 10 ft downgradient of the southwesterly corner of Building 817. A total volume of 25,834 gallons of water were injected with a total of 720 gallons vegetable oil and 360 gallons of buffer solution, as detailed in the table below.

Date	Injection Well	Volume water (gallons)	Volume veg. oil (gallons)	Volume buffer (gallons)
7/15-18/08	B817IW-07 and -08	6,733	180	90
7/17-18/08	B817IW-03 and -04	6,293	180	90
7/18-21/08	B817IW-01 and -02	6,501	180	90
7/21-22/08	B817IW-05 and -06	6,307	180	90
	Total:	**25,834**	**720**	**360**

3.3 PM Sampling Plan

Performance monitoring includes sampling of nine monitoring wells as listed in Table 3-1 and as shown in Figure 3-1 to evaluate the effectiveness of the remedial approach. All groundwater samples collected are analyzed for VOCs (EPA Method SW8260B), sulfate (EPA Method SW9056), DOC (Standard Method SM5310B), and MEE (EPA Method RSK-175). Field parameters collected are ORP, DO, pH, and water levels.

All performance monitoring was conducted by FPM personnel and all sampling documentation was included in the associated CQCRs (Appendix A). Performance monitoring was conducted

quarterly for the first year following the initial injection in July 2008 and semi-annually after that. Any deviations from the work plan are detailed below.

3.4 Field Activities

Two semi-annual PM sampling rounds were performed in Fall 2009 on September 18, 2009 and in Spring 2010 on April 14 and 15, 2010. Daily field activities are summarized on daily CQCRs which are provided in Appendix A.

Groundwater samples were collected at all nine monitoring wells shown in Table 3-1 with dedicated bladder pumps according to the USEPA Low Stress (Low Flow) Purging and Sampling Ground Water Sampling Procedure for Region II (USEPA, March 1998). Monitoring well WSA-MW9 was sampled with a bailer in the Fall 2009 sampling round due to a low water column and with a bladder pump in the Spring 2010 sampling round.

Several observations were made which are detailed below:

- In Fall 2009, monitoring well WSAMW-9 had a standing water column which was below the top of the bladder pump. The bladder pump was removed and the sample was collected with a bailer. Stability parameters for bailer sampling (pH, conductivity, and temperature) reached stability and a sample was collected.
- In Fall 2009, at monitoring wells WSA-MW21 and -MW23, the turbidity did not reach the typically observed value of 50 NTU or below. It stabilized around 80 NTU for both monitoring wells. All other parameters also reached stability and a sample was collected. The turbidity reached 50 NTU at both monitoring wells during the Spring 2010 sampling round.

3.5 PM Results

3.5.1 Fall 2009

All wells identified in Table 3-1 were sampled. Results are discussed from upgradient (WSA-MW8) to downgradient near SMC (WSA-MW9). The results are compared to the prior sampling round. The daily CQCRs for this semi-annual PM sampling round detailing the daily sampling activities are attached in Appendix A. The validated data are attached in Appendix B and the raw lab data are provided in Appendix C.

Monitoring well WSA-MW8 showed VOC results comparable to past sampling results. Detections for chloroform (stable at 0.260 F µg/L) and TCE (stable at 1.21 µg/L) were reported and none exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC was stable at 1.2 mg/L and sulfate decreased to 4.6 mg/L (from 5.2 mg/L). ORP decreased to 182 mV (from 339 mV), DO increased to 9.08 mg/L (from 8.83 mg/L), and pH increased to 6.46 (from 5.82).

Monitoring well WSA-MW18 had two VOC exceedances: PCE increased to 40.8 µg/L (from 36.2 µg/L) and TCE increased to 44.4 µg/L (from 36.3 µg/L). One additional VOC was reported (cis-1,2-DCE stable at 0.720 F µg/L) but it did not exceed the NYS Class GA Groundwater Standards. No methane was detected, DOC increased to 0.98 F mg/L (from 0.42 F mg/L) and sulfate decreased to 7 mg/L (from 7.8 mg/L). ORP decreased to 158 mV (from 176 mV), DO increased to 6.80 mg/L (from 5.80 mg/L), and pH increased to 6.75 (from 5.79).

Monitoring well WSA-MW16 had two VOC exceedances: PCE increased to 39.6 µg/L (from 35.5 µg/L) and TCE increased to 41.1 µg/L (from 37.8 µg/L). Four additional VOC were reported (1,1,1-trichloroethane [TCA] at 0.26 F µg/L, acetone at 1.61 F µg/L, chloroform at 0.11 F µg/L, and cis-1,2-DCE at 1.51 µg/L) but none exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC increased to 1.0 mg/L (from 0.56 F mg/L) and sulfate decreased to 7.0 mg/L (from 8.8 mg/L). ORP decreased to 159 mV (from 203 mV), DO decreased to 6.76 mg/L (from 7.57 mg/L), and pH increased to 6.65 (from 5.49).

Monitoring well WSA-MW19 had two VOC exceedances: PCE was stable at 34.7 µg/L and TCE increased to 53.4 µg/L (from 47.4 µg/L). Two additional VOC were reported (chloroform at 0.240 F µg/L and cis-1,2-DCE at 0.320 F µg/L) but none exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC increased to 0.68 F mg/L (from non-detected) and sulfate was stable at 9.0 mg/L. ORP was stable at 311 mV, DO increased to 8.20 mg/L (from 6.74 mg/L), and pH increased to 7.14 (from 6.92).

Monitoring well WSA-VMW17 had two VOC exceedances: PCE increased to 12.3 µg/L (from 10.7 µg/L) and TCE decreased to 19.8 µg/L (from 15.8 µg/L). One additional VOC was reported (acetone at 1.48 F µg/L) but it did not exceed the NYS Class GA Groundwater Standards. No methane was detected, DOC increased to 0.96 F mg/L (from 0.79 F mg/L) and sulfate increased to 6.4 mg/L (from 5.7 mg/L). ORP increased to 353 mV (from 340 mV), DO increased to 7.42 mg/L (from 6.98 mg/L), and pH increased to 6.46 (from 6.15).

Crossgradient monitoring well LAWMW-9 showed an increasing TCE exceedance at 6.16 µg/L (from 5.43 µg/L). Three additional VOCs were detected (1,1,1-TCA at 0.14 F µg/L, acetone at 1.16 F µg/L and PCE at 0.24 F µg/L) but they did not exceed the NYS Class GA Groundwater Standards. Methane was detected for the first time in monitoring well LAWMW-9 at 2.0 F µg/L. DOC increased to 1.7 mg/L (from 0.88 F mg/L) and sulfate decreased to 7.6 mg/L (from 8.5 mg/L). The ORP reading increased to 131 mV (from 126 mV), DO decreased to 4.12 mg/L (from 7.84 mg/L), and the pH decreased to 6.78 (from 7.67).

Crossgradient monitoring well WSA-MW23 had one minor VOC detection for acetone at 2.65 F µg/L. Methane increased to 17 µg/L (from 1.5 F µg/L), DOC increased to 0.94 F mg/L (from 0.45 F mg/L) and sulfate decreased to 12 mg/L (from 15 mg/L). ORP increased to 315 mV (from 69 mV), DO was stable at 4.88 mg/L, and pH was stable at 7.78.

Monitoring well WSA-MW21 had one decreasing VOC exceedance for TCE at 5.45 µg/L (from 6.95 µg/L). Two additional VOCs were reported (acetone at 2.12 F µg/L and PCE at 0.290 F µg/L) but they did not exceed the NYS Class GA Groundwater Standards. Methane increased to 2.0 F µg/L (from none detected), DOC increased to 1.4 mg/L (from none detected) and sulfate increased to 21 mg/L (from 19 mg/L). ORP decreased to 307 mV (from 317 mV), DO decreased to 3.92 mg/L (from 4.45 mg/L), and pH increased to 7.47 (from 6.96).

Downgradient monitoring well WSA-MW9 had one minor VOC detection for acetone at 1.68 F µg/L, which has not been detected previously in this monitoring well. Methane increased to 1.7 F µg/L (from none detected), DOC increased to 16 mg/L (from 1.1 mg/L) and sulfate was stable at 18 mg/L. ORP reading decreased to 86 mV (from 126 mV), the DO decreased to 5.09 mg/L (from 9.07 mg/L), and the pH decreased to 7.09 (from 7.99).

3.5.2 Spring 2010

All wells identified in Table 3-1 were sampled during this sampling round. Monitoring wells that are designated annual sampling were also sampled (LAWMW-9, WSAMW-8 and WSAMW-23). Results are discussed from upgradient (WSA-MW8) to downgradient near SMC (WSA-MW9). The results are compared to the prior sampling round.

Monitoring well WSA-MW8 showed VOC results comparable to past sampling results; acetone increased to 1.52 F µg/L, chloroform decreased to 0.16 F µg/L (from 0.26 F µg/L) and TCE increased to 3.55 µg/L (from 1.21 µg/L). None exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC decreased to 0.43 F mg/L (from 1.2 mg/L) and sulfate increased to 5.1 mg/L (from 4.6 mg/L). ORP decreased to 109 mV (from 182 mV), DO decreased to 4.26 mg/L (from 9.08 mg/L), and pH increased to 7.64 (from 6.46).

Monitoring well WSA-MW18 had two VOC exceedances: PCE decreased to 39.3 µg/L (from 40.8 µg/L) and TCE decreased to 42.1 µg/L (from 44.4 µg/L). Three additional VOCs were reported (1,1,1-TCA at 0.25 F µg/L, chloroform at 0.11 F µg/L, and cis-1,2-DCE at 0.41 F µg/L) which did not exceed the NYS Class GA Groundwater Standards. No methane was detected, DOC decreased to 0.89 F mg/L (from 0.98 F mg/L) and sulfate increased to 10.0 mg/L (from 7.0 mg/L). ORP decreased to 79 mV (from 158 mV), DO decreased to 2.65 mg/L (from 6.80 mg/L), and pH increased to 7.91 (from 6.75).

Monitoring well WSA-MW16 had two VOC exceedances: PCE decreased to 30.4 µg/L (from 39.6 µg/L) and TCE decreased to 34.7 µg/L (from 41.1 µg/L). Three additional VOCs were reported (1,1,1-TCA at 0.28 F µg/L, cis-1,2-DCE at 0.59 F µg/L, and trans-1,2-DCE at 0.16 F µg/L) but none exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC was stable at 0.81 F mg/L and sulfate increased to 9.6 mg/L (from 7.0 mg/L). ORP decreased to 101 mV (from 159 mV), DO decreased to 4.17 mg/L (from 6.76 mg/L), and pH increased to 7.73 (from 6.65).

Monitoring well WSA-MW19 had two VOC exceedances: PCE increased to 42.0 µg/L (from 34.7 µg/L) and TCE increased to 55.6 µg/L (from 53.4 µg/L). Four additional VOCs were reported (1,1,1-TCA at 0.190 F µg/L, acetone at 1.85 F µg/L, chloroform at 0.120 F µg/L, and cis-1,2-DCE at 0.380 F µg/L) but none exceeded the NYS Class GA Groundwater Standards. No methane was detected, DOC decreased to 0.39 F mg/L (from 0.68 F mg/L) and sulfate decreased to 8.2 mg/L (from 9.0 mg/L). ORP decreased to 151 mV (from 311 mV), DO decreased to 2.11 mg/L (from 8.20 mg/L), and pH increased to 7.53 (from 7.14).

Monitoring well WSA-VMW17 had two VOC exceedances: PCE decreased to 11.6 µg/L (from 12.3 µg/L) and TCE decreased to 17.4 µg/L (from 19.8 µg/L). Two additional VOCs were reported (acetone at 1.16 F µg/L and cis-1,2-DCE at 0.44 F µg/L) but they did not exceed the NYS Class GA Groundwater Standards. No methane was detected, DOC decreased to 0.58 F mg/L (from 0.96 F mg/L) and sulfate decreased to 5.4 mg/L (from 6.4 mg/L). ORP decreased to 168 mV (from 353 mV), DO decreased to 4.41 mg/L (from 7.42 mg/L), and pH increased to 6.88 (from 6.46).

At crossgradient monitoring well LAWMW-9, four VOCs were detected (1,1,1-TCA at 0.12 F µg/L, acetone at 1.34 F µg/L, PCE at 0.24 F µg/L, and TCE at 4.79 µg/L) but none exceeded the NYS Class GA Groundwater Standards. Methane increased to 11 µg/L (from 2.0 F µg/L), DOC decreased to 0.44 F mg/L (from 1.7 mg/L) and sulfate decreased to 5 mg/L (from 7.6 mg/L). The ORP reading increased to 147 mV (from 131 mV), DO decreased to 0.00 mg/L (from 4.12 mg/L), and the pH increased to 7.58 (from 6.78).

Crossgradient monitoring well WSA-MW23 had one minor VOC detection for acetone which decreased to 1.70 F µg/L (from 2.65 F µg/L). Methane increased to 52 µg/L (from 17 µg/L), DOC decreased to non detect (from 0.94 F mg/L) and sulfate was stable at 13 mg/L. ORP decreased to -31 mV (from 315 mV), DO decreased to 0.00 mg/L (from 4.88 mg/L), and pH was stable at 7.85.

Monitoring well WSA-MW21 had one VOC exceedance for TCE at 18.3 µg/L. Four additional VOCs were also reported (acetone at 1.75 F µg/L, chloroform at 0.22 F µg/L, cis-1,2-DCE at 0.54 F µg/L, and PCE at 1.11 µg/L) but did not exceed the NYS Class GA Groundwater Standards. Methane was not detected, DOC decreased to 0.36 F mg/L (from 1.4 mg/L) and sulfate decreased to 9.3 mg/L (from 21 mg/L). ORP decreased to 141 mV (from 307 mV), DO increased to 6.57 mg/L (from 3.92 mg/L), and pH decreased to 6.99 (from 7.47).

Downgradient monitoring well WSA-MW9 had one minor decreasing VOC detection for acetone at 1.43 F µg/L (from 1.68 F µg/L). Methane and DOC decreased to non detect (from 1.7 F µg/L and 16 mg/L, respectively), sulfate was stable at 19 mg/L, ORP increased to 117 mV (from 86 mV), DO decreased to 0.00 mg/L (from 5.09 mg/L) and the pH increased to 7.68 (from 7.09).

3.6 Analysis and Discussion

Monitoring wells along the center line of the plume (WSA-MW16, -MW18, -MW19, and -VMW17) have shown consistent exceedances for two VOCs (PCE and TCE) with stable concentrations. Concentrations are relatively low (maximum 42.0 µg/L for PCE and 55.6 µg/L for TCE). The upgradient well WSA-MW8 does not have any VOC exceedances. Crossgradient well WSA-MW23 does not have any VOC exceedances, while crossgradient well LAWMW-9 showed a TCE exceedance during the Fall 2009 sampling round. In addition, downgradient well WSA-MW21 showed a TCE exceedance during the Fall 2009 and Spring 2010 sampling rounds. The most downgradient well (WSA-MW9) does not have any VOC exceedances, which indicates that the plume has not reached SMC.

Methane was detected at monitoring wells WSA-MW9, -MW21, and LAWMW-9 at low concentrations and non detect at all other wells. The exception is monitoring well WSA-MW23 which had a methane detection of 17 µg/L and 52 µg/L during the Fall 2009 and Spring 2010 sampling rounds, respectively. This methane distribution is surprising, as methane is detected at the outer fringes of the plume, but not at the centrally located monitoring wells, where methane would have been expected as a result of the vegetable oil injection causing reducing conditions. At the monitoring wells in and around the plume, ORP is generally positive and DO levels are elevation, which suggests that reducing conditions are not present and therefore methane production is not occurring. Neutral to slightly negative ORP(up to -100 mV) and lower DO levels are reported for the direct-push wells B817-MW-001, -002, and -003, which are located directly above or just downgradient of the injection area.

DOC levels and sulfate levels were low for all monitoring wells except for downgradient monitoring wells WSA-MW9 and WSA-MW21. WSA-MW9 had a DOC level of 16 mg/L during the Fall 2009 sampling round. Sulfate levels range from 4.6 mg/L to 21 mg/L where WSA-MW21 had the highest level during Fall 2009.

ORP levels are positive and high for all monitoring wells, except for monitoring well WSA-MW23 and the direct-push wells near the injection area. DO levels are between 0.00 mg/L and 9.08 mg/L and pH levels are within the neutral range (6.46 and 7.91), which is conducive to bioremediation.

3.6.1 Trend Chart

As shown in Table 3-2, two VOCs exceeded the NYS Class GA Groundwater Standards at the Building 817/WSA Site: PCE and TCE. Both VOCs are shown as Total VOCs in the trend charts in Figures 3-2 through 3-8. These charts include all analytical results from previous investigations for the monitoring wells at the Building 817/WSA Site, dating back to 1994. The different injection events (permanganate, soybean oil/high fructose corn syrup, and vegetable oil) which occurred at the site are also included. Groundwater elevations are included to assist in explaining possible changes in COC concentrations.

As shown in Figure 3-1, the highest VOC concentrations are reported in monitoring wells WSA-MW16, -MW18, -MW19 and to a lesser extent in WSA-VMW17. In the trend charts on Figures 3-2 through 3-8, these monitoring wells show an overall decreasing trend. However, all monitoring wells are above natural attenuation rate trend lines except WSA-MW21.

3.7 Conclusion

Two VOCs (PCE and TCE) have been consistently reported at numerous wells at the Building 817/WSA Site. The upgradient well WSA-MW8 does not have any VOC exceedances and concentrations decrease downgradient of Perimeter Road. Further downgradient PCE ceases to be an exceedance and TCE only marginally exceeds the NYS Class GA Groundwater Standards. Concentrations are relatively low (maximum approximately 50 µg/L for each VOC). The most downgradient well (WSA-MW9) does not have any VOC exceedances, indicating that SMC is not impacted by the plume.

DOC levels have decreased to a level below the suggested range for continued enhanced bioremediation. As recommended in the Final Summer 2009 Annual Report (FPM, November 2010), additional vegetable oil injection was performed in August 2010. The injection is discussed in detail in the OBGW Completion Report (Parsons, December 2010, Appendix D). The first semi-annual PM sampling round after the additional injection was performed at the end of September/beginning of October 2010, which allowed for an approximate two-month period between the additional injection event and the sampling round. Per the Final PM WP (FPM, September 2008), future sampling for the next year at the Building 817 site is planned for semi-annual performance in Fall 2010 and Spring 2011.

4 Building 775/Pumphouse 3 Site

4.1 Site Background

The Building 775 plume is located downgradient of former maintenance facilities in Buildings 774 and 776, and former fuel pump house Building 775. Although the source has not been identified, solvent use in Building 774 was thought to be a primary source of TCE contamination. Solvent use was widespread in these facilities in the 1950s, 1960s and early 1970s. The primary contaminant exceeding NYS Class GA Groundwater Standards is TCE with minor detections of 1,1,1-TCA and PCE. Monitoring well 775VMW-5, located near the corner of Building 776, is the only well that contains significant levels of TCE (99 µg/L in September 2004). Most of the Building 775 plume appears to have migrated south toward Landfill 6 as shown on Figure 4-1. In September 2004, the maximum TCE concentration was 134 µg/L (detected at well 775MW-20, located near the leading edge of the plume near Perimeter Road). TCE was detected at 132 µg/L in well 775VMW-10, which is also located near the leading edge of the plume near Perimeter Road. TCE in both of these wells was detected in the bottom half of the sandy aquifer in screened intervals from 88 to 120 ft bgs. Monitoring well LF6MW-1 (not shown; located between 775MW-20 and 775VMW-10) is screened in the upper 10 ft of the aquifer and does not have detectable TCE concentrations. Based on the current TCE distribution, it appears that the TCE was likely spilled in the upgradient maintenance area and has migrated southward and downward in the aquifer, due to the specific gravity of TCE which is higher than water (EEEPC, February 2008).

The contaminated aquifer is comprised of silty sands with an average thickness extending from 60 ft bgs to 120 ft bgs where shale bedrock is encountered. Due to a relatively flat gradient, average groundwater velocities at this site are slow and have been estimated at approximately 10 ft per year. Higher velocities may exist in discontinuous seams of coarse sand and gravel. Contamination is not found in the bedrock. Groundwater studies at nearby Landfill 6 TCE Site found relatively aerobic conditions and low DOC concentrations. The general absence of cis-1,2-DCE in the Building 775 plume confirms that reductive dechlorination is not occurring (EEEPC, February 2008).

FPM and EEEPC sampled the Building 775 Site in November 2006 in accordance with the final Baseline Letter WP (FPM, November 2006). FPM sampled eight monitoring wells. The samples were analyzed for VOCs only. EEEPC installed and sampled two new monitoring wells (775MW-27 and -28). Sampling confirmed that TCE is the main contaminant and that future sampling will monitor VOCs at the site. Detailed results are discussed in the Final Monitoring Report (FPM, August 2007).

4.2 Remedial Action Summary

The final RA WP (Parsons, July 2008) provides details on the selected remedy which is a groundwater extraction system with discharge to an off-site treatment facility. The groundwater

extraction system is designed to contain the contaminated plume (> 50 µg/L) and extract the contaminants from the aquifer. Initially, one extraction well (775EW-1) was installed but deemed inappropriate for groundwater extraction. It was replaced by replacement extraction well (775EW-1R) and an additional extraction well (775EW-3). 775EW-1 was converted to a monitoring well. 775EW-1R and -3 were connected with a force main and the extracted contaminated groundwater is discharged to the existing sanitary sewer system for treatment at the City of Rome Water Pollution Control Facility (WPCF).

The groundwater extraction and discharge system was started up on January 5th, 2009. The system was fine tuned in January-March 2009 and has continued to operate since March 2009 at or near the system design extraction pump rate of 4 gallons per minute (gpm). Table 4-3 provides an overview of the total volume of groundwater extracted including the average pump rate. As shown in Figure 4-1, the size of the 50 µg/L TCE plume decreased significantly since 2006, but has remained stable during PM sampling. The groundwater direction has not changed significantly as a result of groundwater extraction system operation.

One additional monitoring well (775MW-19R) was installed to monitor the plume remediation, in accordance with the final RA WP (Parsons, July 2008).

4.3 PM Sampling Plan

Performance monitoring includes sampling of twelve monitoring wells as listed in Table 4-1 and as shown in Figure 4-1 to evaluate the effectiveness of the remedial approach. As part of the discharge permit, effluent sampling will be performed every 90 days at the point of discharge. All samples are analyzed for VOCs (EPA Method SW8260B), sulfate (EPA Method SW9056), DOC (Standard Method SM5310B), and MEE (EPA Method RSK-175). Field parameters collected are ORP, DO, pH, and water levels.

All PM sampling was conducted by FPM personnel and all sampling documentation was included in the associated CQCR (Appendix A). Performance monitoring was conducted quarterly for the first three quarters after groundwater extraction and discharge system installation in January 2009 and semi-annually after that. Any deviations from the work plan are detailed below.

4.4 Field Activities

Two semi-annual PM sampling rounds were performed in Fall 2009 and Spring 2010. In Fall 2009, sampling was performed on September 14 and 22, 2009 and in Spring 2010, sampling was performed on April 16, 2010. Daily field activities are summarized on daily CQCRs which are provided in Appendix A.

During this semi-annual PM sampling round, samples were collected via bladder pumps from all monitoring wells. The USEPA Low Stress (Low Flow) Purging and Sampling Ground Water

Sampling Procedure for Region II (USEPA, March 1998) was used. The effluent sample is collected in the sewer manhole from the discharge pipe during the pump cycle. This flow is the combined flow from extraction wells 775EW-1R and 775EW-3. All field sampling forms were reviewed and no deviations were noted.

An observation was made which is detailed below:

- In Fall 2009, the turbidity did not reach the typically observed value of 50 NTU or below at monitoring wells 775VMW-8 and 775EW-1. It stabilized around 128 NTU and 180 NTU, respectively. All other parameters also reached stability and a sample was collected.
- In Spring 2010, the turbidity at monitoring well 775EW-1 did not reach the typically observed value of 50 NTU or below. It stabilized around 150 NTU. All other parameters also reached stability and a sample was collected.

4.5 PM Results

4.5.1 Fall 2009

This first semi-annual PM sampling round at the Building 775 Site was performed on September 14 and 22, 2009. All wells identified for semi-annual performance sampling in Table 4-1 were sampled with bladder pumps.

The Building 775 sampling results are provided in Table 4-2. The table includes the baseline sampling results collected in 2006-2007 and the quarterly PM sampling rounds. The results are discussed below from upgradient (near Buildings 774 and 776) to downgradient (near Landfill 6). The results are compared to the prior sampling round.

Monitoring well 775MW-4 had one VOC exceedance: TCE increased to 7.26 µg/L (from 5.18 µg/L). Two additional small VOC detections were reported for 1,1,1-TCA (0.280 F µg/L) and chloroform (0.720 µg/L). ORP increased to 315 mV (from 189 mV), DO increased to 5.36 mg/L (from 2.36 mg/L), and pH increased to 7.36 (from 7.20).

Monitoring well 775MW-5 had one VOC exceedance: TCE increased to 78.9 µg/L (from 74.0 µg/L). Two additional small VOC detections were reported for 1,1,1-TCA (0.550 F µg/L) and chloroform (0.300 F µg/L). ORP increased to 329 mV (from 301 mV), the DO decreased to 10.00 mg/L (from 10.68 mg/L), and the pH decreased to 7.16 (from 7.21).

Monitoring well 775MW-27 had one decreasing TCE exceedance (33.4 µg/L from 36.2 µg/L) and three small detections for 1,1,1-TCA (0.540 F µg/L), acetone (1.47 F µg/L), and chloroform (0.510 µg/L). The ORP decreased to 121 mV (from 308 mV), DO decreased to 9.24 mg/L (from 10.22 mg/L), and the pH decreased to 7.15 (from 7.41).

VOC results for monitoring well 775EW-1 showed two small detections for 1,1,1-TCA (0.410 F µg/L) and acetone (1.80 F µg/L). The ORP decreased to 102 mV (from 207 mV), the DO decreased to 7.74 mg/L (from 8.17 mg/L), and the pH decreased to 7.16 (from 7.54).

VOC results for monitoring well 775VMW-8 showed one increasing VOC exceedance for TCE at 39.3 µg/L (from 37.5 µg/L) and one small VOC detection was reported for 1,1,1-TCA (0.700 F µg/L). ORP increased to 346 mV (from 137 mV), DO increased to 7.15 mg/L (from 4.47 mg/L), and the pH increased to 7.19 (from 7.14).

Downgradient monitoring well 775MW-28 had two VOC detections for acetone at 1.04 µg/L and TCE at 0.230 F µg/L. The ORP increased to 322 mV (from 115 mV), the DO increased to 9.15 mg/L (from 9.11 mg/L) and the pH increased to 7.84 (from 7.24).

Downgradient monitoring well 775VMW-19R has one minor increasing VOC detection of acetone at 1.18 F µg/L. ORP decreased to 128 mV (from 131 mV), DO decreased to 9.15 mg/L (from 9.28 mg/L), and the pH increased to 7.09 (from 7.04).

Downgradient monitoring well 775VMW-10 had one increasing VOC exceedance (TCE at 45.8 J µg/L from 44.0 µg/L) and one small detection for 1,1,1-TCA (0.420 F µg/L). ORP decreased to 104 mV (from 179 mV), DO increased to 9.54 mg/L (from 9.42 mg/L), and pH increased to 7.05 (from 7.01).

VOC results from downgradient monitoring well 775MW-20 showed one increasing VOC exceedance for TCE (79.1 µg/L from 41.9 µg/L) and five small VOC detections below the NYS Class GA Groundwater Standards: 1,1,1-TCA at 2.30 µg/L, 1,1-dichloroethane (DCA) at 1.70 F µg/L, 1,1-DCE at 1.30 F µg/L, chloroform at 0.280 F µg/L, and cis1,2-DCE at 0.240 F µg/L. ORP increased and became positive (109 mV from -17 mV), DO increased to 2.50 mg/L (from 0.90 mg/L), and pH decreased to 7.24 (from 7.37).

Downgradient monitoring well 775VMW-20R had one small VOC detection; acetone was reported at 1.38 F µg/L. ORP decreased to -52 mV (from -1 mV), DO decreased to 1.60 mg/L (from 1.81 mg/L), and the pH decreased to 7.34 (from 8.7).

Crossgradient monitoring well 775MW-6 had one decreasing VOC exceedance for TCE at 19.4 µg/L (from 36.5 µg/L). Three additional VOC detections were reported for 1,1,1-TCA (0.310 F µg/L), chloroform (0.960 µg/L), and trichlorofluoromethane (0.550 F µg/L); all were below NYS Class GA Groundwater Standards. ORP increased to 339 mV (from 308 mV), DO decreased to 7.44 mg/L (from 9.21 mg/L), and the pH decreased to 7.27 (from 7.54).

Crossgradient monitoring well 775VMW-9 had three VOC detections: acetone was reported at 1.83 F µg/L, chloroform at 0.110 F µg/L, and TCE at 0.590 F µg/L. ORP readings increased to 124 mV (from -6 mV), the DO increased to 2.44 mg/L (from 1.89 mg/L), and the pH decreased to 7.10 (from 8.81).

The effluent sample had three VOC detections: TCE at 54.5 µg/L, 1,1,1-TCA at 0.640 F µg/L and chloroform at 0.500 F µg/L. ORP increased to 324 mV (from 239 mV), DO increased to 10.56 mg/L (from 10.38 mg/L), and the pH decreased to 7.64 (from 7.79).

4.5.2 Spring 2010

This first semi-annual PM sampling round at the Building 775 Site was performed on April 16, 2010. Monitoring wells, 775VMW-5, -8, -10, 19R, 775MW-6, -20, -27, -28, and 775EW-1, were sampled with bladder pumps as identified in Table 4-1. In addition, an effluent sample was collected during this round.

The Building 775 sampling results are provided in Table 4-2. The table includes the baseline sampling results collected in 2006-2007 and the quarterly PM sampling round. The results are discussed below from upgradient (near Buildings 774 and 776) to downgradient (near Landfill 6). The results are compared to the prior sampling round.

Monitoring well 775MW-5 had one VOC exceedance: TCE decreased to 67.6 µg/L (from 78.9 µg/L). One additional VOC detection was reported for 1,1,1-TCA (0.440 F µg/L). ORP decreased to 159 mV (from 329 mV), the DO decreased to 8.79 mg/L (from 10.00 mg/L), and the pH increased to 7.71 (from 7.16).

Monitoring well 775MW-27 had one decreasing TCE exceedance (26 µg/L from 33.4 µg/L) and two small detections for 1,1,1-TCA (0.470 F µg/L) and chloroform (0.580 µg/L). The ORP increased to 165 mV (from 121 mV), DO decreased to 7.00 mg/L (from 9.24 mg/L), and the pH increased to 7.83 (from 7.15).

VOC results for monitoring well 775EW-1 showed 1,1,1-TCA increasing to 0.430 F µg/L (from 0.410 F µg/L) and chloroform increasing to 1.90 F µg/L (from none detected). The ORP decreased to 93 mV (from 102 mV), the DO decreased to 4.57 mg/L (from 7.74 mg/L), and the pH increased to 7.86 (from 7.16).

VOC results for monitoring well 775VMW-8 showed one decreasing VOC exceedance for TCE at 32.1 µg/L (from 39.3 µg/L) and one small VOC detection was reported for 1,1,1-TCA (0.640 F µg/L). ORP decreased to 109 mV (from 346 mV), DO decreased to 0.62 mg/L (from 7.15 mg/L), and the pH increased to 7.90 (from 7.19).

Downgradient monitoring well 775MW-28 had one increasing VOC detection for TCE at 1.27 µg/L (from 0.230 F µg/L). The ORP decreased to 55 mV (from 322 mV), the DO decreased to 8.49 mg/L (from 9.15 mg/L) and the pH increased to 8.86 (from 7.84).

Downgradient monitoring well 775VMW-19R had no VOC detections. ORP decreased to 89 mV (from 128 mV), DO decreased to 8.17 mg/L (from 9.15 mg/L), and the pH increased to 8.42 (from 7.09).

Downgradient monitoring well 775VMW-10 had one decreasing VOC exceedance for TCE at 41.6 µg/L (from 45.8 µg/L) and one small detection for 1,1,1-TCA (0.420 F µg/L). ORP increased to 142 mV (from 104 mV), DO decreased to 8.88 mg/L (from 9.54 mg/L), and pH increased to 7.89 (from 7.05).

VOC results from downgradient monitoring well 775MW-20 showed one decreasing VOC exceedance for TCE at 15.8 µg/L (from 79.1 µg/L) and three small VOC detections: 1,1,1-TCA at 0.450 F µg/L, 1,1-DCA at 0.510 F µg/L, and 1,1-DCE at 0.490 F µg/L; all below NYS Class GA Groundwater Standards. ORP decreased to negative (-29 mV from 109 mV), DO decreased to 0.00 mg/L (from 2.50 mg/L), and pH increased to 7.87 (from 7.24).

Crossgradient monitoring well 775MW-6 had one decreasing VOC exceedance for TCE at 17.7 µg/L (from 19.4 µg/L). Three additional VOC detections were reported for 1,1,1-TCA (0.240 F µg/L), chloroform (0.88 µg/L), and trichlorofluoromethane (0.380 F µg/L); all were below NYS Class GA Groundwater Standards. ORP decreased to 114 mV (from 339 mV), DO decreased to 3.61 mg/L (from 7.44 mg/L), and the pH increased to 8.03 (from 7.27).

The effluent sample had three VOC detections: TCE at 51.9 µg/L, 1,1,1-TCA at 0.630 F µg/L and chloroform at 0.490 F µg/L. ORP decreased to 15 mV (from 324 mV), DO decreased to 6.75 mg/L (from 10.56 mg/L), and the pH increased to 7.92 (from 7.64).

4.6 Analysis and Discussion

One VOC exceedance was reported for the Building 775 Site: TCE exceeded the NYS Class GA Groundwater Standards. Several other VOCs (1,1,1-TCA and chloroform) were reported, along with lab and sampling contaminants, but concentrations were low and never exceeded the NYS Class GA Groundwater Standards.

All TCE exceedances are in line with past results, except for monitoring well 775MW-20: the TCE concentration increased from 41.9 µg/L (Summer 2009) to 79.1 µg/L (Fall 2009) and then fell rapidly to 15.8 µg/L during the Spring 2010 sampling round. Monitoring well 775MW-20 is not within the capture zone of the groundwater extraction and discharge system. The TCE concentration in the effluent also increased (from 38.9 µg/L to 54.5 µg/L) in Fall 2009 and stayed relatively stable during the Spring 2010 sampling round at 51.9 µg/L.

ORP measurements are positive for all monitoring wells with the highest readings (above 300 mV) at upgradient wells 775VMW-4, -5, and 775MW-6 and typically lower readings (around 100 mV) at cross- and downgradient wells 775VMW-9, -10, -19R, and 775MW-27. The exceptions are monitoring well 775MW-20 which had a negative ORP measurement of -29 mV

during the Spring 2010 sampling round and monitoring well 775VMW-20R which had a negative ORP measurement of -52 mV during the Fall 2009 sampling round. DO levels ranged from 0.00 mg/L to 10.00 mg/L. pH levels are within the neutral range (7.05 to 7.90) with the exception of 775MW-6, 775VMW-19R, and 775MW-28 which all showed an increase in pH to 8.03, 8.42, and 8.86, respectively.

As shown in Table 4-3, the groundwater extraction rate has shown some variation. In the startup phase, the system was fine tuned which caused varying extraction rates. Once the system was optimized in mid January 2009, the extraction rate increased slightly from 3.5 to 4.4 gpm in mid May 2009. After mid May 2009, the extraction rate has shown a steady decrease to 2.8 gpm. After startup, the essentially flat groundwater table allowed for good recharge which was shown by the higher extraction rates in the first few months of operation. After May 2009, it appears that the extraction system reached an equilibrium with the resulting cone of depression. Less water is reaching the extraction wells which resulted in lower groundwater extraction rates.

4.6.1 Trend Chart

As shown in Table 4-2, TCE is the only VOC exceeding the NYS Class GA Groundwater Standards at the Building 775 Site. Figures 4-2 through 4-11 show the TCE trend charts for the Building 775 Site. These charts include all analytical results from previous investigations for the monitoring wells at the Building 775 Site, dating back to 1997. Monitoring wells 775VMW-19R, 775MW-20R, and 775EW-1 are not included in the trend charts, because no VOC exceedances were reported in these wells. These charts also show the start date of the groundwater extraction and discharge system. Groundwater elevations are also included, which could assist in explaining possible changes in COC concentrations.

The trend charts in Figures 4-2 through 4-11 show an overall decreasing trend in TCE concentrations between May 2000 and Spring 2010.

4.7 Conclusion

TCE concentrations appear to be stable with some fluctuation at most monitoring wells. The Building 775 groundwater extraction and discharge system is operating as designed. Groundwater extraction rates have shown a decreasing trend as a result of the continued system operation and the resulting cone of depression. The effluent sample results show that TCE is being effectively extracted from the Building 775 Site.

No changes in the PM sampling are recommended at this time. Continued sampling is recommended to identify trends in the TCE results at the Building 775 Site. Per the Final PM WP (FPM, September 2008), future sampling for the next year at the Building 775 site is planned for semi-annual performance in Fall 2010 and Spring 2011. Additionally, in Winter 2010 and Summer 2011, an effluent sample will be collected to fulfill the requirements of the discharge permit.

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5 Apron 2 Chlorinated Plume

5.1 Site Background

The chlorinated VOC contamination in the Apron 2 area is present as a plume approximately 2,800 ft long and 500 ft wide and appears to originate in the area of the nosedock wash water system near Building 786 (Figure 5-1). Chlorinated solvent use probably occurred in all nosedock facilities and multiple small sources could exist along floor drains, sewer lines, and oil water separators. There are three primary contaminants exceeding NYS Class GA Groundwater Standards: TCE, and its breakdown products cis-1,2-DCE and VC. The plume is commingled with several petroleum fuel plumes originating from the Apron 2 fueling system. At locations where TCE and fuel contaminants are commingled, significant reductive dechlorination is occurring and TCE is almost completely degraded to cis-1,2-DCE and VC. In April 2005, the maximum TCE concentration was 24 µg/L as detected in well 782VMW-97 (not shown). The level of TCE has been steadily decreasing and it appears that no significant source of TCE remains at the site. In April 2005, the maximum cis-1,2-DCE concentration was 54 µg/L in well 782MW-10, located in the plume in an area with commingled fuel contamination. The maximum VC concentration was 130 µg/L at well 782MW-96 which is also located in the center of fuel-contaminated groundwater. The commingled fuel plume is providing significant reductions in TCE and cis-1,2-DCE through well-documented reductive dechlorination processes. At many locations, Methyl Tert Butyl Ether (MTBE) and benzene are also present at levels exceeding NYS Class GA Groundwater Standards. MTBE and benzene plumes are being remediated under a separate contract (EEEPC, February 2008).

The contaminated aquifer is located at 9 to 25 ft bgs with the shallow depth occurring in the vicinity of SMC. The aquifer is composed of several well-defined layers, including a silty-sand layer in the upper 5 ft, a 5 to 15 ft thick coarse sand and gravel layer in the middle of the aquifer, and a 15 to 20 ft thick layer of till composed of fine sand, silt, and gravel resting on the shale bedrock. The total aquifer thickness ranges from 45 ft in the source areas to less than 20 ft in the downgradient areas near SMC. Although the site has a relatively flat gradient, the high hydraulic conductivity of gravel layers has produced an estimated average groundwater velocity of 106 ft per year. This velocity seems reasonable given the 2,800 ft the VOC plume has migrated. Monitored Natural Attenuation (MNA) with institutional controls and LTM was the selected remedy as detailed in the Final Record of Decision (ROD) for the On-Base Groundwater AOC (SD-52) (AFRPA, November 2008). Aerobic degradation of VC is occurring near the leading edge of the plume. However, VC in the southern plume has migrated eastward to well 782MW-101 within 100 ft of SMC (EEEPC, February 2008).

FPM sampled the Apron 2 Chlorinated Plume Site in November 2006 in accordance with the final Baseline Letter WP (FPM, November 2006). FPM sampled ten monitoring wells and three surface water locations. The samples were analyzed for the following parameters: VOCs, nitrate, chloride, sulfate, DOC, and total alkalinity. Sampling results confirmed the presence of TCE,

cis-1,2-DCE and VC as main contaminants. Ferrous iron was also field measured. Detailed results are discussed in the Final Monitoring Report (FPM, August 2007).

5.2 Remedial Action Summary

The final RA WP (Parsons, July 2008) specifies MNA as the remedial action using the ongoing physical, chemical, and natural biological process that reduce the contaminants within the aquifer. Based on previous investigations and studies, it has been determined that natural attenuation is evident at the Apron 2 Chlorinated Plume Site. Three additional monitoring wells (782VMW-84D, -121, and -121D) were installed by Parsons in July 2008 to monitor the plume remediation, in accordance with the final RA WP (Parsons, July 2008).

5.3 PM Sampling Plan

Performance monitoring included sampling of fifteen monitoring wells and three surface water sampling locations as shown on Figure 5-1. These sampling locations are outlined in Table 5-1 in Appendix A and are sampled to monitor the progress of the MNA remedy at the site. All monitoring well samples collected are analyzed for VOCs (EPA Method SW8260B), nitrate, chloride, and sulfate (EPA Method SW9056), DOC (Standard Method SM5310B), and total alkalinity (Standard Method SM2320B). Field parameters collected are ORP, temperature, DO, pH, conductivity, turbidity, water levels, and ferrous iron.

All performance monitoring was conducted by FPM personnel and all sampling documentation is included in the associated CQCRs (Appendix A). Performance monitoring was conducted quarterly for the first year starting with the Fall 2008 sampling round and semi-annually after that. Any deviations from the work plan are detailed below.

5.4 Field Activities

Two semi-annual PM sampling rounds were performed in Fall 2009 and Spring 2010. In the Fall 2009 sampling round, samples were collected on September 21, 23, and 24. In the Spring 2010 sampling round, samples were collected on April 15, 19, and 21. Samples were collected from thirteen monitoring wells (782VMW-76, -78, -81, -84, -84D, -93, -100, -101, -105B, -121, -121D, 782MW-10, and AP2MW-3) with dedicated bladder pumps according to the USEPA Low Stress (Low Flow) Purging and Sampling Ground Water Sampling Procedure for Region II (USEPA, March 1998). The three surface water locations were sampled with a disposable plastic sampling bottle. Sediment interference during the surface water sample collection was minimized. Daily field activities are summarized on daily CQCRs which are provided in Appendix A.

Several observations were made which are detailed below:

- In the Fall 2009 sampling round, monitoring wells 782VMW-76, -78, -81, -100, -105B, -121, -121D, and 782MW-10 had turbidity levels that did not reach the typically observed

value of 50 NTU or below. They stabilized around 82, 105, 60, 585, 180, 120, 70, and 135 NTU respectively. All other parameters stabilized also and a sample was collected.

- In the Spring 2010 sampling round, monitoring wells 782VMW-76, -100, -101, -121, and 782MW-10 had turbidity levels that did not reach the typically observed value of 50 NTU or below. They stabilized around 100, 90, 125, 115, and 70 NTU respectively. All other parameters stabilized also and a sample was collected.

5.5 PM Results

5.5.1 Fall 2009

The first semi-annual round of PM sampling at the Apron 2 Chlorinated Plume Site was performed on September 21, 23, and 24, 2009. All wells identified as 'After 1 year (semi-annual)' in Table 5-1 were sampled. No deviations of the sampling plan were reported.

The Apron 2 Chlorinated Plume sampling results are provided in Table 5-2. The table includes the baseline sampling results collected in 2006-2007 and the first four quarterly PM sampling round results. The sampling results are listed in order from upgradient (near Building 786) to downgradient (near SMC). The results are compared to the prior sampling round.

The most upgradient monitoring well sampled (782VMW-105B) had eight VOC exceedances. The exceedances included 1,2,4-trimethylbenzene (TMB) [35.5 µg/L], 1,3,5-TMB (17.0 µg/L), ethylbenzene (21.0 µg/L), isopropylbenzene (24.4 µg/L), n-propylbenzene (22.6 µg/L), m,p-xylene (18.4 µg/L), naphthalene (17.1 µg/L), and TCE (39.6 µg/L). This last VOC (TCE) is the only non-petroleum constituent exceedance of the NYS Class GA Groundwater Standards and had an increasing trend. Six additional minor VOC detections were reported, but none exceeded the NYS Class GA Groundwater Standards. DOC decreased to 2.2 mg/L (from 3.3 mg/L), alkalinity increased to 250 mg/L (from 210 mg/L), chloride remained stable at 7.5 mg/L, nitrate increased to 0.33 mg/L (from 0.21 mg/L), and sulfate increased to 9.5 mg/L (from 6.4 mg/L). Field measurements showed that the ORP decreased to -152 mV (from -147 mV), the DO increased to 5.56 mg/L (from 0.00 mg/L), the pH decreased to 7.18 (from 7.40) and ferrous iron was 2.5 mg/L (from 3.6 mg/L).

VOC results for further downgradient monitoring well 782VMW-81 showed two exceedances: cis-1,2-DCE increased to 23.4 µg/L (from 21.2 µg/L) and VC increased to 4.55 µg/L (from 4.45 µg/L). Two other VOCs were detected (trans-1,2-DCE and TCE) but detections were below the NYS Class GA Groundwater Standards. DOC increased to 1.7 mg/L (from 0.65 F mg/L), alkalinity remained stable at 210 mg/L, chloride decreased to 18 mg/L (from 21 mg/L), nitrate increased to 0.024 F mg/L (from 0.022 F mg/L), and sulfate increased to 7.3 mg/L (from 7.2 mg/L). Field measurements showed that the ORP decreased to -61 mV (from -50 mV), the DO increased to 6.44 mg/L (from 2.84 mg/L), the pH decreased to 7.22 (from 7.56), and ferrous iron decreased to 0.8 mg/L (from 0.1 mg/L).

Further downgradient monitoring well 782VMW-78 had two VOC exceedances: cis-1,2-DCE increased to 46.3 µg/L (from 45.9 µg/L) and VC increased to 10.5 µg/L (from 6.78 µg/L). Two low detections were reported for benzene (0.240 F µg/L) and trans-1,2-DCE (4.04 µg/L) below the NYS Class GA Groundwater Standards. DOC decreased to 1.8 mg/L (from 2.5 mg/L), alkalinity remained stable at 240 mg/L, chloride decreased to 19 mg/L (from 25 mg/L), nitrate increased to 0.015 F mg/L (from none detected), and sulfate decreased to 6.5 mg/L (from 7.4 mg/L). Field measurements showed that the ORP increased and remained negative at -77 mV (from -80 mV), the DO increased to 6.35 mg/L (from 2.05 mg/L), the pH decreased to 6.86 (from 7.45), and ferrous iron increased to 1.8 mg/L (from 1.2 mg/L).

Downgradient monitoring well 782VMW-76 had one VOC exceedance: VC decreased to 13.0 µg/L (from 15.1 µg/L). Five additional VOC detections were reported for acetone (1.91 F µg/L), benzene (0.160 F µg/L), cis-1,2-DCE (0.910 F µg/L), MTBE (5.67 µg/L), and trans-1,2-DCE (0.550 F µg/L). None exceeded the NYS Class GA Groundwater Standards. DOC increased to 2.7 mg/L (from 2.3 mg/L), alkalinity remained stable at 330 mg/L, chloride remained stable at 47 mg/L, nitrate increased to 0.037 F mg/L (from none detected), and sulfate remained non detect. Field measurements showed that the ORP increased but remained negative at -72 mV (from -100 mV), the DO increased to 7.24 mg/L (from 7.17 mg/L), the pH decreased to 6.69 (from 7.06) and ferrous iron decreased to 2.0 mg/L (from 4.0 mg/L).

Further downgradient monitoring well 782VMW-93 had one VOC exceedance and two VOC detections: VC decreased to 54.6 µg/L (from 62.6 µg/L) exceeded the NYS Class GA Groundwater Standard, MTBE was detected at 9.40 F µg/L and toluene at 0.800 F µg/L. DOC increased to 3.5 mg/L (from 2.9 mg/L), alkalinity increased to 360 mg/L (from 330 mg/L), chloride decreased to 53 mg/L (from 56 mg/L), nitrate decreased to 0.018 F mg/L (from 0.046 F mg/L), and sulfate decreased to non-detect. Field measurements showed that the ORP decreased and remained negative at -104 mV (from -101 mV), the DO decreased to 1.76 mg/L (from 4.02 mg/L), and the pH increased to 7.56 (from 7.08). Ferrous iron increased to 3.2 mg/L (from 1.0 mg/L in April 2009).

VOC results for further-downgradient monitoring well 782MW-10 showed two VOC exceedances: cis-1,2-DCE decreased to 20.1 µg/L (from 32.2 µg/L) and VC decreased to 12.1 µg/L (from 18.1 µg/L). Four additional VOCs were detected (1,1-DCA at 0.200 F µg/L, acetone 1.47 F µg/L, benzene at 0.190 F µg/L, and trans-1,2-DCE at 1.41 µg/L), but none exceeded the NYS Class GA Groundwater Standards. DOC decreased to 5.5 mg/L (from 6.8 mg/L), alkalinity increased to 280 mg/L (from 260 mg/L), chloride decreased to 9.2 mg/L (from 15 mg/L), nitrate decreased to 0.12 B mg/L (from 0.35 mg/L), and sulfate decreased to 1.3 mg/L (from 1.8 mg/L). Field measurements showed that the ORP decreased and became negative at -18 mV (from 17 mV), the DO decreased to 1.48 mg/L (from 3.45 mg/L), the pH increased to 7.26 (from 7.06) and ferrous iron decreased to 0.8 mg/L (from 0.9 mg/L).

Downgradient, within-plume monitoring well 782VMW-84 had one decreasing VOC exceedance for VC (39.4 µg/L from 42.2 µg/L). Two additional VOCs were detected (cis-1,2-

DCE at 0.500 F µg/L and MTBE at 2.54 F µg/L); both at levels below the NYS Class GA Groundwater Standards. DOC decreased to 4.9 mg/L (from 5.3 mg/L), alkalinity decreased to 320 mg/L (from 330 mg/L), chloride decreased to 38 mg/L (from 39 mg/L), nitrate increased to 0.020 F mg/L (from 0.014 F mg/L), and sulfate decreased to 2.9 mg/L (from 4.1 mg/L). Field measurements showed that the ORP increased but remained negative at -103 mV (from -126 mV), the DO increased to 4.11 mg/L (from 0.00 mg/L), the pH increased to 6.51 (from 6.49), and ferrous iron increased to 5.5 mg/L (from 4.8 mg/L).

Downgradient, within-plume monitoring well 782VMW-84D, located next to 782VMW-84 but with a deeper screen interval, had one VOC exceedance: VC increased to 12.8 µg/L (from 1.18 µg/L). Three additional VOC detections were reported: acetone was reported at 2.85 F µg/L, cis-1,2-DCE at 0.110 F µg/L, and MTBE was reported at 1.43 F µg/L. DOC increased to 4.2 mg/L (from 2.8 mg/L), alkalinity increased to 170 mg/L (from 48 mg/L), chloride increased to 18 mg/L (from 1.4 mg/L), nitrate increased to 0.063 F mg/L (from 0.016 F mg/L), and sulfate decreased to 7.8 mg/L (from 14 mg/L). Field measurements showed that the ORP decreased to -61 mV (from -3 mV), DO increased to 5.43 mg/L (from 0.66 mg/L), the pH decreased to 7.21 (from 11.14), and ferrous iron increased to 1.2 mg/L (from 0.0 mg/L).

One minor VOC detection was reported for downgradient monitoring well 782VMW-100; acetone increased to 3.68 F µg/L (from none detected). DOC increased to 4.6 mg/L (from 3.7 mg/L), alkalinity increased to 300 mg/L (from 230 mg/L), chloride increased to 1.8 mg/L (from 1.5 mg/L), nitrate increased to 0.015 F mg/L (from none detected), and sulfate increased to 16 mg/L (from 6.1 mg/L). Field measurements showed that the ORP decreased to -102 mV (from -51 mV), DO increased to 1.61 mg/L (from 0.00 mg/L), pH increased to 7.62 (from 7.18), and ferrous iron increased to 1.6 mg/L (from 0.8 mg/L).

Adjacent downgradient monitoring well 782VMW-101 had one decreasing minor VOC exceedance for VC at 2.38 µg/L (from 2.69 µg/L) and two detections for acetone (1.96 F µg/L) and MTBE (6.64 µg/L). DOC increased to 3.6 mg/L (from 3.3 mg/L), alkalinity remained stable at 320 mg/L, chloride increased to 28 mg/L (from 17 mg/L), nitrate remained non detect, and sulfate decreased to 120 mg/L (from 140 mg/L). Field measurements showed that the ORP decreased to -89 mV (from -76 mV), DO increased to 2.19 mg/L (from 0.48 mg/L), pH increased to 7.86 (from 7.09), and ferrous iron increased to 2.9 mg/L (from 1.8 mg/L).

Downgradient monitoring well 782VMW-121, located between 782VMW-100 and -101, had an increasing VC exceedance at 21.8 µg/L (from 11.8 µg/L) and two small VOC detections below the NYS Class GA Groundwater Standards for acetone (2.57 F µg/L) and MTBE (4.16 F µg/L). DOC increased to 4.7 mg/L (from 4.2 mg/L), alkalinity decreased to 320 mg/L (from 340 mg/L), chloride increased to 51 mg/L (from 47 mg/L), nitrate increased to 0.059 F µg/L (from none detected), and sulfate decreased to 120 mg/L (from 180 mg/L). Field measurements showed that the ORP decreased to -88 mV (from -54 mV), DO increased to 1.97 mg/L (from 0.00 mg/L), the pH increased to 7.53 (from 6.67), and ferrous iron increased to 3.2 mg/L (from 1.4 mg/L).

Downgradient monitoring well 782VMW-121D, located near 782VMW-121 but with a deeper screen interval, had a decreasing VC exceedance at 18.5 µg/L (from 23.3 µg/L) and two additional VOC detections (acetone at 1.22 F µg/L and MTBE at 6.76 µg/L) below the NYS Class GA Groundwater Standards. DOC decreased to 5.4 mg/L (from 7.9 mg/L), alkalinity decreased to 340 mg/L (from 360 mg/L), chloride increased to 55 mg/L (from 53 mg/L), nitrate increased to 0.048 F µg/L (from none detected), and sulfate decreased to 17 mg/L (from 25 mg/L). Field measurements showed that the ORP decreased to -103 mV (from -95 mV), DO increased to 2.17 mg/L (from 0.64 mg/L), the pH increased to 7.73 (from 7.24), and ferrous iron increased to 3.0 mg/L (from 2.0 mg/L).

Downgradient monitoring wells AP2MW-3 had four VOCs exceedances. All were reported for petroleum constituents (1,2,4-trimethylbenzene [17.0 F µg/L], benzene [668 µg/L], MTBE [51.5 F µg/L], and m,p-xylene [35.2 F µg/L]). Compared to the last annual sampling results, DOC increased to 6.4 mg/L (from 6.1 mg/L), alkalinity increased to 360 mg/L (from 350 mg/L), chloride increased to 75 mg/L (from 72 mg/L), and nitrate and sulfate remained non detect. Field measurements showed that the ORP increased to -101 mV (from -116 mV), DO increased to 1.79 mg/L (from 1.60 mg/L), the pH increased to 7.60 (from 6.74), and ferrous iron increased to 3.8 mg/L (from 1.6 mg/L).

The most upgradient surface water location 782SW-115 had three small VOC detections for acetone (1.11 F µg/L), chloromethane (0.590 F µg/L), and TCE (0.130 F µg/L). Field measurements showed that the ORP decreased and became negative at -5 mV (from 7 mV), DO increased to 10.01 mg/L (from 8.79 mg/L), and the pH increased to 7.65 (from 7.20).

The middle surface water location 782SW-118 had four VOC detections, all of which were below the NYS Class GA Groundwater Standards: benzene (0.740 µg/L), chloromethane (0.390 F µg/L), MTBE (0.300 F µg/L), and TCE (0.110 F µg/L). Field measurements showed that the ORP decreased and became negative at -39 mV (from 33 mV), DO increased to 10.04 mg/L (from 9.59 mg/L), and pH increased to 7.60 (from 7.19).

The most downgradient surface water location 782SW-119 had two small VOC detections: benzene (0.710 µg/L) and MTBE (0.370 F µg/L). Field measurements showed that the ORP increased to 59 mV (from 20 mV), DO increased to 10.21 mg/L (from 9.14 mg/L), and the pH decreased to 7.25 (from 7.28).

5.5.2 Spring 2010

The second semi-annual round of PM sampling at the Apron 2 Chlorinated Plume Site was performed on April 15, 19, and 21, 2010. All wells and surface water sampling locations identified in Table 5-1 were sampled, along with AP2MW-3 and 782VMW-84D. No deviations of the sampling plan were reported.

The Apron 2 Chlorinated Plume sampling results are provided in Table 5-2. The table includes baseline sampling results collected in 2006-2007, the first four quarterly PM sampling round results and the semi-annual round from Fall 2009. The sampling results are discussed in order from upgradient (near Building 786) to downgradient (near SMC). The results are compared to the prior sampling round.

The most upgradient monitoring well sampled (782VMW-105B) had one VOC exceedance, TCE decreased to 34.8 µg/L (from 39.6 µg/L). There were seven additional minor VOC detections, but none exceeded the NYS Class GA Groundwater Standards. DOC slightly increased to 2.6 mg/L (from 2.2 mg/L), alkalinity decreased to 190 mg/L (from 250 mg/L), chloride decreased to 4.9 mg/L (from 7.5 mg/L), nitrate decreased to 0.083 F mg/L (from 0.33 mg/L), and sulfate decreased to 8.6 mg/L (from 9.5 mg/L). Field measurements showed that the ORP increased but remained negative at -133 mV (from -125 mV), the DO decreased to 0.93 mg/L (from 5.56 mg/L), the pH increased to 7.68 (from 7.18) and ferrous iron decreased to 2.0 mg/L (from 2.5 mg/L).

VOC results for further downgradient monitoring well 782VMW-81 showed two exceedances: cis-1,2-DCE increased to 28.7 µg/L (from 23.4 µg/L) and VC increased to 4.68 µg/L (from 4.55 µg/L). Two other VOCs were detected (trans-1,2-DCE and TCE) but detections were below the NYS Class GA Groundwater Standards. DOC decreased to 1.4 mg/L (from 1.7 mg/L), alkalinity remained stable at 210 mg/L, chloride increased to 20 mg/L (from 18 mg/L), nitrate increased to 0.035 F mg/L (from 0.024 F mg/L), and sulfate increased to 8.5 mg/L (from . Field measurements showed that the ORP decreased to -83 mV (from -61 mV), the DO decreased to 0.00 mg/L (from 6.44 mg/L), the pH increased to 8.00 (from 7.22), and ferrous iron decreased to 0.4 mg/L (from 0.8 mg/L).

Further downgradient monitoring well 782VMW-78 had two VOC exceedances: cis-1,2-DCE decreased to 43.4 J µg/L (from 46.3 µg/L) and VC decreased to 9.42 µg/L (from 10.5 µg/L) and three low detections were reported for 1,1-DCE (0.150 F µg/L), benzene (0.270 F µg/L) and trans-1,2-DCE (4.31 µg/L). DOC increased to 2.2 mg/L (from 1.8 mg/L), alkalinity decreased slightly to 230 mg/L (from 240 mg/L), chloride increased to 22 mg/L (from 19 mg/L), nitrate was not detected, and sulfate increased to 7 mg/L (from 6.5 mg/L). Field measurements showed that the ORP decreased to -104 mV (from -77 mV), the DO increased to 7.49 mg/L (from 6.35 mg/L), the pH increased to 7.52 (from 6.86), and ferrous iron decreased to 1.2 mg/L (from 1.8 mg/L).

Downgradient monitoring well 782VMW-76 had one VOC exceedance: VC decreased to 10.0 µg/L (from 13.0 µg/L). Four additional VOC detections were reported for benzene (0.160 F µg/L), cis-1,2-DCE (0.990 F µg/L), MTBE (4.66 F µg/L), and trans-1,2-DCE (0.500 F µg/L). None exceeded the NYS Class GA Groundwater Standards. DOC increased to 3 mg/L (from 2.7 mg/L), alkalinity decreased slightly to 310 mg/L (from 330 mg/L), chloride decreased to 37 mg/L (from 47 mg/L), nitrate increased to 0.044 F mg/L (from 0.037 F mg/L), and sulfate remained non detect. Field measurements showed that the ORP decreased to -101 mV (from -72

mV), the DO decreased to 6.75 mg/L (from 7.24 mg/L), the pH increased to 7.18 (from 6.69) and ferrous iron decreased to 1.6 mg/L (from 2.0 mg/L).

Further downgradient monitoring well 782VMW-93 had one decreasing VOC exceedance for VC at 2.31 µg/L(from 54.6 µg/L) and a cis-1,2-DCE detection at 0.590 F µg/L. DOC decreased to 1.7 mg/L (from 3.5 mg/L), alkalinity decreased to 250 mg/L (from 360 mg/L), chloride increased to 140 mg/L (from 140 mg/L), nitrate decreased to non detect, and sulfate remained stable as non-detect. Field measurements showed that the ORP decreased to -130 mV (from -104 mV), the DO decreased to 0.00 mg/L (from 1.76 mg/L), and the pH increased to 7.82 (from 7.56). Ferrous iron decreased to 0.0 mg/L (from 3.2 mg/L).

VOC results for further-downgradient monitoring well 782MW-10 showed two VOC exceedances: cis-1,2-DCE decreased to 12.7 µg/L (from 20.1 µg/L) and VC decreased to 7.22 µg/L (from 12.1 µg/L). Four additional VOCs were detected (1,1-DCA at 0.120 F µg/L, acetone 1.19 F µg/L, benzene at 0.170 F µg/L, and trans-1,2-DCE at 0.970 F µg/L), but none exceeded the NYS Class GA Groundwater Standards. DOC increased to 10 mg/L (from 5.5 mg/L), alkalinity decreased to 250 mg/L (from 280 mg/L), chloride decreased to 6.9 mg/L (from 9.2 mg/L), nitrate decreased to non detect, and sulfate decreased to 0.670 F mg/L (from 1.3 mg/L). Field measurements showed that the ORP decreased to -105 mV (from -18 mV), the DO decreased to 0.00 mg/L (from 1.48 mg/L), the pH decreased to 6.74 (from 7.26) and ferrous iron increased to 2.4 mg/L (from 0.8 mg/L).

Downgradient, within-plume monitoring well 782VMW-84 had one stable VOC exceedance for VC at 39.5 µg/L. Four additional VOCs were detected (benzene at 0.130 F µg/L, cis-1,2-DCE at 0.560 F µg/L, MTBE at 2.70 F µg/L, and trans-1,2-DCE at 0.170 F µg/L) and none exceeded the NYS Class GA Groundwater Standards. DOC increased to 5.2 mg/L (from 4.9 mg/L), alkalinity decreased to 310 mg/L (from 320 mg/L), chloride decreased to 35 mg/L (from 38 mg/L), nitrate increased to 0.039 F mg/L (from 0.020 F mg/L), and sulfate decreased to 1.6 mg/L (from 2.9 mg/L). Field measurements showed that the ORP decreased to -114 mV (from -103 mV), the DO decreased to 0.00 mg/L (from 4.11 mg/L), the pH increased to 6.91 (from 6.51), and ferrous iron decreased to 4.2 mg/L (from 5.5 mg/L).

Downgradient, within-plume monitoring well 782VMW-84D, located next to 782VMW-84 but with a deeper screen interval, had one VOC exceedance: VC decreased to 10.9 µg/L (from 12.8 µg/L). Three additional VOC detections were reported: acetone was reported at 2.41 F µg/L, cis-1,2-DCE at 0.140 F µg/L, and MTBE was reported at 1.51 F µg/L. DOC decreased to 3.9 mg/L (from 4.2 mg/L), alkalinity increased to 180 mg/L (from 170 mg/L), chloride increased to 19 mg/L (from 18 mg/L), nitrate increased to 0.18 mg/L (from 0.063 F mg/L), and sulfate decreased to 4.2 mg/L (from 7.8 mg/L). Field measurements showed that the ORP decreased to -74 mV (from -61 mV), DO decreased to 0.84 mg/L (from 5.43 mg/L), the pH increased to 7.26 (from 7.21), and ferrous iron decreased to 0.0 mg/L (from 1.2 mg/L).

One minor VOC detection was reported for downgradient monitoring well 782VMW-100; acetone was detected at 1.19 F µg/L. DOC decreased to 4.2 mg/L (from 4.6 mg/L), alkalinity decreased to 190 mg/L (from 300 mg/L), chloride increased to 3.5 mg/L (from 1.8 mg/L), nitrate decreased to non detect (from 0.015 F mg/L), and sulfate decreased to 7.4 mg/L (from 16 mg/L). Field measurements showed that the ORP increased to -78 mV (from -102 mV), DO decreased to 0.00 mg/L (from 1.61 mg/L), pH decreased to 7.52 (from 7.62), and ferrous iron increased to 0.8 mg/L (from 1.6 mg/L).

Adjacent downgradient monitoring well 782VMW-101 had one increasing VOC exceedance for VC at 5.27 µg/L (from 2.38 µg/L) and one detections for MTBE (9.15 µg/L). DOC increased to 4.9 mg/L (from 3.6 mg/L), alkalinity remained stable at 320 mg/L, chloride increased to 38 mg/L (from 28 mg/L), nitrate remained non detect, and sulfate increased to 210 mg/L (from 120 mg/L). Field measurements showed that the ORP decreased to -99 mV (from -89 mV), DO decreased to 0.00 mg/L (from 2.19 mg/L), pH decreased to 6.90 (from 7.86), and ferrous iron increased to 4.1 mg/L (from 2.9 mg/L).

Downgradient monitoring well 782VMW-121, located between 782VMW-100 and -101, had a decreasing VC exceedance at 17.5 µg/L (from 21.8 µg/L) and one VOC detection below the NYS Class GA Groundwater Standard for MTBE at 2.68 F µg/L. DOC decreased to 4.1 mg/L (from 4.7 mg/L), alkalinity decreased to 290 mg/L (from 320 mg/L), chloride decreased to 34 mg/L (from 51 mg/L), nitrate decreased to non detect, and sulfate increased to 260 mg/L (from 120 mg/L). The reported sulfate concentration exceeded the NYS Class GA Groundwater Standard of 250 µg/L. Field measurements showed that the ORP increased to -81 mV (from -88 mV), DO decreased to 0.00 mg/L (from 1.97 mg/L), the pH decreased to 6.98 (from 7.53), and ferrous iron decreased to 1.8 mg/L (from 3.2 mg/L).

Downgradient monitoring well 782VMW-121D, located near 782VMW-121 but with a deeper screen interval, had a decreasing VC exceedance at 15.5 µg/L (from 18.5 µg/L) and two additional VOC detections (acetone at 1.52 F µg/L and MTBE at 6.5 µg/L) below the NYS Class GA Groundwater Standards. DOC increased to 19.0 mg/L (from 5.4 mg/L), alkalinity increased to 350 mg/L (from 340 mg/L), chloride decreased to 48 mg/L (from 55 mg/L), nitrate decreased to non detect, and sulfate increased to 79 mg/L (from 17 mg/L). Field measurements showed that the ORP increased to -96 mV (from -103 mV), DO decreased to 0.00 mg/L (from 2.17 mg/L), the pH decreased to 6.92 (from 7.73), and ferrous iron increased to 4.0 mg/L (from 3.0 mg/L).

Downgradient monitoring wells AP2MW-3 had seven VOCs exceedances. All were reported for petroleum constituents (1,2,4-TMB [29.2 F µg/L], 1,3,5-TMB [7.25 F µg/L], benzene [708 µg/L], ethylbenzene [5.00 F µg/L], MTBE [55.8 F µg/L], m,p-xylene [32.2 F µg/L], and total xylenes [36.8 F µg/L]). DOC increased to 6.7 mg/L (from 6.4 mg/L), alkalinity increased to 370 mg/L (from 360 mg/L), chloride decreased to 62 mg/L (from 75 mg/L), and nitrate and sulfate remained non detect. Field measurements showed that the ORP decreased to -105 mV (from -

101 mV), DO decreased to 0.00 mg/L (from 1.79 mg/L), the pH decreased to 6.98 (from 7.60), and ferrous iron increased to 6.0 mg/L (from 3.8 mg/L).

The most upgradient surface water location 782SW-115 had two minor VOC detections for chlorobenzene (0.190 F µg/L) and chloroform (0.150 F µg/L). Field measurements showed that the ORP decreased to -38 mV (from -5 mV), DO decreased to 7.10 mg/L (from 10.01 mg/L), and the pH decreased to 7.48 (from 7.65).

The middle surface water location 782SW-118 had six minor VOC detections, all of which were below the NYS Class GA Groundwater Standards: acetone (1.27 F µg/L), benzene (0.350 µg/L), chlorobenzene (0.230 F µg/L), chloroform (0.150 F µg/L), MTBE (0.171 FJ µg/L), and TCE (0.110 F µg/L). Field measurements showed that the ORP decreased to -81 mV (from -39 mV), DO decreased to 7.49 mg/L (from 10.04 mg/L), and pH decreased to 7.37 (from 7.60).

The most downgradient surface water location 782SW-119 had five minor VOC detections: benzene (0.340 µg/L), chlorobenzene (0.170 F µg/L), chloroform (0.120 F µg/L), MTBE (0.200 F µg/L), and TCE (0.170 F µg/L). Field measurements showed that the ORP decreased to negative at -28 mV (from 59 mV), DO decreased to 7.58 mg/L (from 10.21 mg/L), and the pH increased to 7.48 (from 7.25).

5.6 Analysis and Discussion

Three VOCs have consistently been reported in exceedance of the NYS Class GA Groundwater Standards: TCE and its daughter products cis-1,2-DCE and VC. A TCE exceedance was reported in monitoring well 782VMW-105B, with a small detection below the groundwater standards at downgradient well 782VMW-81. The TCE exceedance at monitoring well 782VMW-105B increased from 7.20 µg/L to 39.6 µg/L in the Fall 2009 sampling round and remained high during the Spring 2010 sampling round at 34.8 µg/L. The likely cause is the monthly groundwater extraction performed at nearby monitoring well 786MW-16 under the petroleum program which is a separate contract. This causes significant groundwater movement in the area which typically sees little groundwater movement, as a groundwater divide is present in this location. The seven VOC exceedances reported for petroleum constituents in the Fall 2009 sampling round were not confirmed in the Spring 2010 sampling round: all concentrations decreased to low detections or non-detect.

Cis-1,2-DCE exceedances were reported for monitoring wells 782VMW-78, -81, and 782MW-10. VC exceedances were reported for monitoring wells 782VMW-76, -78, -81, -84, -84D, -93, -101, -121, -121D, and 782MW-10. Additional exceedances were reported for petroleum constituents in monitoring wells 782VMW-105B and AP2MW-3.

DOC results across the site were low (below 6.7 mg/L), except for 782VMW-121D and 782MW-10. The low DOC indicates that little carbon is available to stimulate bioremediation. Alkalinity results across the site ranged from 170 mg/L to 370 mg/L. High alkalinity levels

indicate high buffering capacity and indicate carbon dioxide production through microbial activity through direct oxidation of the petroleum plume. Chloride levels across the site range from 1.8 mg/L to 140 mg/L. Monitoring well 782VMW-100 showed the lowest chloride levels and is a downgradient monitoring well near SMC. Previous investigations show that 782VMW-100 is located in a different groundwater zone than the other downgradient monitoring wells. Chloride is a metabolic product of chlorinated solvent breakdown and higher levels are indicative of ongoing metabolic activity. Nitrate levels were typically low (non-detect to 0.33 mg/L), which indicate that denitrification is occurring at the site which indicates that bioremediation is occurring at the site. Sulfate levels at the site were typically low (less than 16 mg/L) with the exception of three downgradient monitoring wells: 782VMW-101 (120 mg/L in Fall 2009 and 210 mg/L in Spring 2010), -121 (120 mg/L in Fall 2009 and 260 mg/L in Spring 2010), and -121D (79 mg/L in Spring 2010). The Spring 2010 sulfate concentration detected at 782VMW-121 exceeded the NYS Groundwater Standard of 250 mg/L. 782VMW-101, -121, and -121D are downgradient, shallow monitoring wells and sulfate reduction does not appear to occur in these wells. Adjacent monitoring well 782VMW-121D, with a deeper screen interval, has much lower sulfate levels. The typically low sulfate levels across the site indicate that sulfate reduction is occurring at the site which indicates that bioremediation is occurring at the site.

ORP field measurements were negative to strongly negative across the site. These negative to strongly negative ORP levels are indicative of a reducing environment which supports natural bioremediation. DO field measurements ranged from 0.00 mg/L to 7.49 mg/L with no obvious trend. pH field measurements were between 6.51 and 8.00, which is neutral and supports bioremediation. Ferrous iron field analysis showed two monitoring wells (782VMW-84D and 782VMW-93) with a ferrous iron detection of 0.0 mg/L (Spring 2010). The ferrous iron concentration was 1.2 mg/L at 782VMW-84D and 3.2 mg/L at 782VMW-93 during the Fall 2009 sampling round. The ferrous iron results from the rest of the monitoring wells were between 0.4 and 6.0 mg/L. Ferrous iron levels above 1 mg/L are indicative of reducing conditions at the site.

The reported intermittent low level detections in surface water samples 782SW-115, -118, -119 are believed to be related to the Apron 2 Chlorinated Plume and the Apron 2 petroleum plume. However, several detections were reported for COCs which were not related to either plume. These detections are believed to be storm water related, as SMC received storm water from the southern and eastern section of the former Griffiss AFB, which are considered an industrial watershed. Low level COC detections are not unexpected in an industrial watershed. Please note that all COC detections reported for the surface water samples regardless of source were well below the NYS Surface Water Standards.

5.6.1 Trend Chart

As shown in Table 2-2, three VOCs exceeded the NYS Class GA Groundwater Standards on a regular basis at the Apron 2 Chlorinated Plume Site: TCE, cis-1,2-DCE, and VC. Trend charts

were prepared which included the total VOCs (sum of all three above referenced VOCs) versus time and are included in Figures 5-2 through 5-13. Other VOCs exceeding the NYS Class GA groundwater standards were excluded from trending, because they were attributable to petroleum contamination. These trend charts include all analytical results from previous investigations for the monitoring wells, dating back to 2000. Groundwater elevations are also included, which assist in explaining possible changes in COC concentrations. The surface water sampling locations are not included as their concentrations are low relative to the monitoring wells.

The trend charts in Figures 5-2 through 5-13 show a decreasing trend in total VOCs results between 2000 and 2009, especially for wells with higher contamination levels (782VMW-76 and -93). Total concentrations appear to have decreased to 60 µg/L or below.

5.7 Conclusion

Few changes are reported in the sampling results for the Fall 2009 and Spring 2010 semi-annual sampling rounds. The selected remedy at the Apron 2 Chlorinated Plume site is MNA, which results in slow changes at the site over a typically extended period of time. Concentrations show a slow decreasing trend.

The MNA remedy is supported by the observance of TCE daughter products cis-1,2-DCE and VC, the high alkalinity, high chloride, low nitrate, and low sulfate across the site; all of which indicate that microbial activity is occurring which reduces COC concentrations across the site. Negative ORP levels and neutral pH levels support this microbial activity and thus the MNA remedy.

No changes in the PM sampling network are recommended at this time. Per the Final PM WP (FPM, September 2008), future sampling for the next year at the Apron 2 Chlorinated Plume site is planned for semi-annual performance in Fall 2010 and Spring 2011.

6 References

AFCEE, Final Principles and Practices of Enhanced Anaerobic Bioremediation of Chlorinated Solvents, August 2004.

Air Force Real Property Agency (AFRPA), Final Record of Decision for the On-base Groundwater AOC (SD-52) at the Former Griffiss Air Force Base, Rome, New York December 2008.

Ecology and Environment Engineering, P.C. (EEEPC), Draft Final Proposed Plan On-base Groundwater AOC at the Former Griffiss Air Force Base Rome, New York, December 2006.

EEEPC, Final Work Plan for Predesign Investigations at Landfill 6 TCE, Building 817/WSA, Building 775, and AOC 9, Former Griffiss Air Force Base, Rome, New York, Contract No. W912DQ-06-D-0012, July 2006.

EEEPC, Final Remedial Design Work Plan (RD WP) and 90% Drawings for Landfill 6 TCE, Building 817/WSA, Building 775, Apron 2, Former Griffiss Air Force Base, Rome, New York, Contract No. W912DQ-06-D-0012, February 2008.

FPM Group, Ltd. (FPM), Draft Quality Assurance Project Plan (QAPP) for Long Term Monitoring Program, Griffiss Air Force Base, October 2006.

FPM, Draft Site Safety and Health Plan (SSHP), Long-Term Monitoring Program, Former Griffiss Air Force Base, Revision 0.0, June 2003.

FPM, Field Sampling Plan (FSP), Long Term Monitoring Program, Former Griffiss Air Force Base, Revision 3.0, March 2005.

FPM, Final Baseline Letter Work Plan (WP), On-Base Groundwater Areas of Concern, Former Griffiss Air Force Base, Rome, New York, November 2006.

FPM, Final Monitoring Report, Baseline and PDI2 Sampling at On-Base Groundwater AOCs, Griffiss Air Force Base, August 2007.

FPM, Final Performance Monitoring Work Plan (PM WP), On-Base Groundwater Remediation, On-Base Areas of Concern, Former Griffiss Air Force Base, Rome, New York, September 2008.

FPM, Final Summer 2009 Annual Report, On-Base Groundwater Remediation, Performance Monitoring, Former Griffiss Air Force Base, Rome, New York, November 2010.

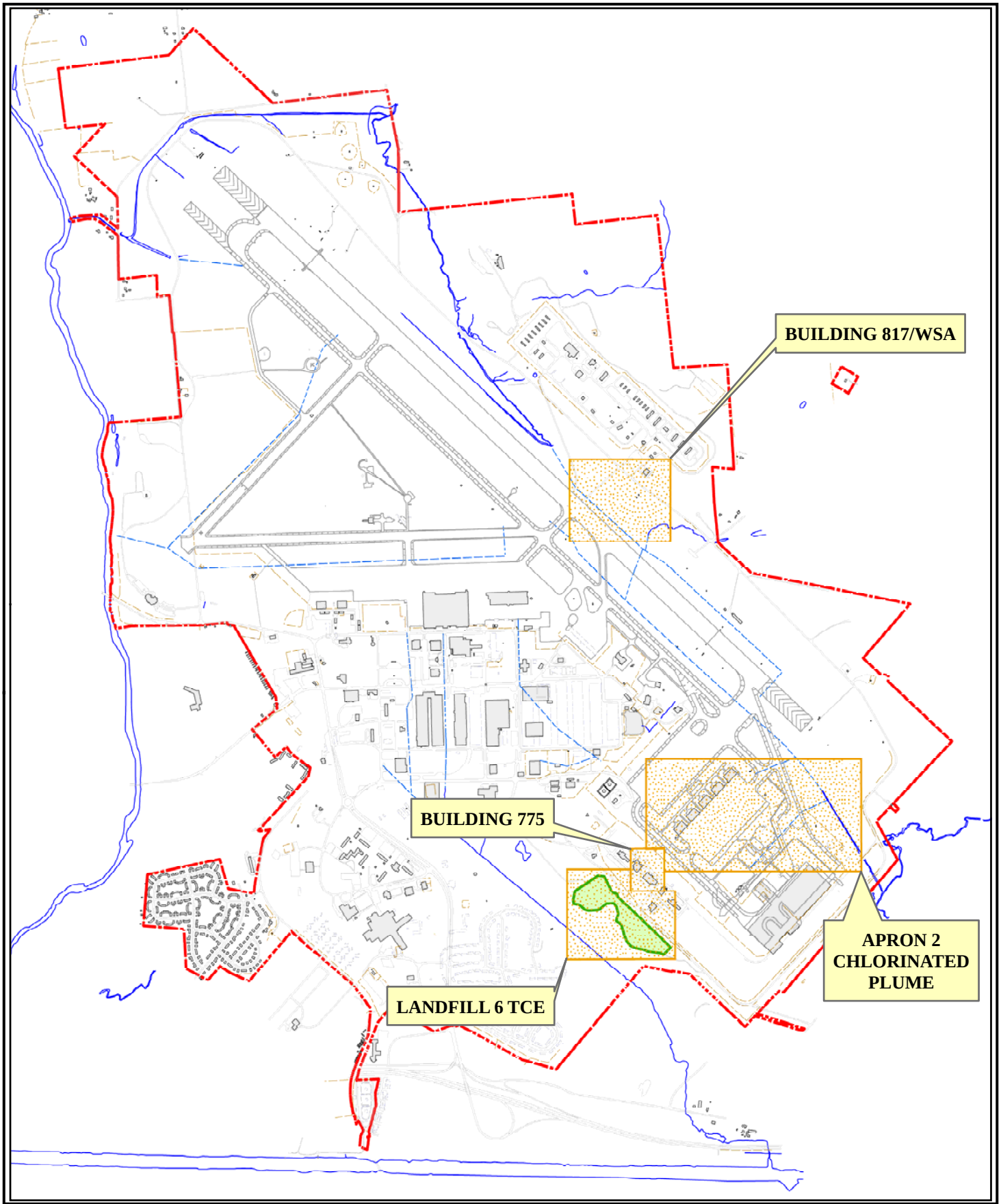
NYSDEC, New York State Ambient Water Quality Standards and Guidance Values, June 1998.

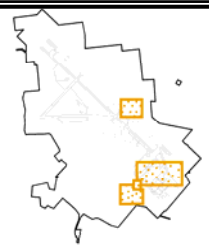
Parsons, Final Remedial Action Work Plan (RA WP), On-Base Groundwater Remediation Work Plan, Former Griffiss Air Force Base, Rome, NY, July 2008.

Parsons, Final Accident Prevention Plan (APP), On-Base Groundwater Remediation, Former Griffiss Air Force Base, Rome, NY, June 2006.

United States Environmental Protection Agency (USEPA), Region II Ground Water Sampling Procedure, Low Stress (Low Flow) Purging and Sampling, March 1998.

Figures





Key to Features

- Road
- Airfield
- Base Boundary
- Fenceline
- Storm Drain
- Surface Water
- Sites
- Landfill
- Existing Facilities
- Demolished Facilities

FIGURE 1-1
On Base Groundwater AOCs
Sites Map

1,200 600 0 1,200 2,400
Feet

N

UNITED STATES AIR FORCE
GRIFFISS AIR FORCE BASE
ROME, NEW YORK

December 1, 2009

FPM group

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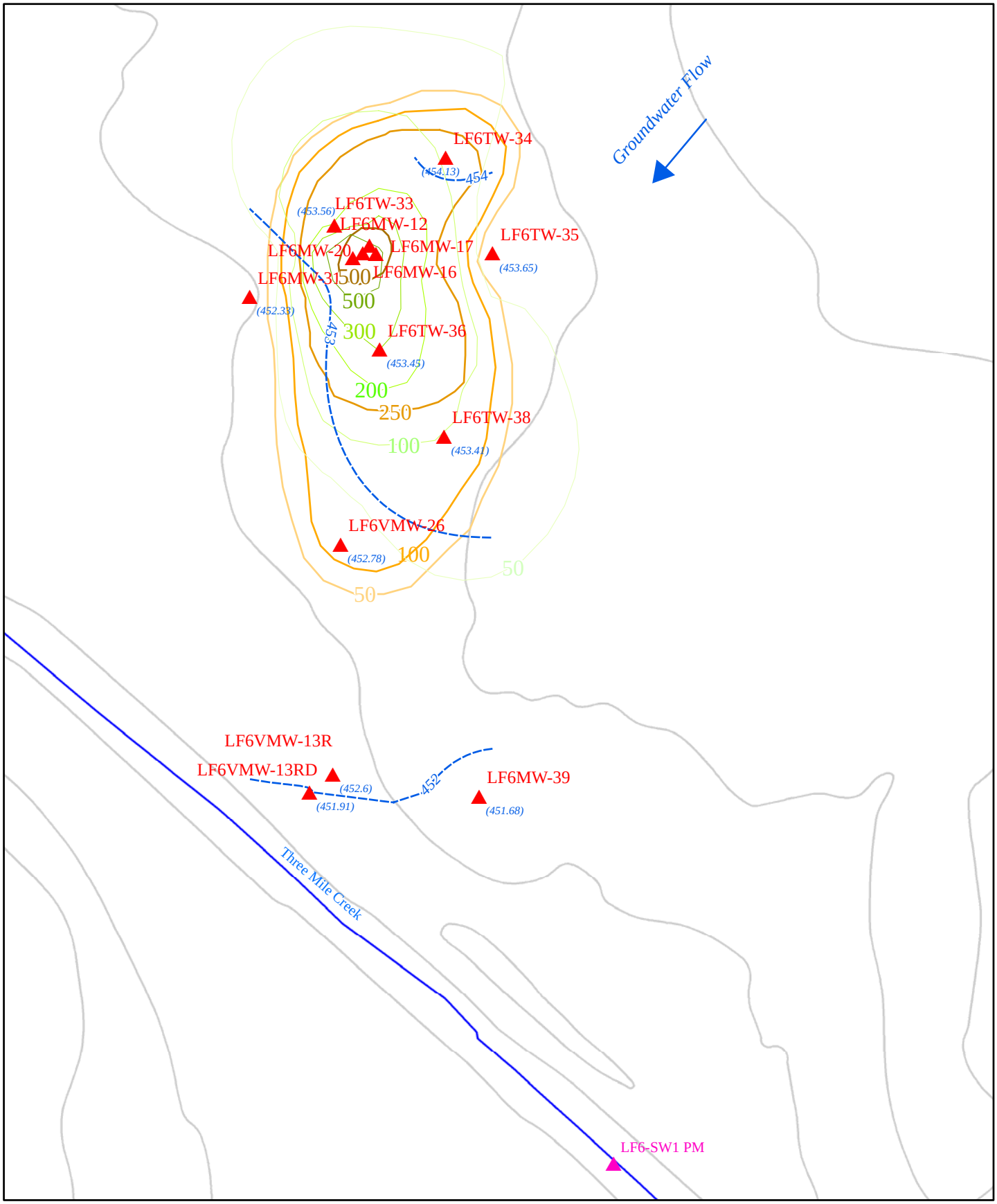

Legend

Total VOCs Contour Apr 2010 TCE 2007 Baseline

500 µg/L	500 µg/L
250 µg/L	300 µg/L
100 µg/L	200 µg/L
50 µg/L	100 µg/L
	50 µg/L

- Surface Water Sample
- Monitoring Well
- Surface water
- Topography
- GW Contour Apr 2010

30 15 0 30 60 Feet

Figure 2-1: LF6 TCE Sampling Locations

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group **Date: 6/14/2010**

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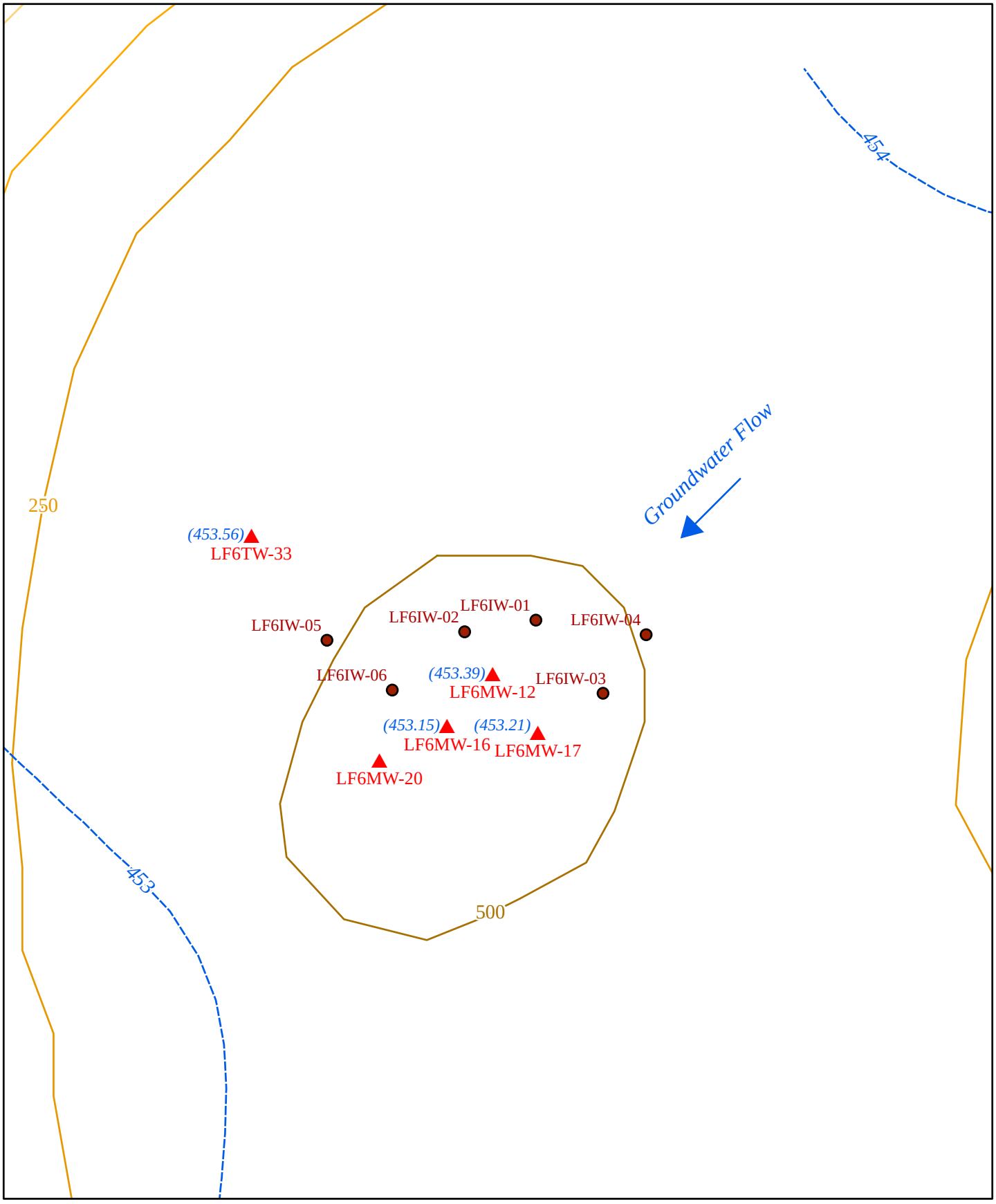

Legend

Total VOCs Contour Apr 2010

- 500 µg/L
- 250 µg/L
- 100 µg/L
- 50 µg/L

Monitoring Well

Injection Well

GW Contour Apr 2010

N

6 3 0 6 12

Feet

Figure 2-2: LF6 TCE Hot Spot Details

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group **Date: 6/25/2010**

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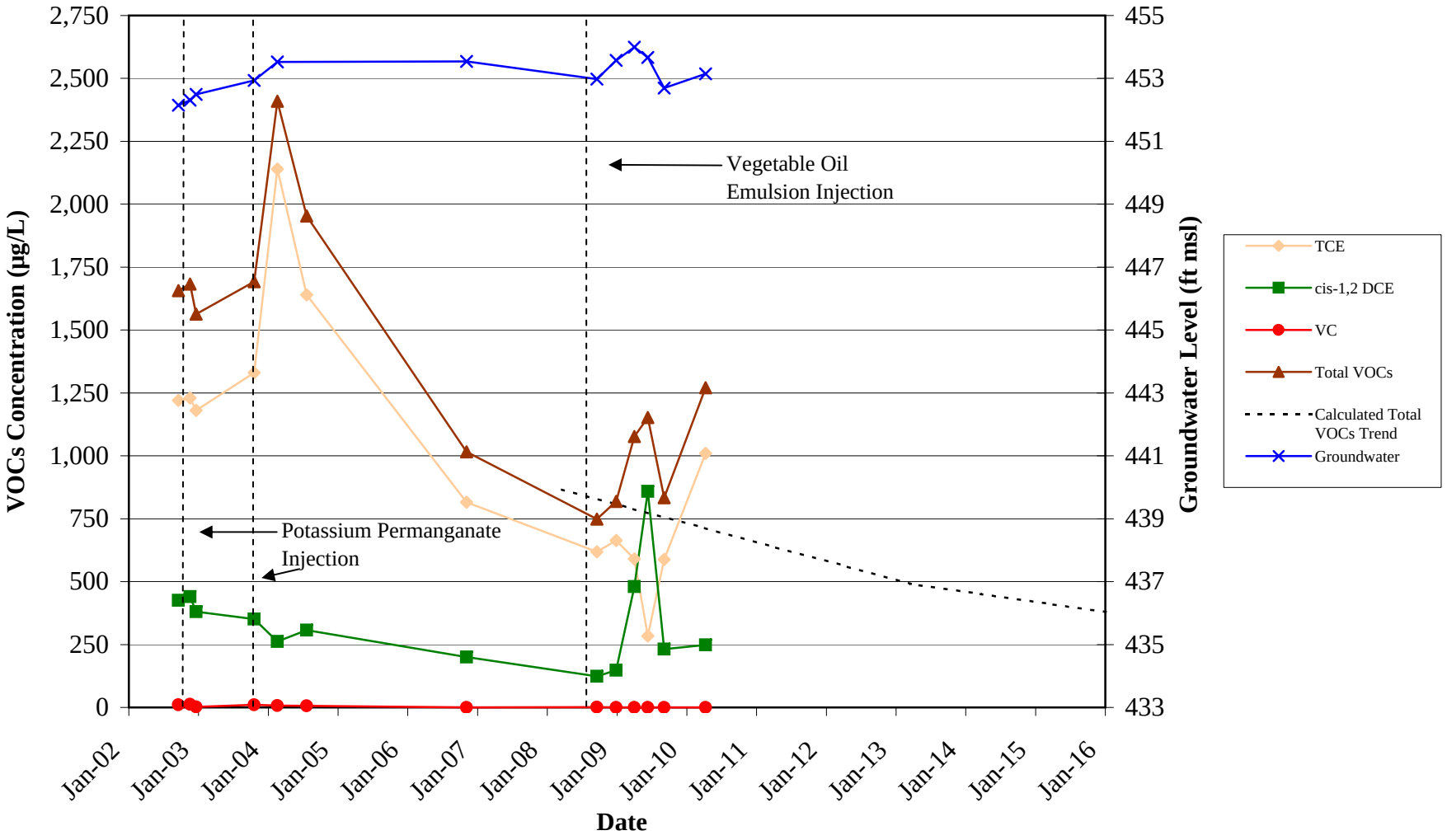
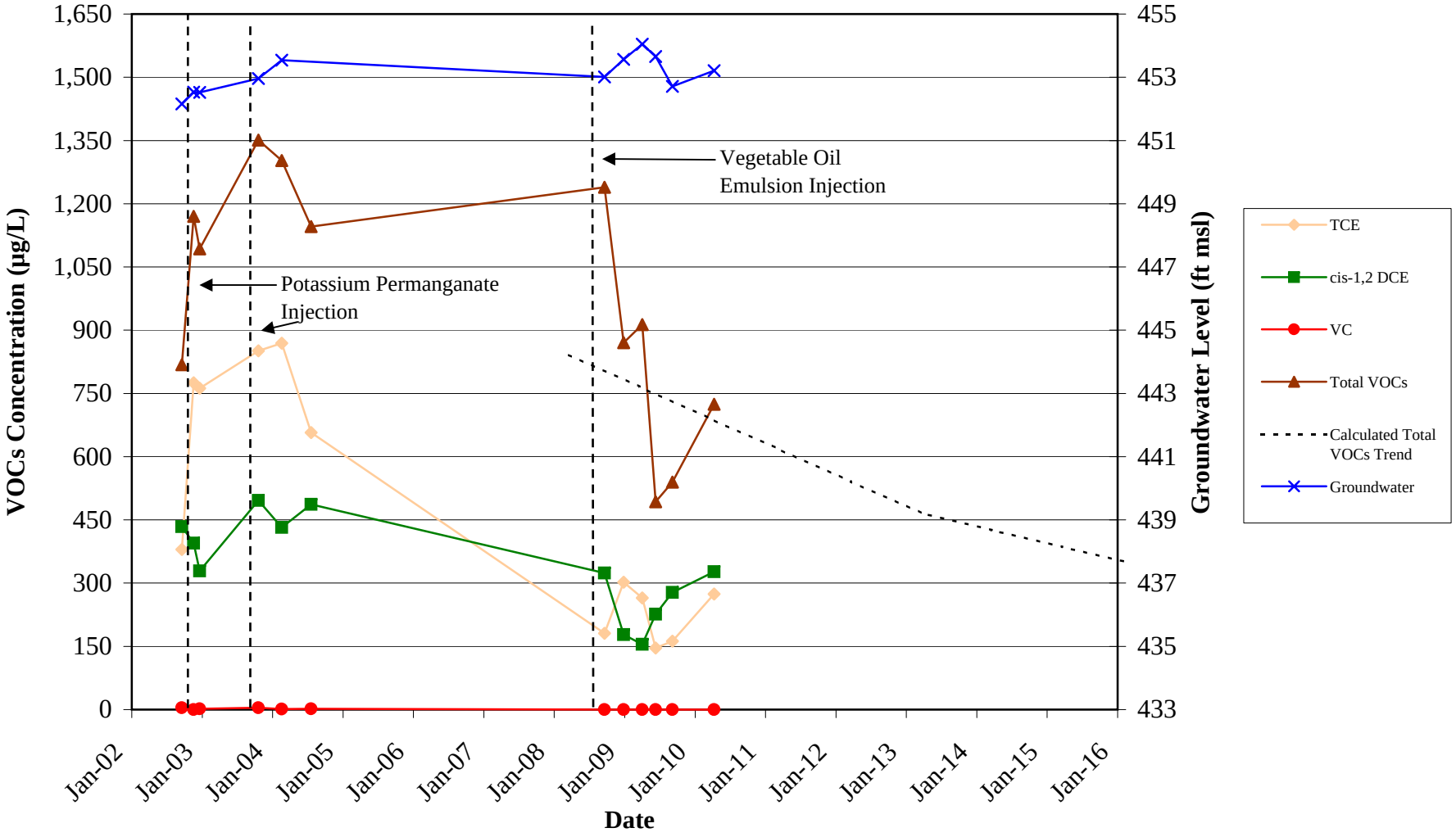
Figure 2-3
LF6MW-16 VOCs Trend



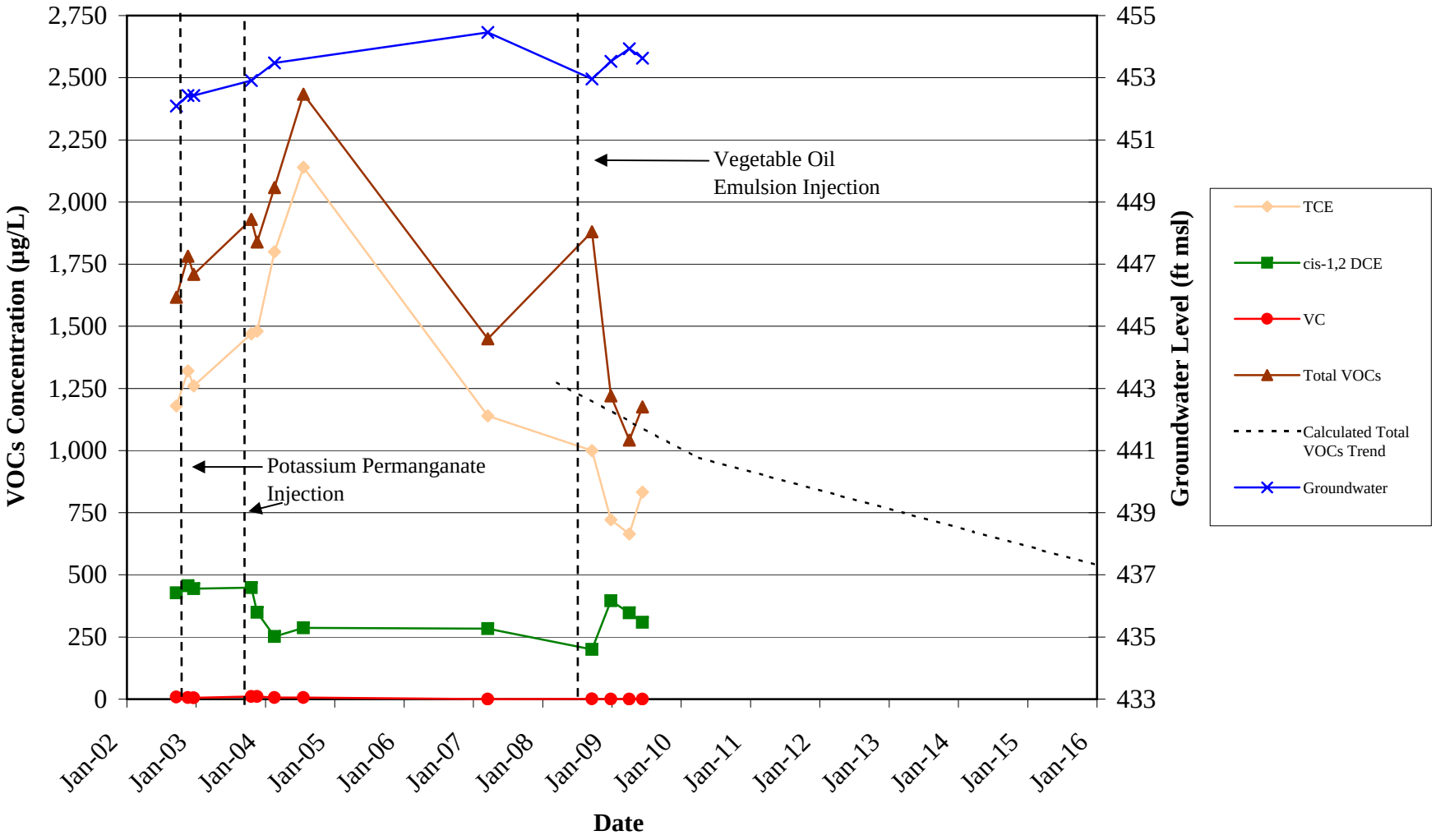
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-4
LF6MW-17 VOCs Trend



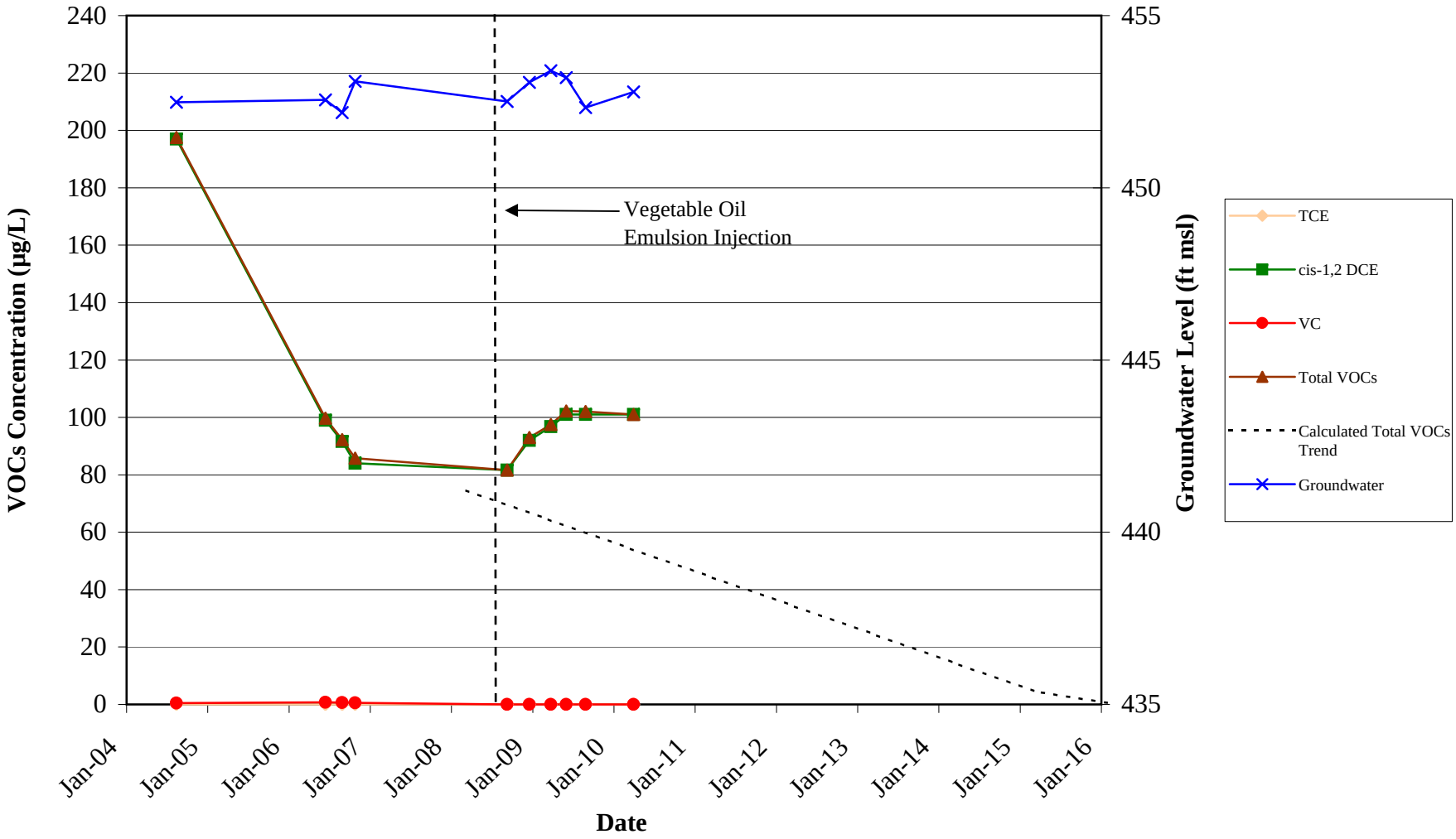
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-5
LF6MW-20 VOCs Trend



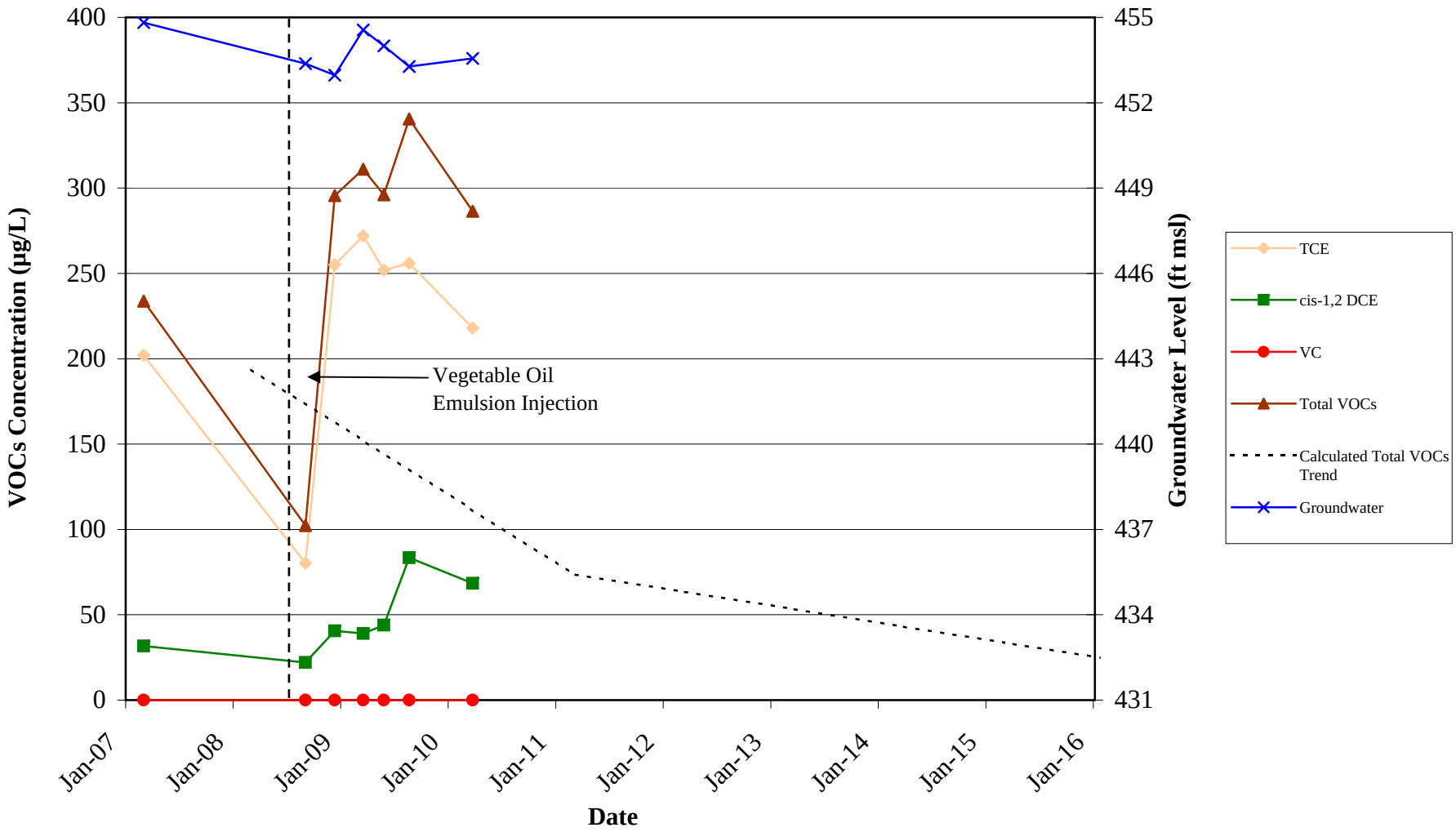
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-6
LF6VMW-26 VOCs Trend



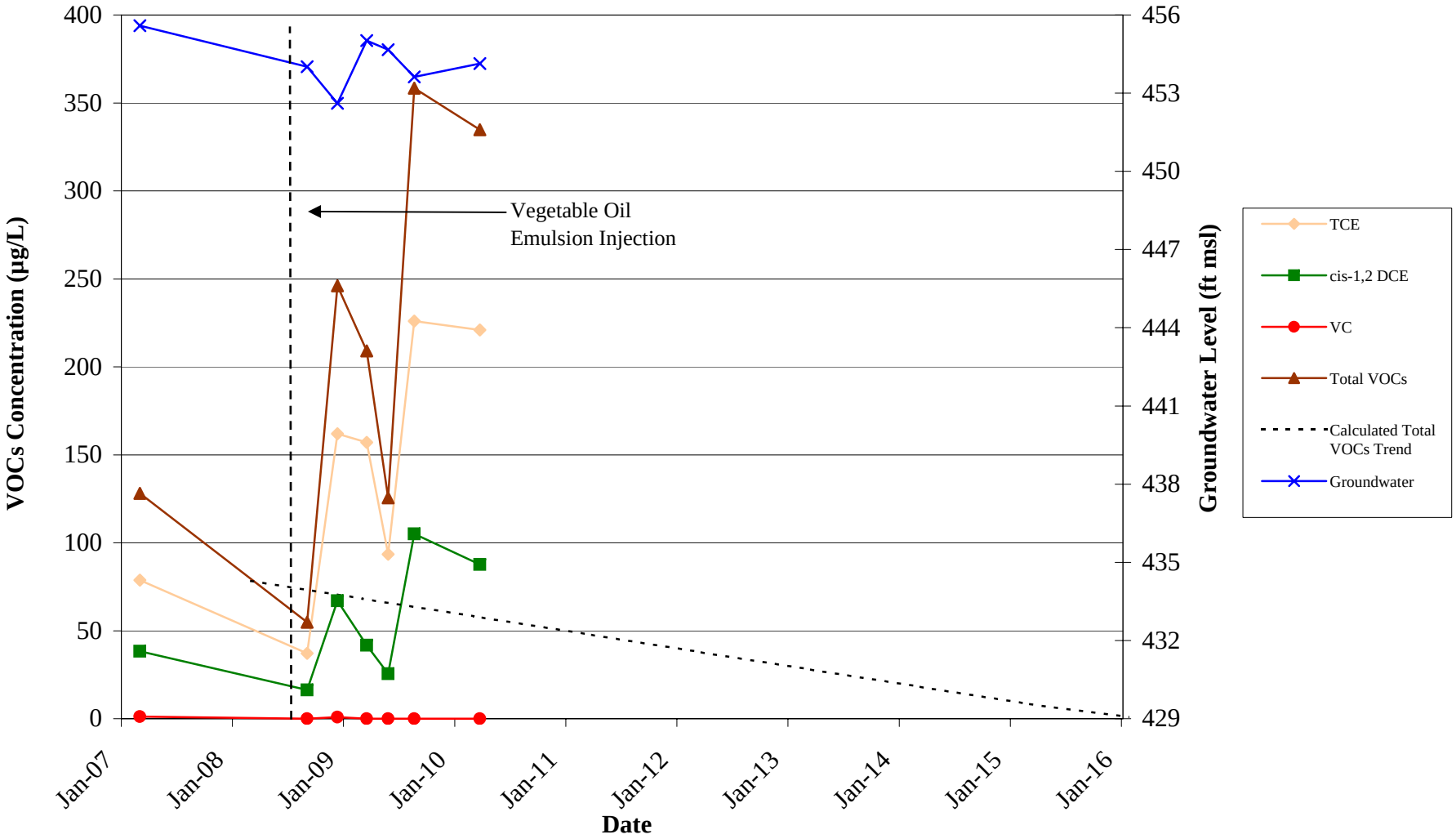
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-7
LF6TW-33 VOCs Trend



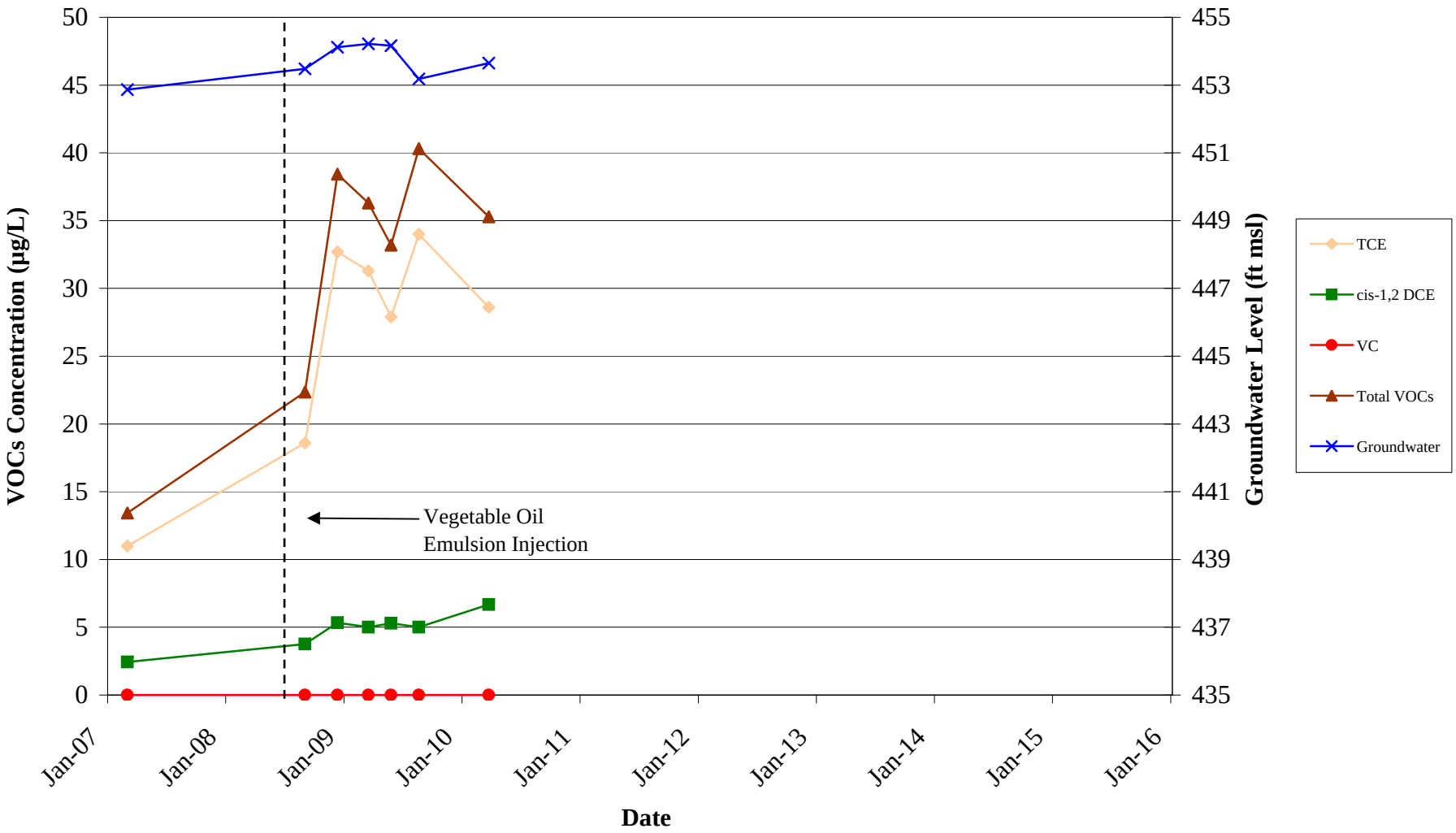
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-8
LF6TW-34 VOCs Trend



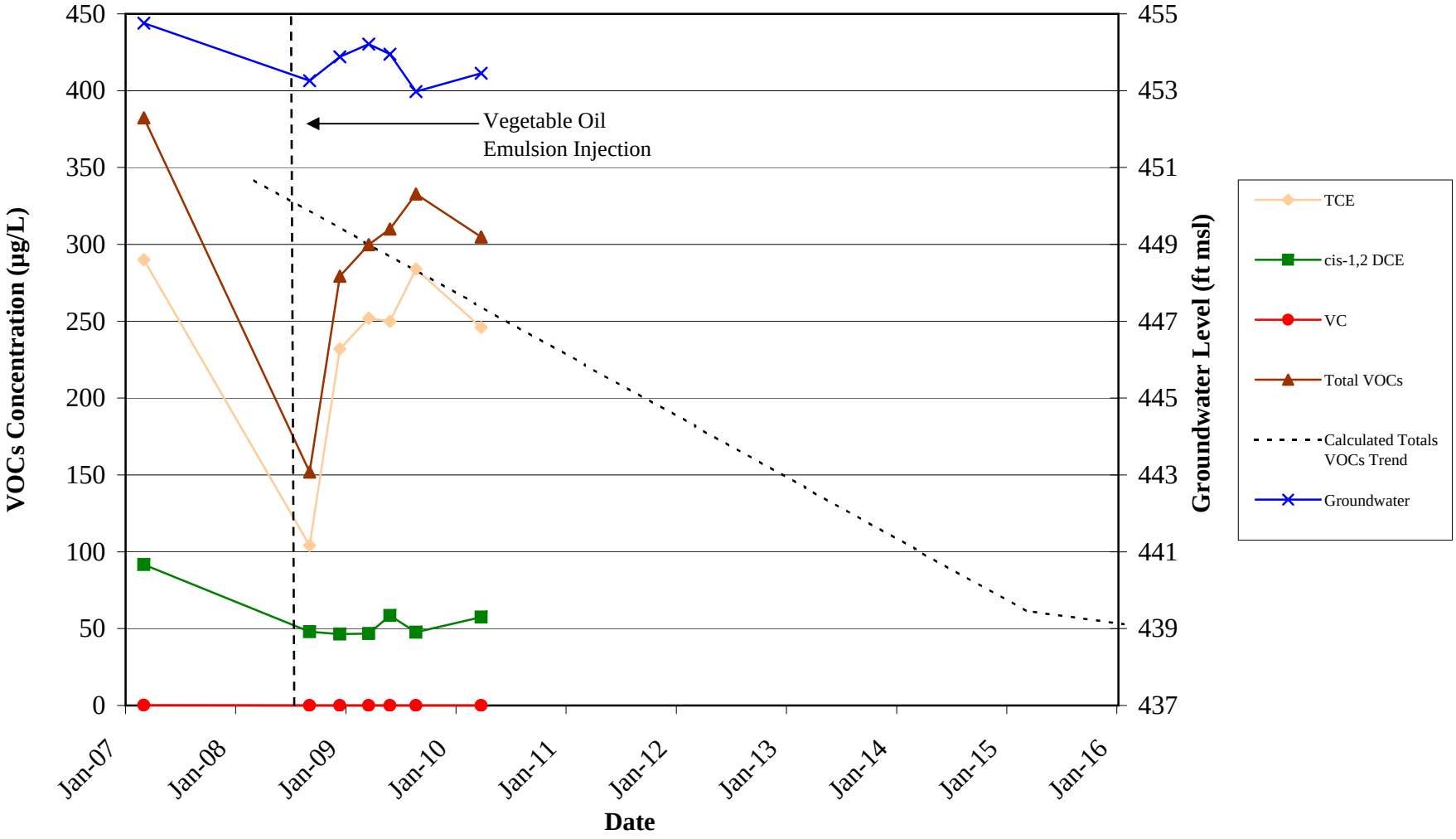
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-9
LF6TW-35 VOCs Trend



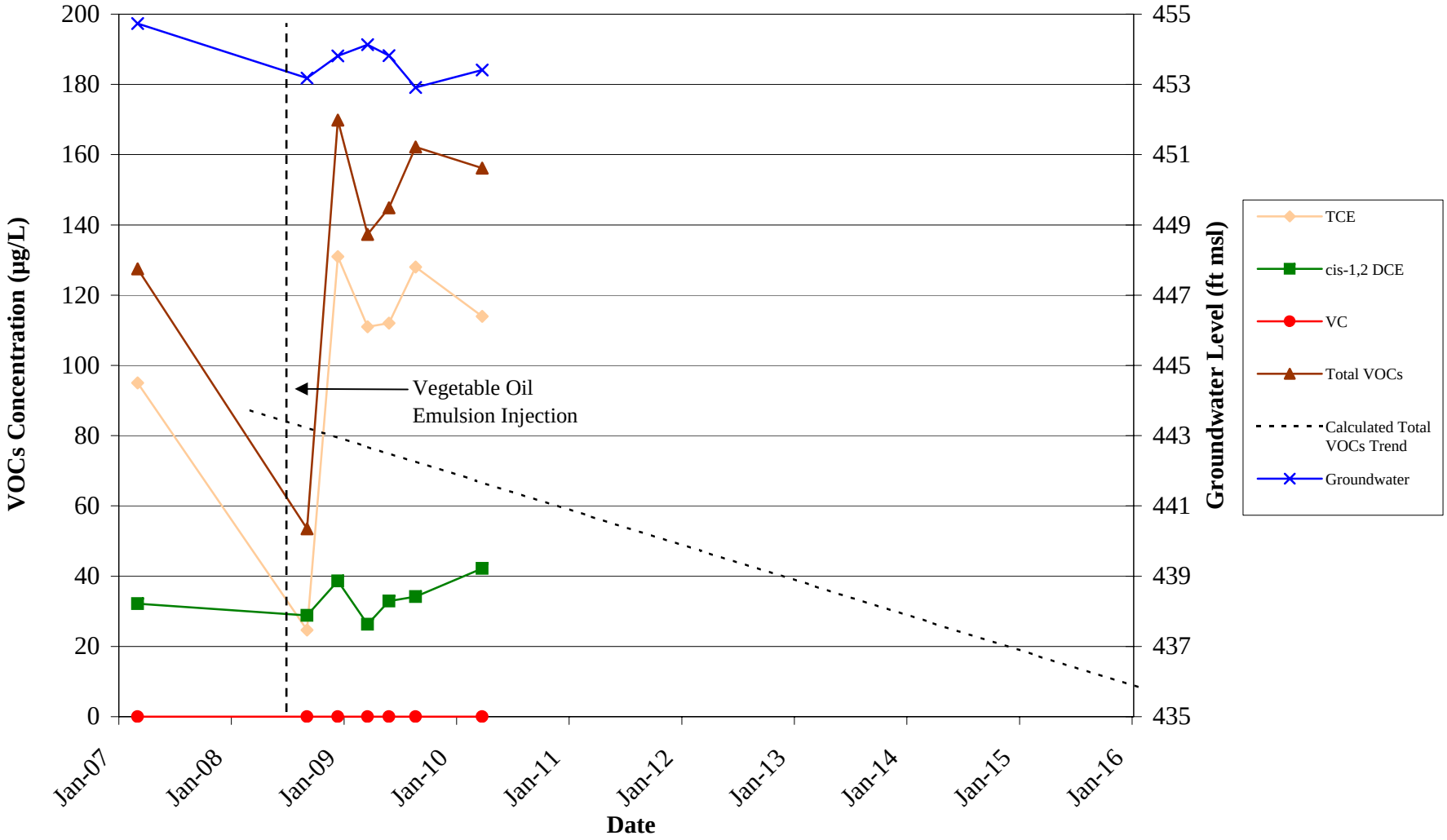
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-10
LF6TW-36 VOCs Trend



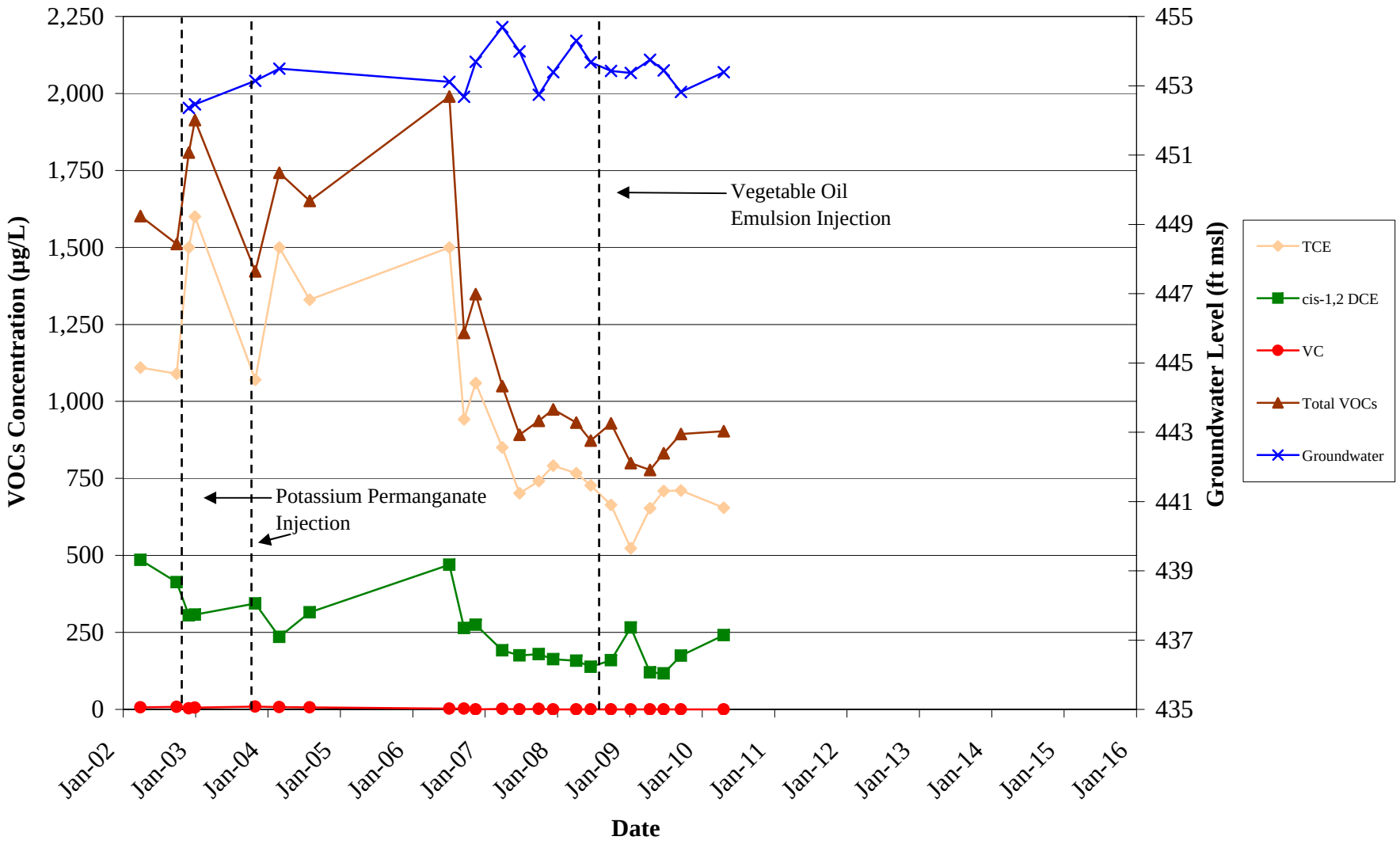
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

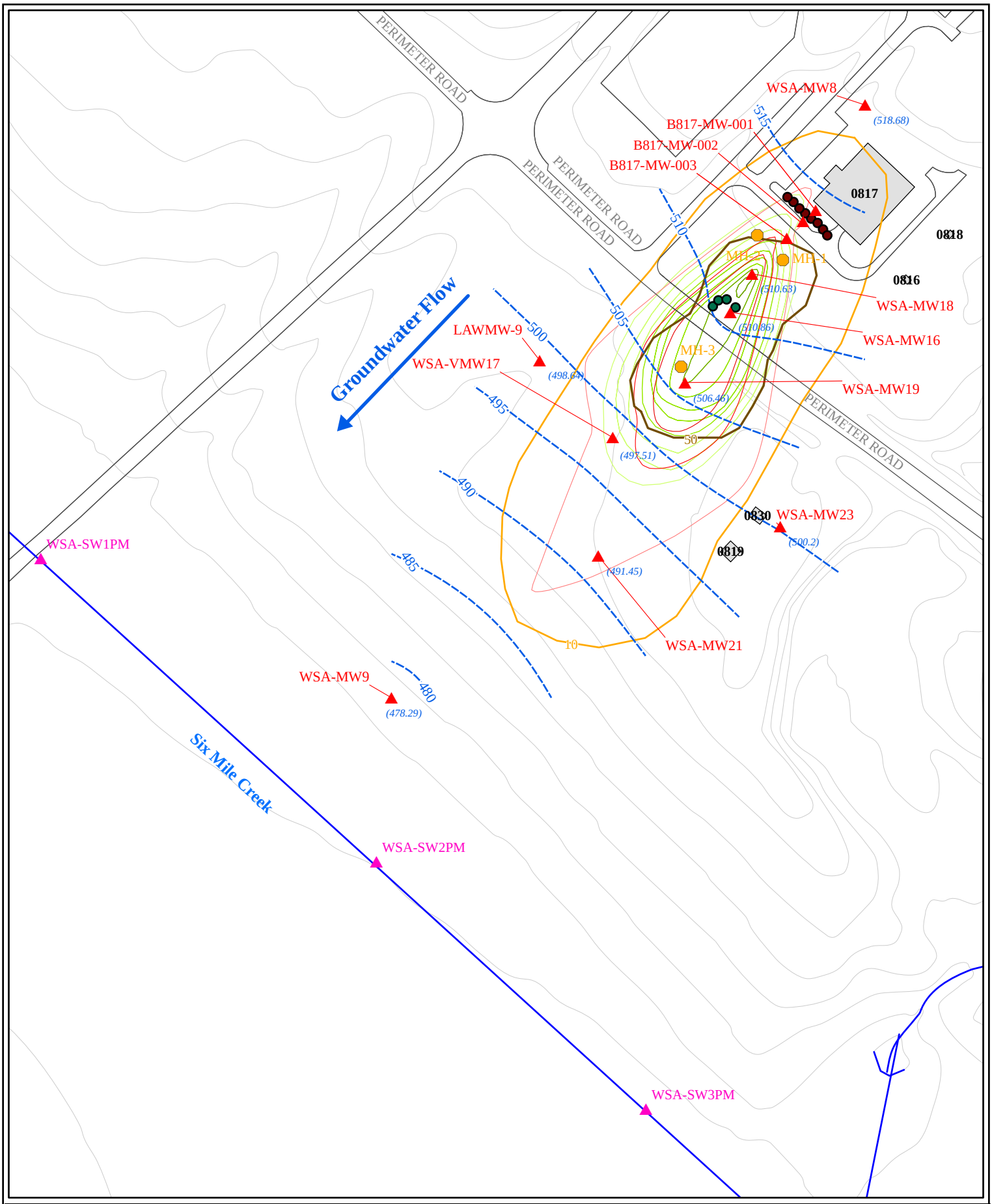
Figure 2-11
LF6TW-38 VOCs Trend



*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 1000 µg/L, degradation rate 150 µg/L per year, total VOC > 500 µg/L, degradation rate 75 µg/L per year, total VOC > 100 µg/L, degradation rate 40 µg/L per year, total VOC < 50 µg/L, degradation rate of 10 µg/L per year).

Figure 2-12
LF6MW-12 VOCs Trend





Legend

Total VOCs Contour Apr 2010
- 50 µg/L
- 10 µg/L

PCE Baseline 2006
- 50 µg/L
- 40 µg/L
- 20 µg/L

TCE Baseline 2006
- 50 µg/L
- 40 µg/L
- 20 µg/L

Facilities
- Existing
- Demolished

- Monitoring Well
- SW Sampling Location

Injection Point
- permanganate
- vegetable oil
- Manhole

- GW Contour Apr 2010
- Topography
- Surface water
- Road

N

75 37.5 0 75 150 Feet

Figure 3-1: Building 817 Sampling Locations

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group **Date: 8/13/2010**

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Figure 3-2
LAWMW-9 VOCs Trend

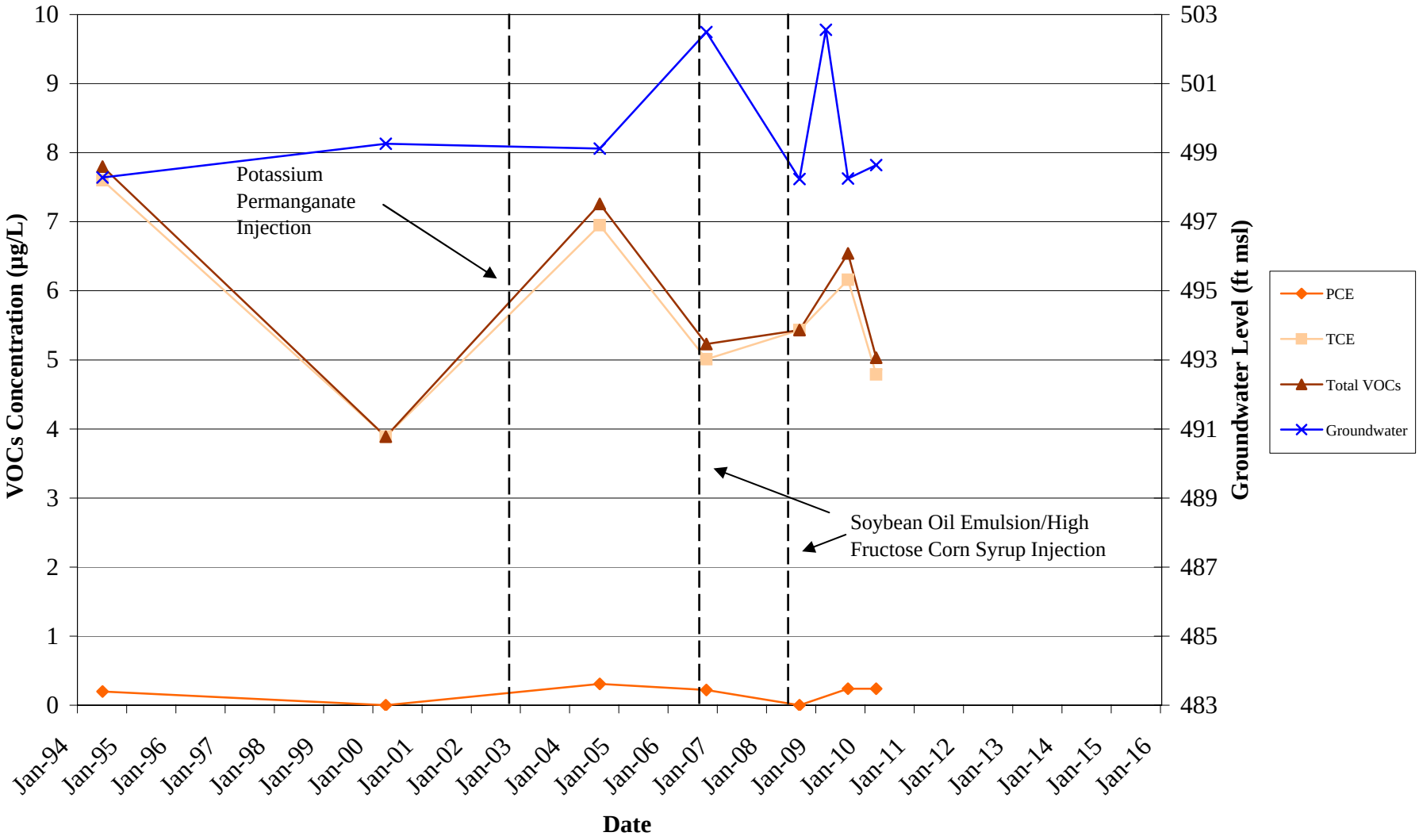


Figure 3-3
WSA-MW8 VOCs Trend

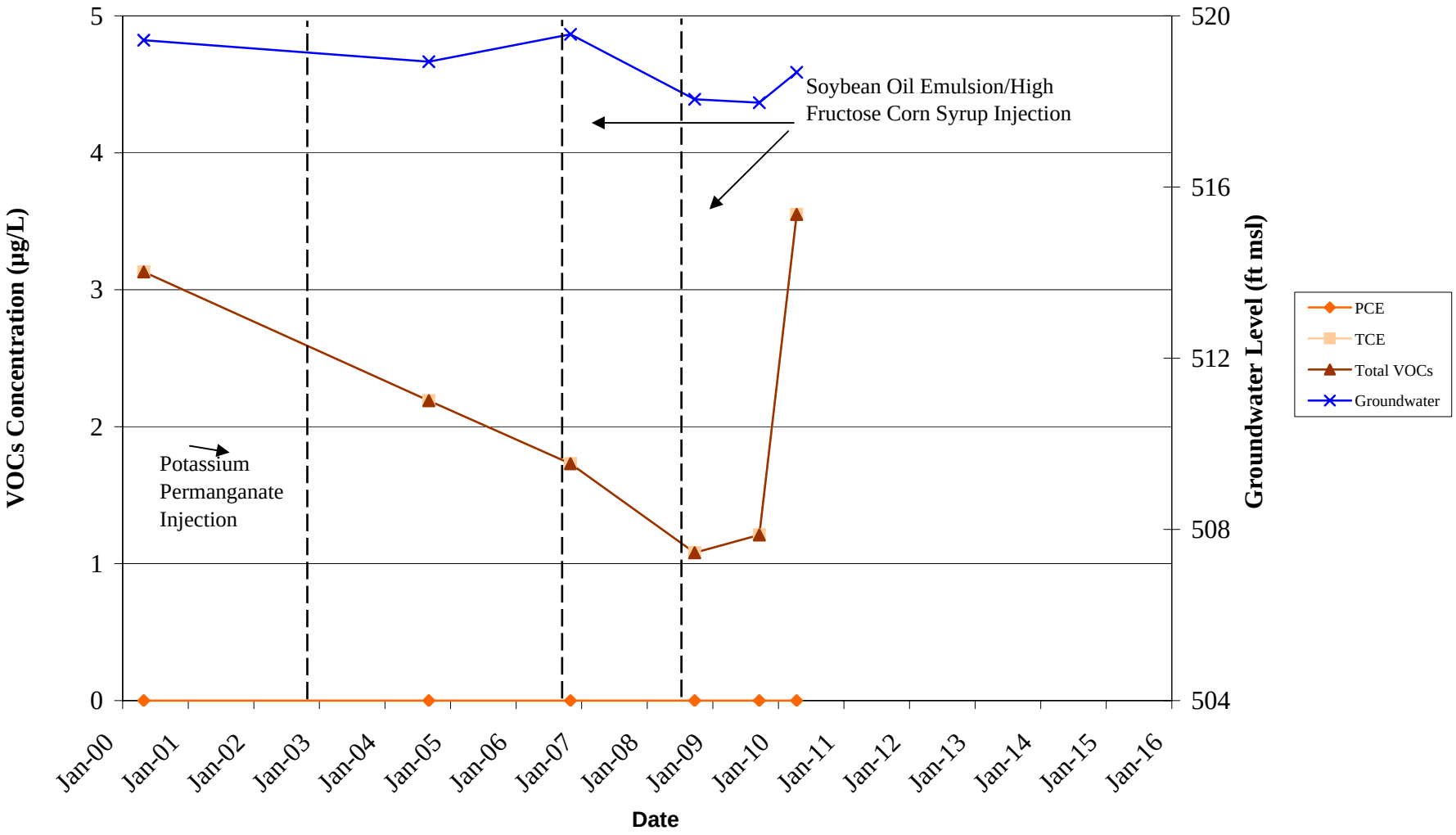
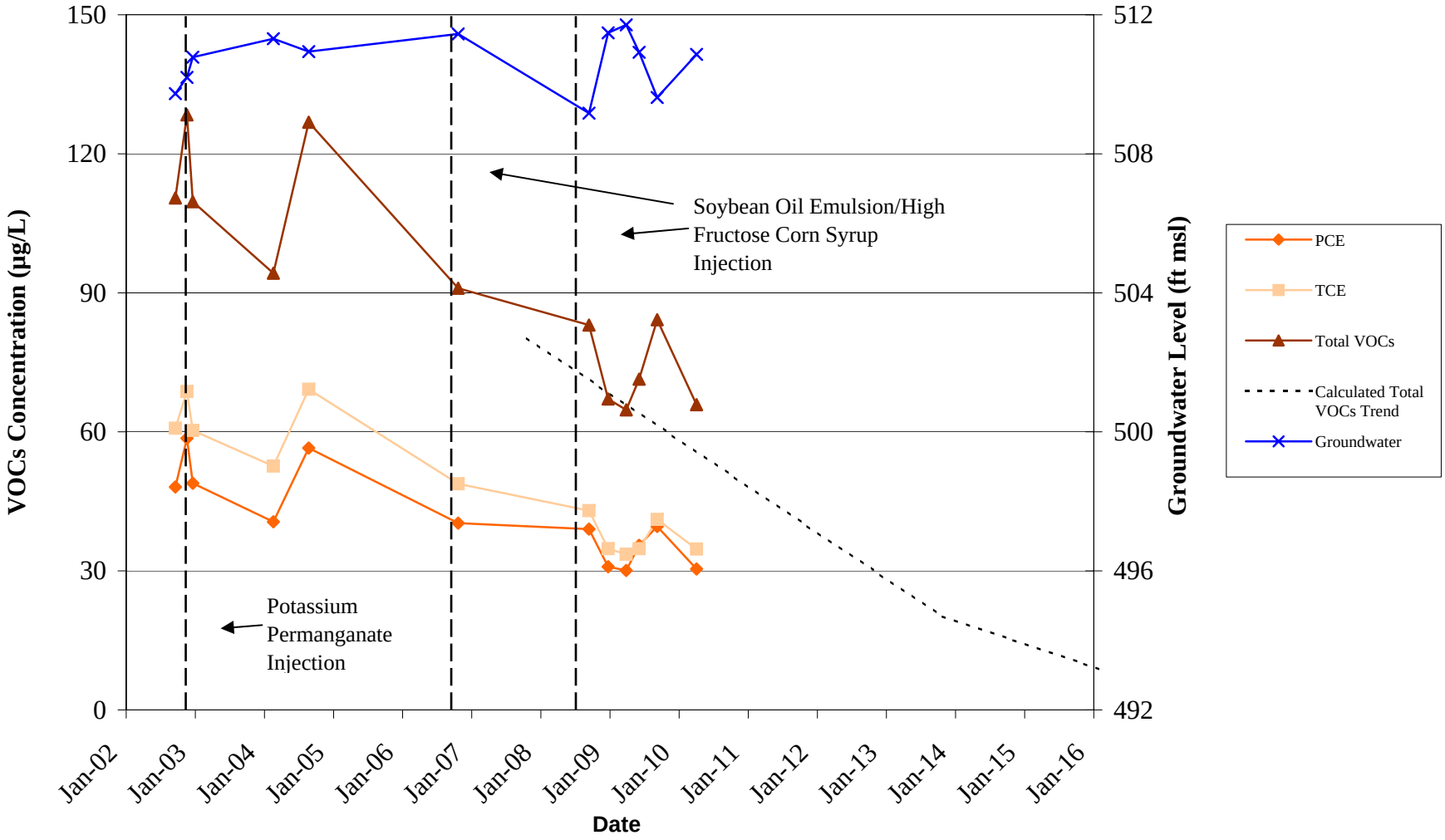
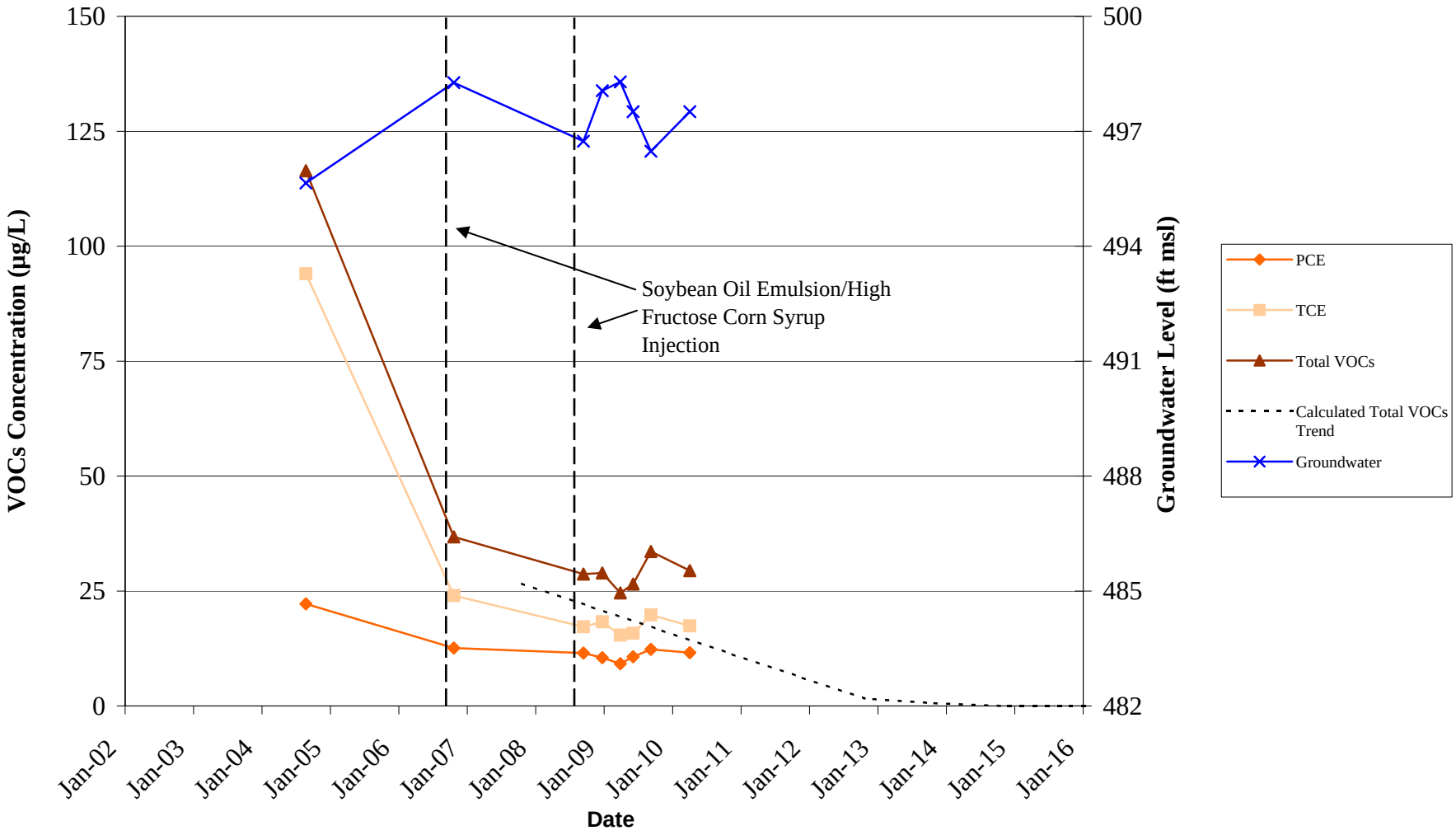


Figure 3-4
WSA-MW16 VOCs Trend



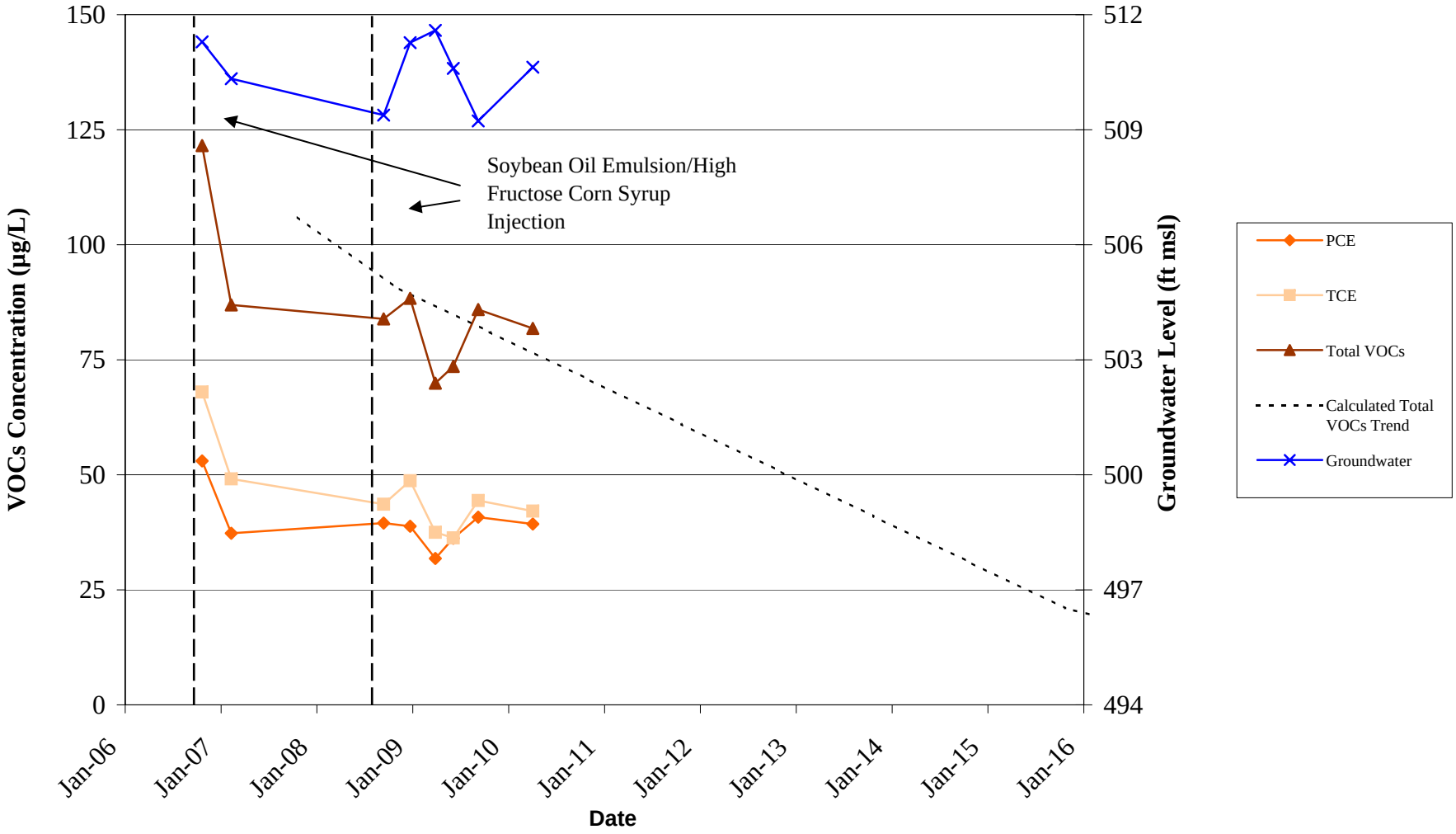
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 100 µg/L, degradation rate 15 µg/L per year, total VOC > 30 µg/L, degradation rate 10 µg/L per year, total VOC > 5 µg/L, degradation rate 5 µg/L per year, total VOC < 5 µg/L, degradation rate of 1 µg/L per year).

Figure 3-5
WSA-VMW17 VOCs Trend



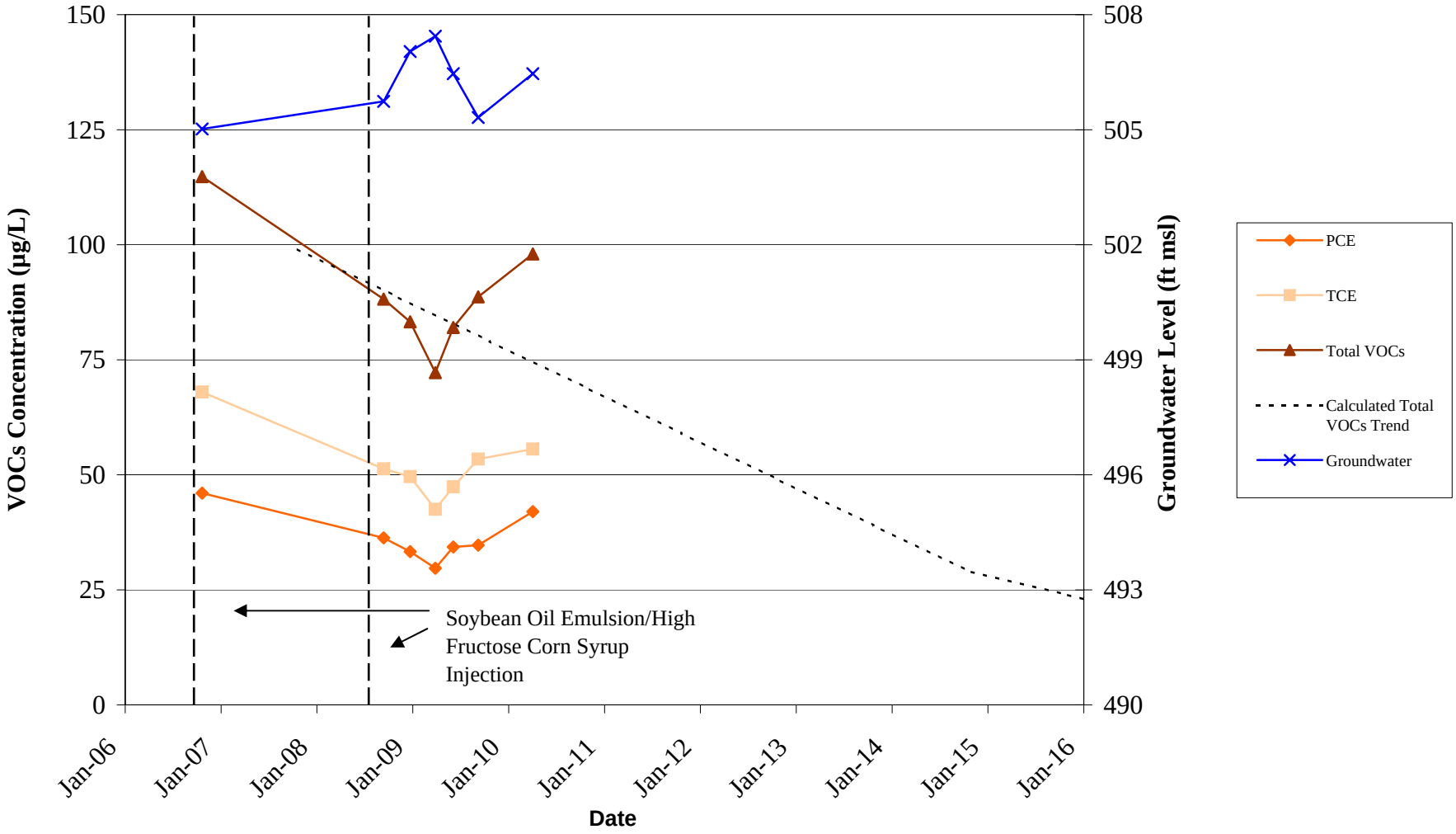
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 100 µg/L, degradation rate 15 µg/L per year, total VOC > 30 µg/L, degradation rate 10 µg/L per year, total VOC > 5 µg/L, degradation rate 5 µg/L per year, total VOC < 5 µg/L, degradation rate of 1 µg/L per year).

Figure 3-6
WSA-MW18 VOCs Trend



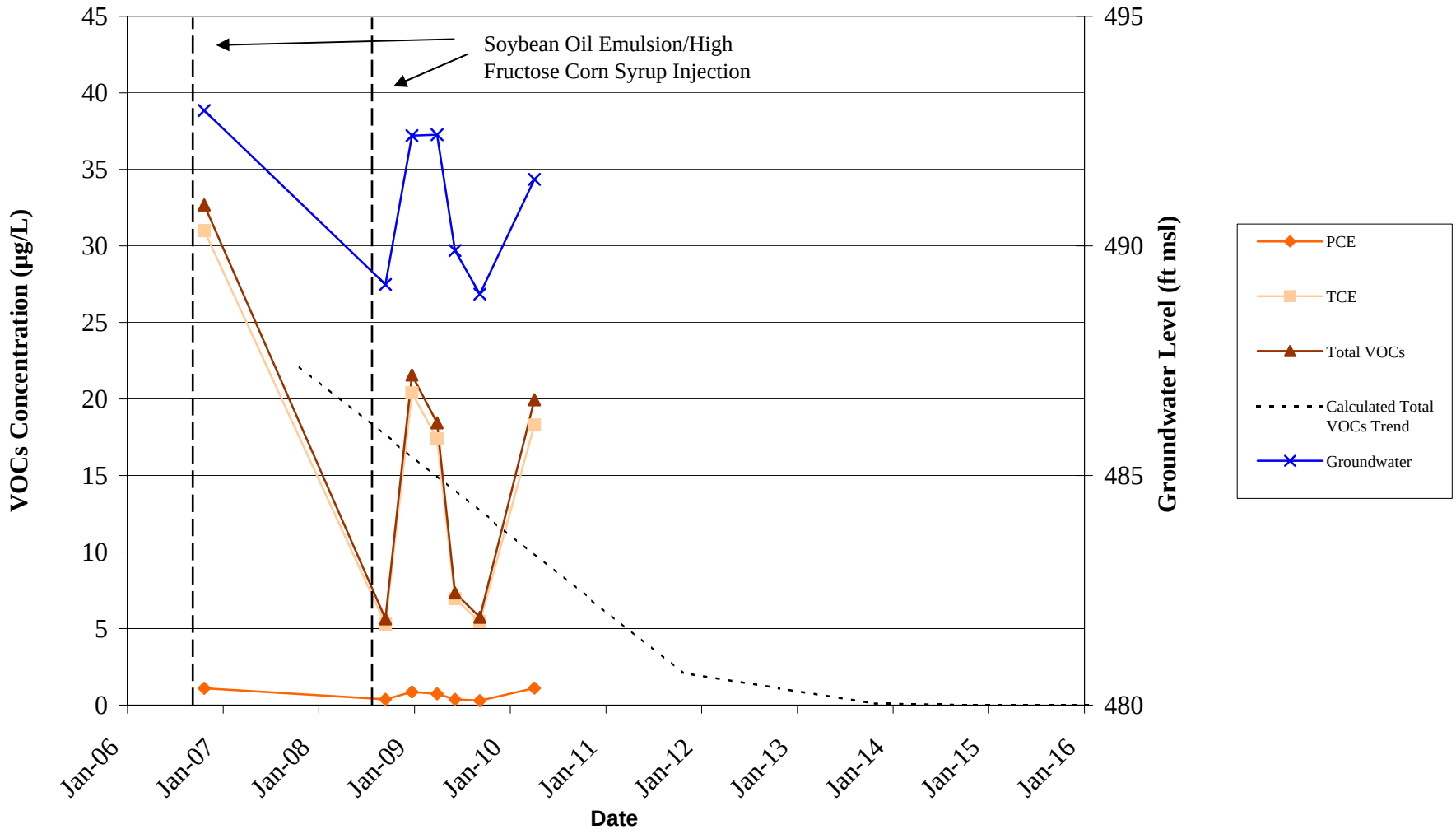
*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 100 µg/L, degradation rate 15 µg/L per year, total VOC > 30 µg/L, degradation rate 10 µg/L per year, total VOC > 5 µg/L, degradation rate 5 µg/L per year, total VOC < 5 µg/L, degradation rate of 1 µg/L per year).

Figure 3-7
WSA-MW19 VOCs Trend



*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 100 µg/L, degradation rate 15 µg/L per year, total VOC > 30 µg/L, degradation rate 10 µg/L per year, total VOC > 5 µg/L, degradation rate 5 µg/L per year, total VOC < 5 µg/L, degradation rate of 1 µg/L per year).

Figure 3-8
WSA-MW21 VOCs Trend



*Calculated Total VOCs Trend line is based on historical natural attenuation rates (total VOC > 100 µg/L, degradation rate 15 µg/L per year, total VOC > 30 µg/L, degradation rate 10 µg/L per year, total VOC > 5 µg/L, degradation rate 5 µg/L per year, total VOC < 5 µg/L, degradation rate of 1 µg/L per year).

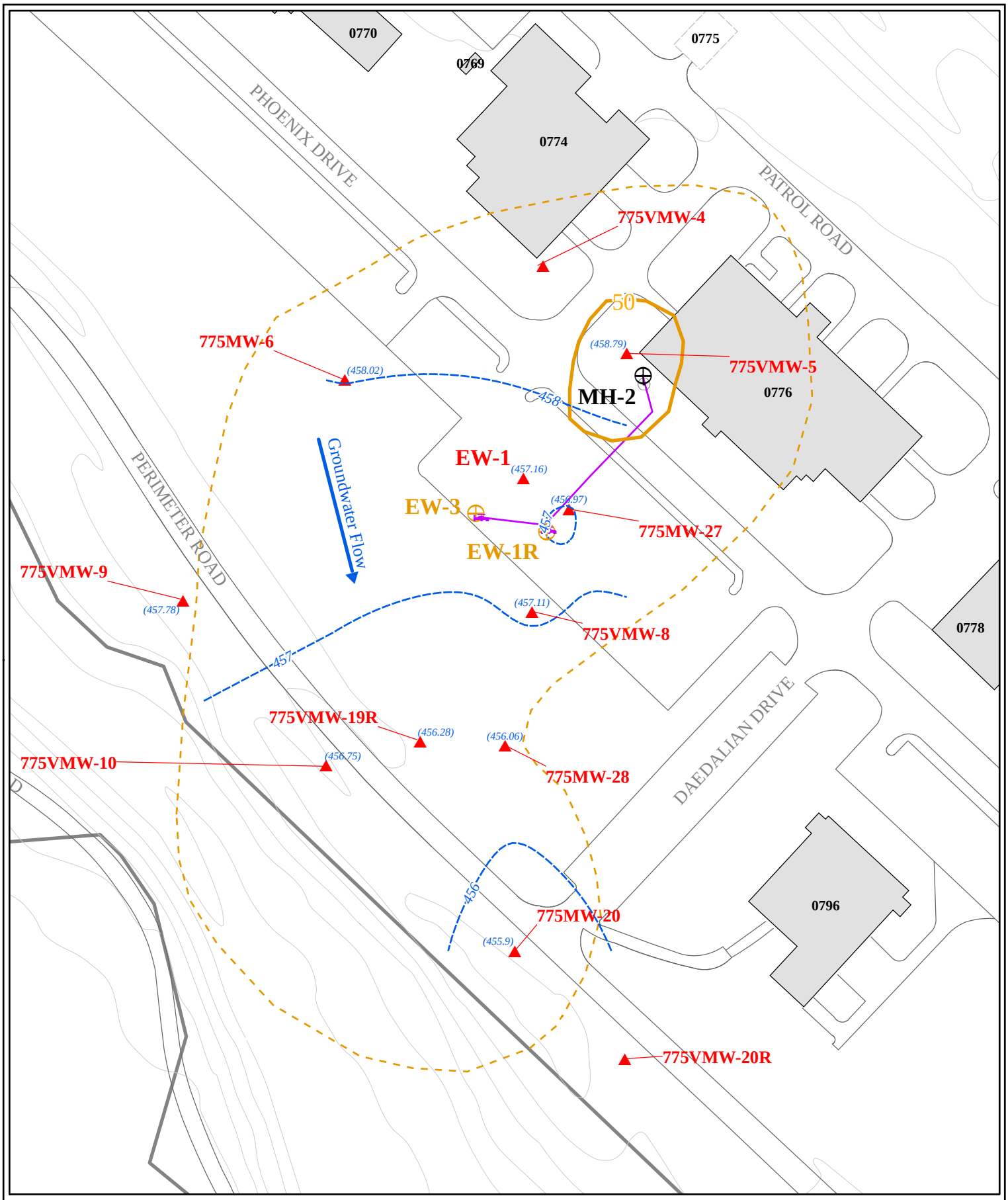


Figure 4-1: Building 775 Sampling Locations

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group **Date: 12/3/2010**

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Figure 4-2
775VMW-4 VOCs Trend

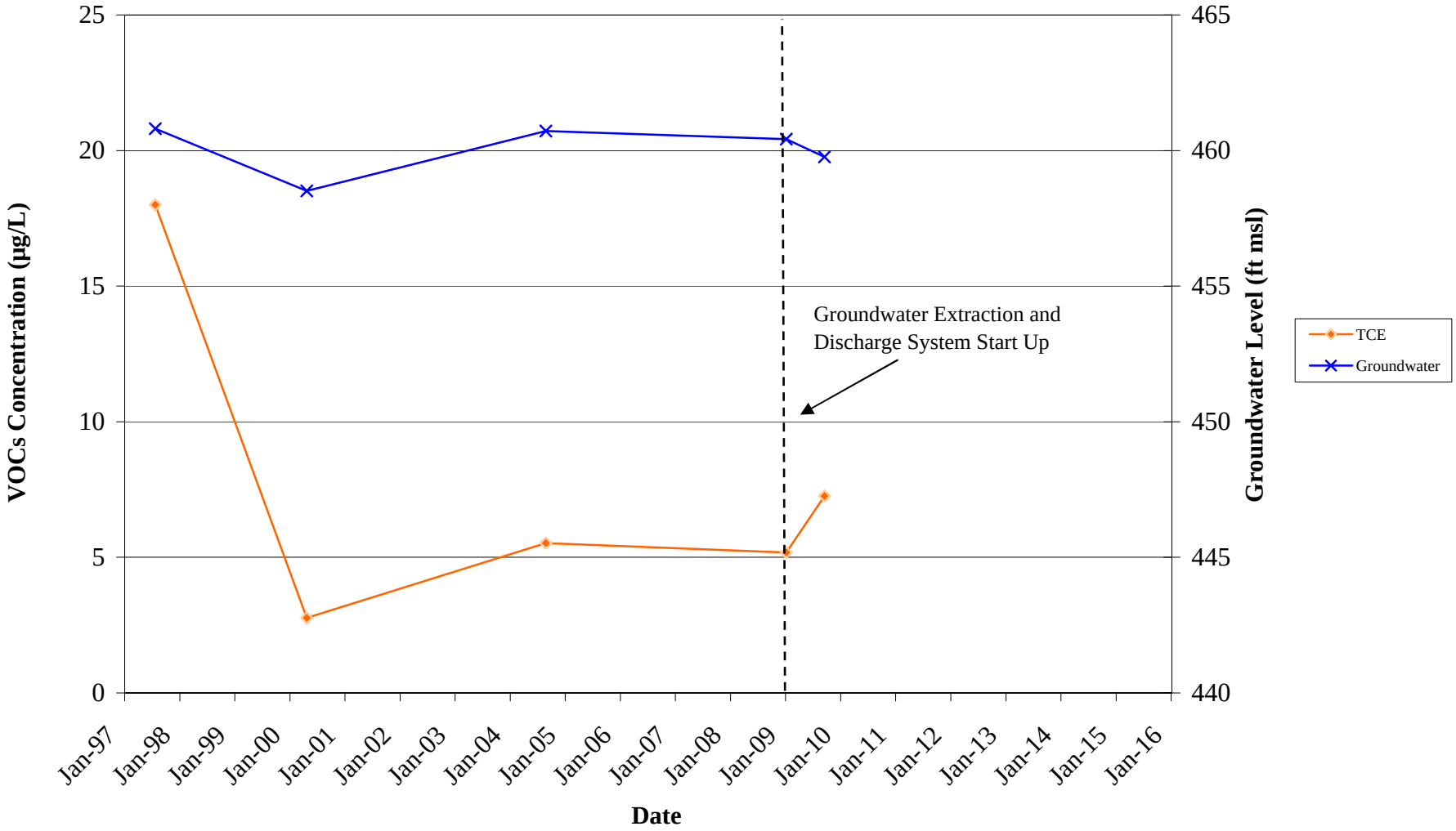


Figure 4-3
775VMW-5 VOCs Trend

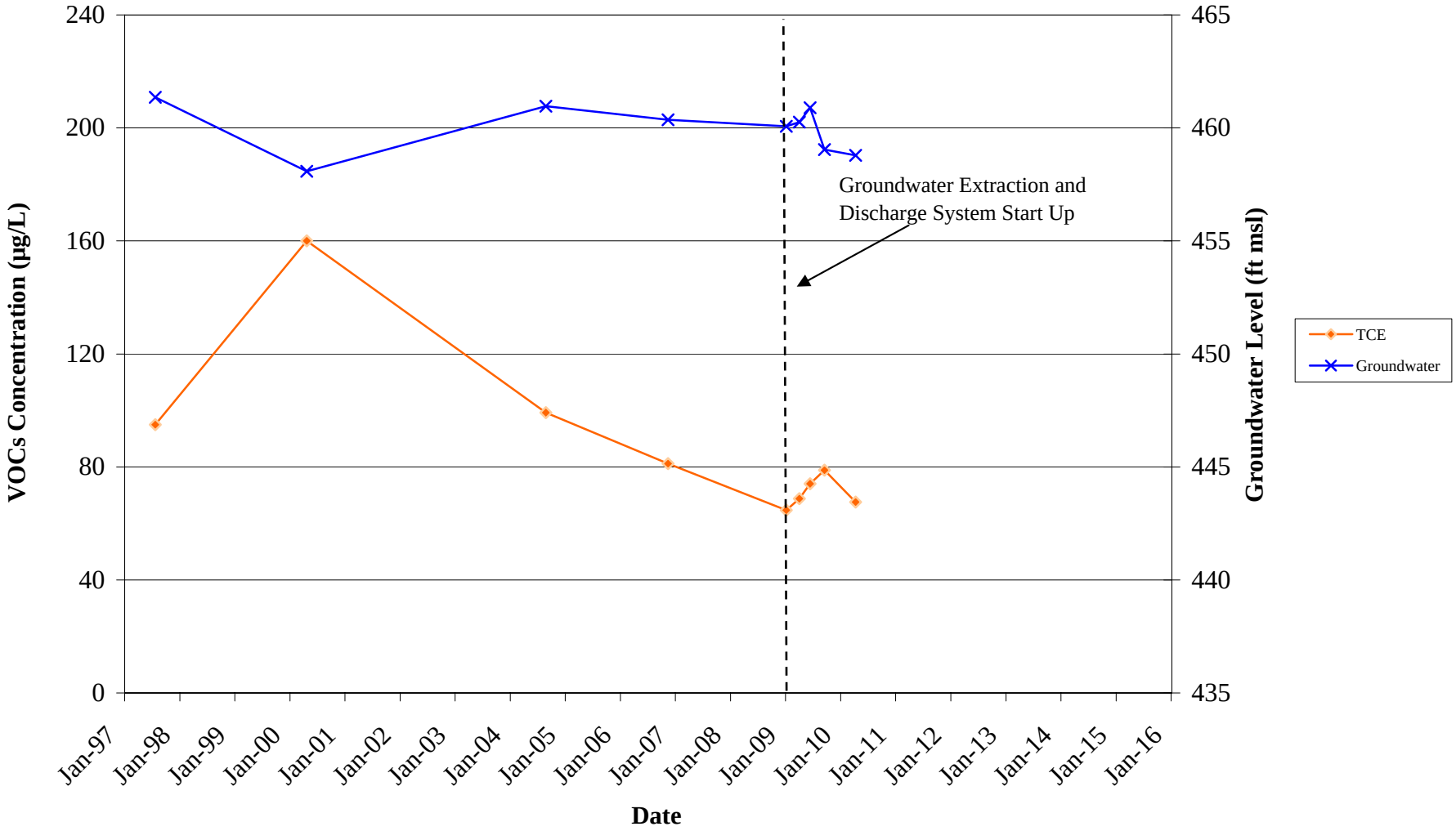


Figure 4-4
775MW-6 VOCs Trend

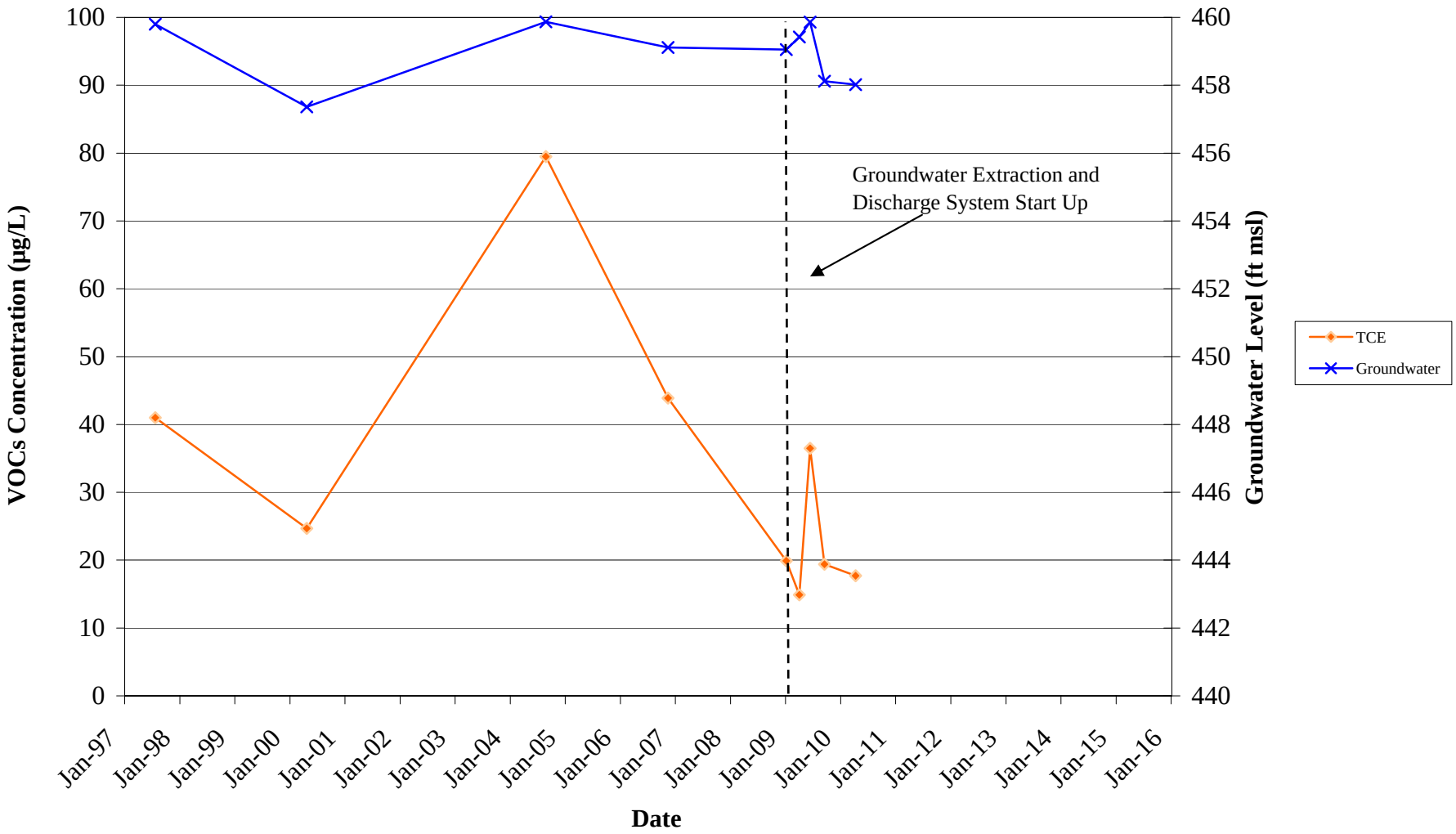


Figure 4-5
775VMW-8 VOCs Trend

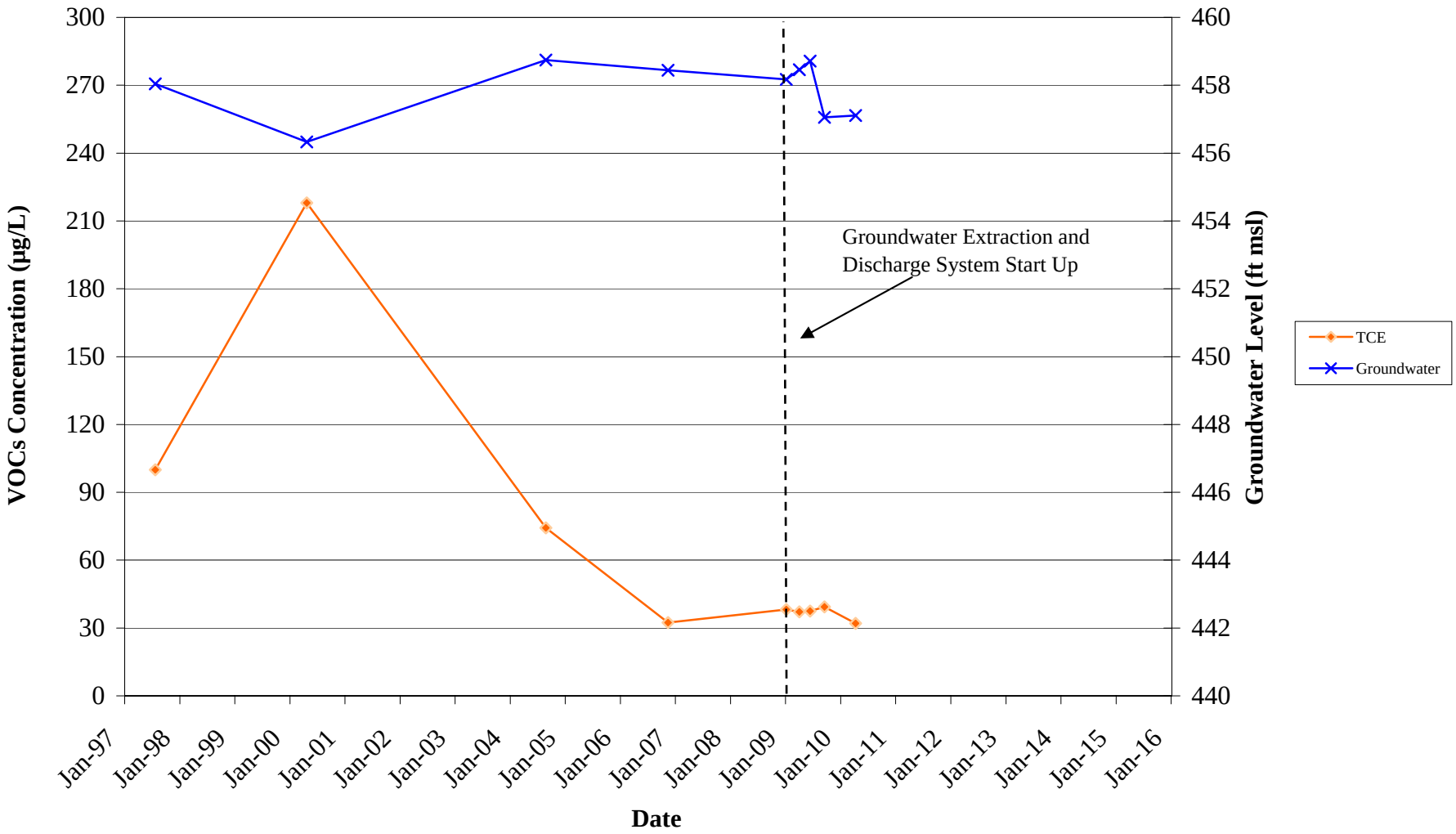


Figure 4-6
775VMW-9 VOCs Trend

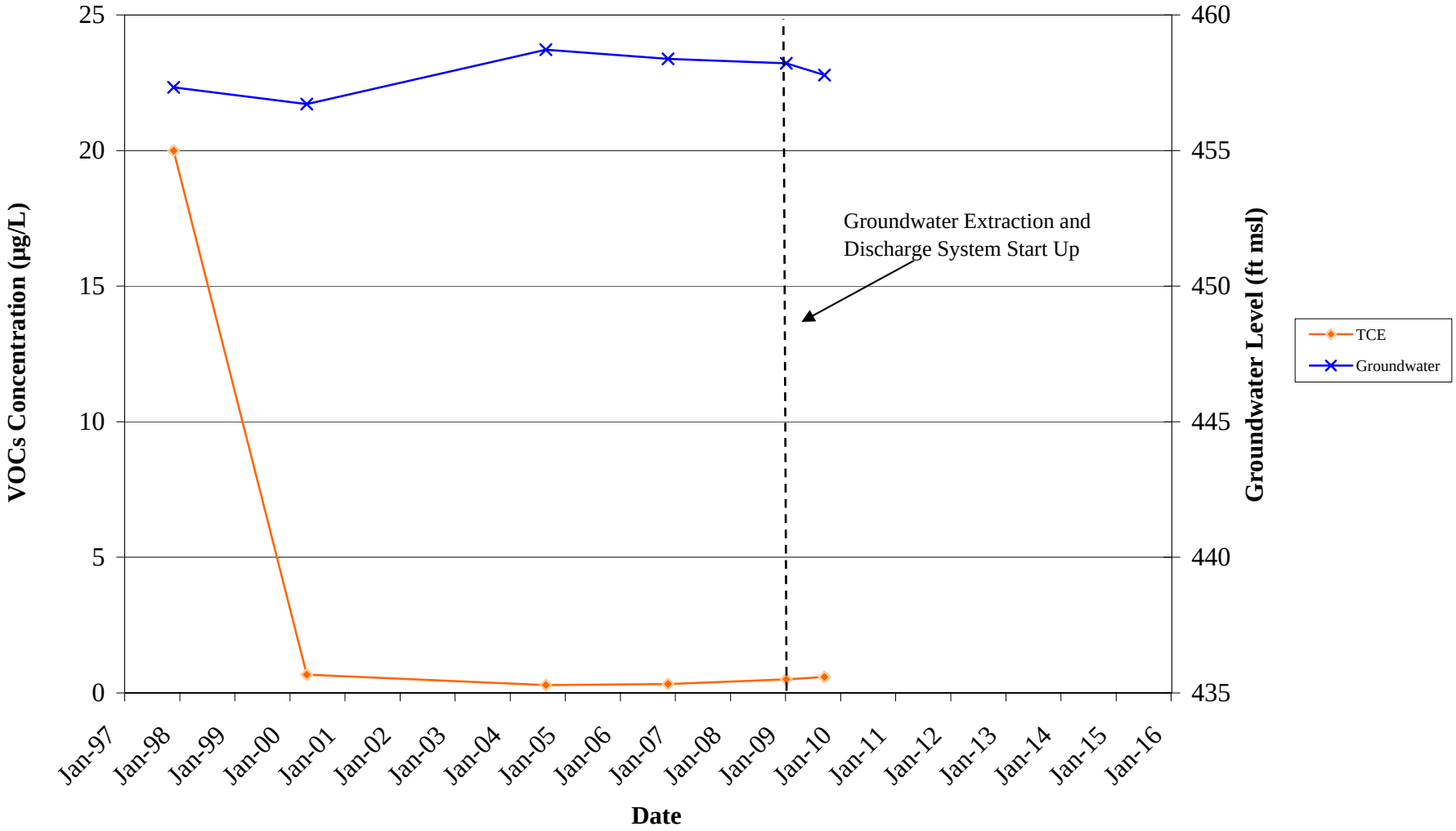


Figure 4-7
775VMW-10 VOCs Trend

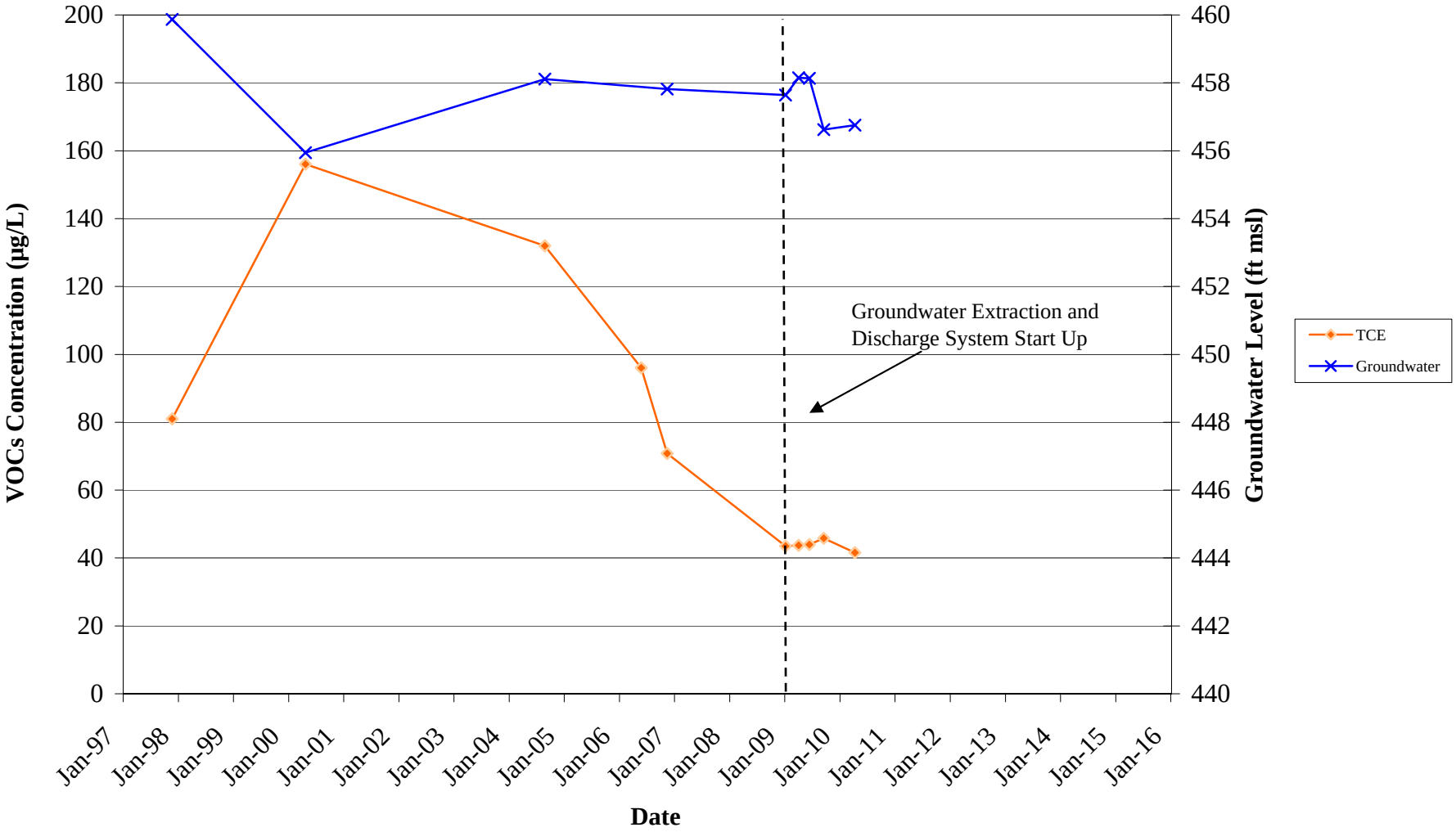


Figure 4-8
775MW-20 VOCs Trend

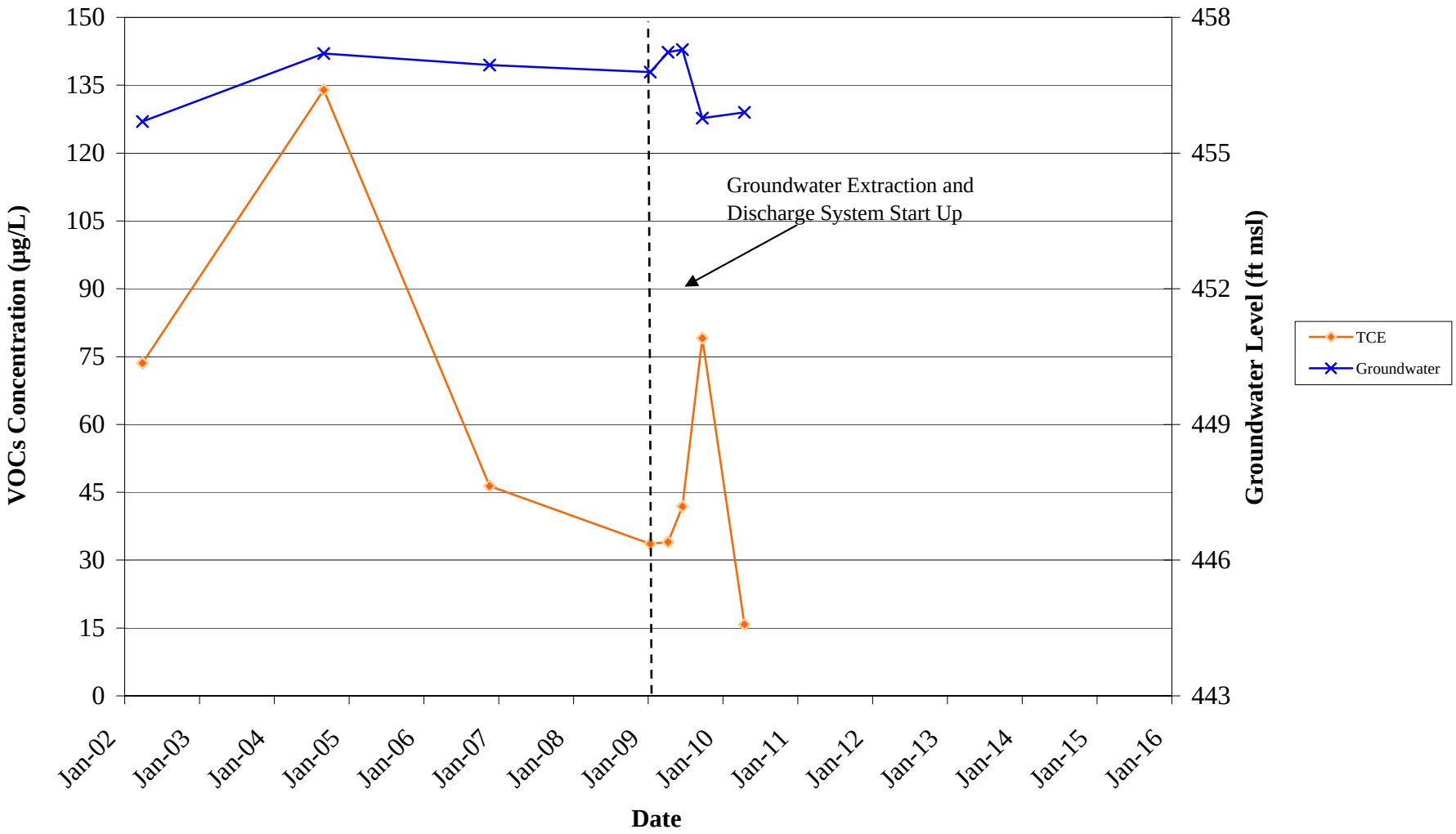


Figure 4-9
775MW-27 VOCs Trend

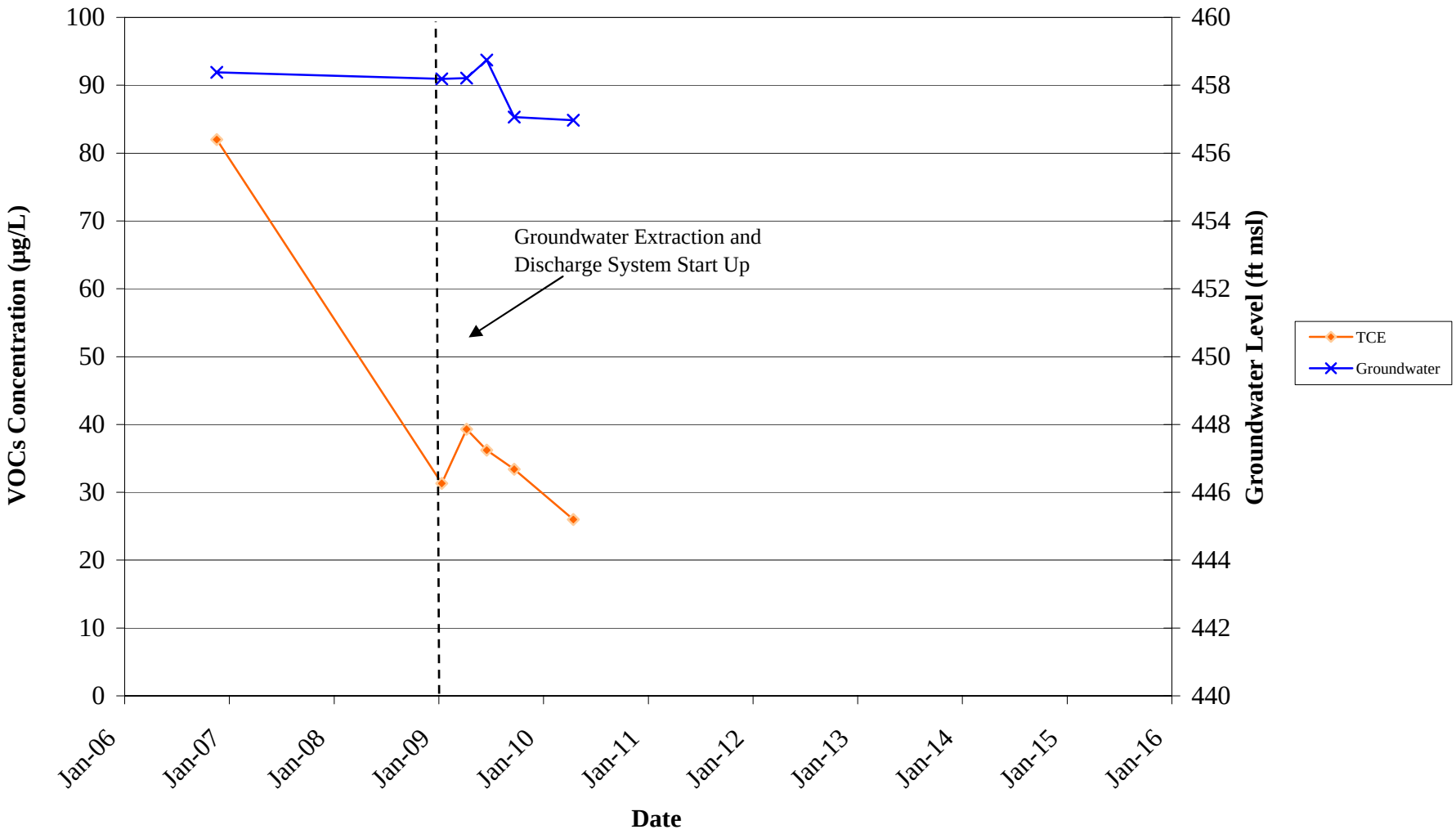


Figure 4-10
775MW-28 VOCs Trend

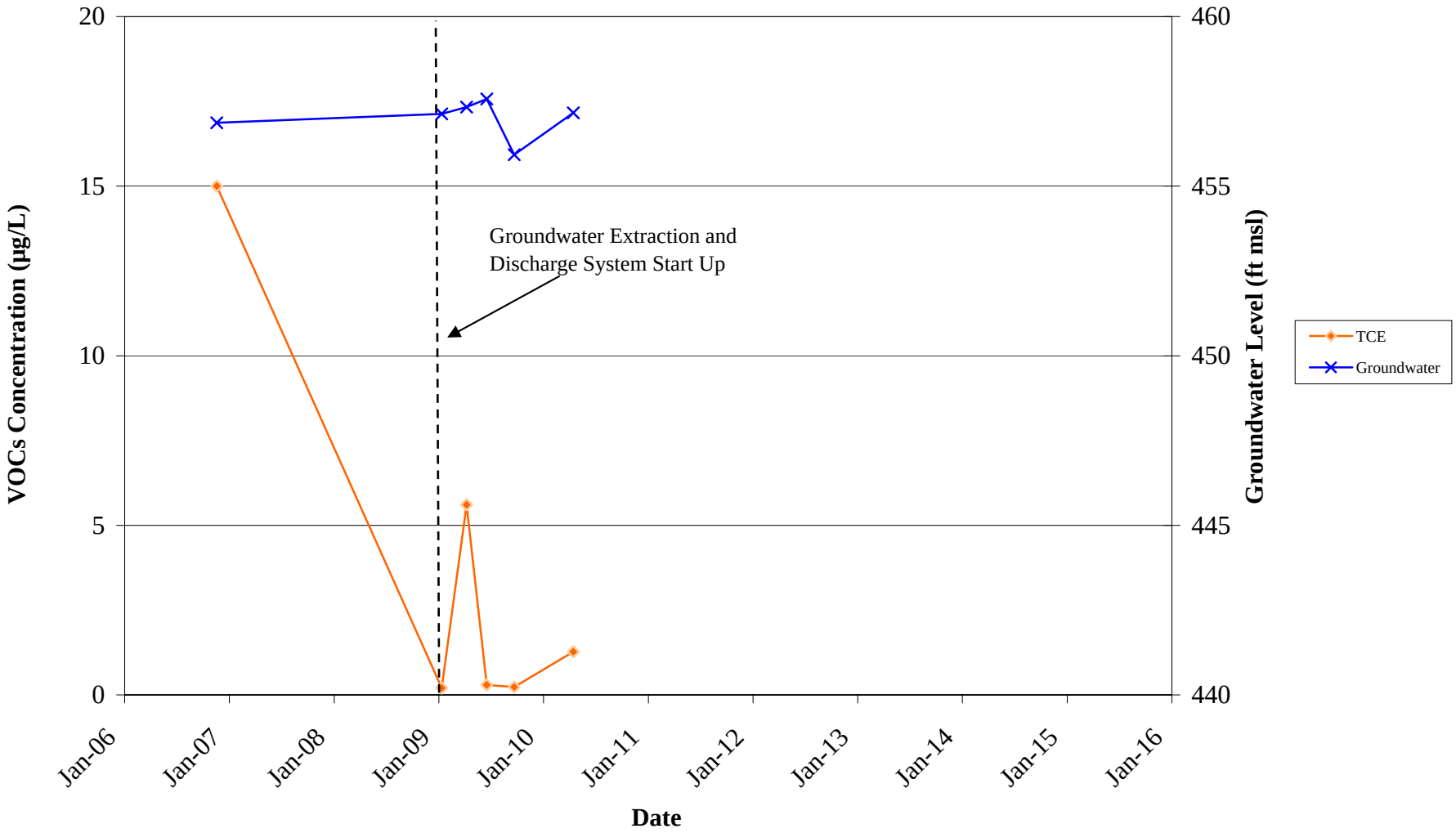
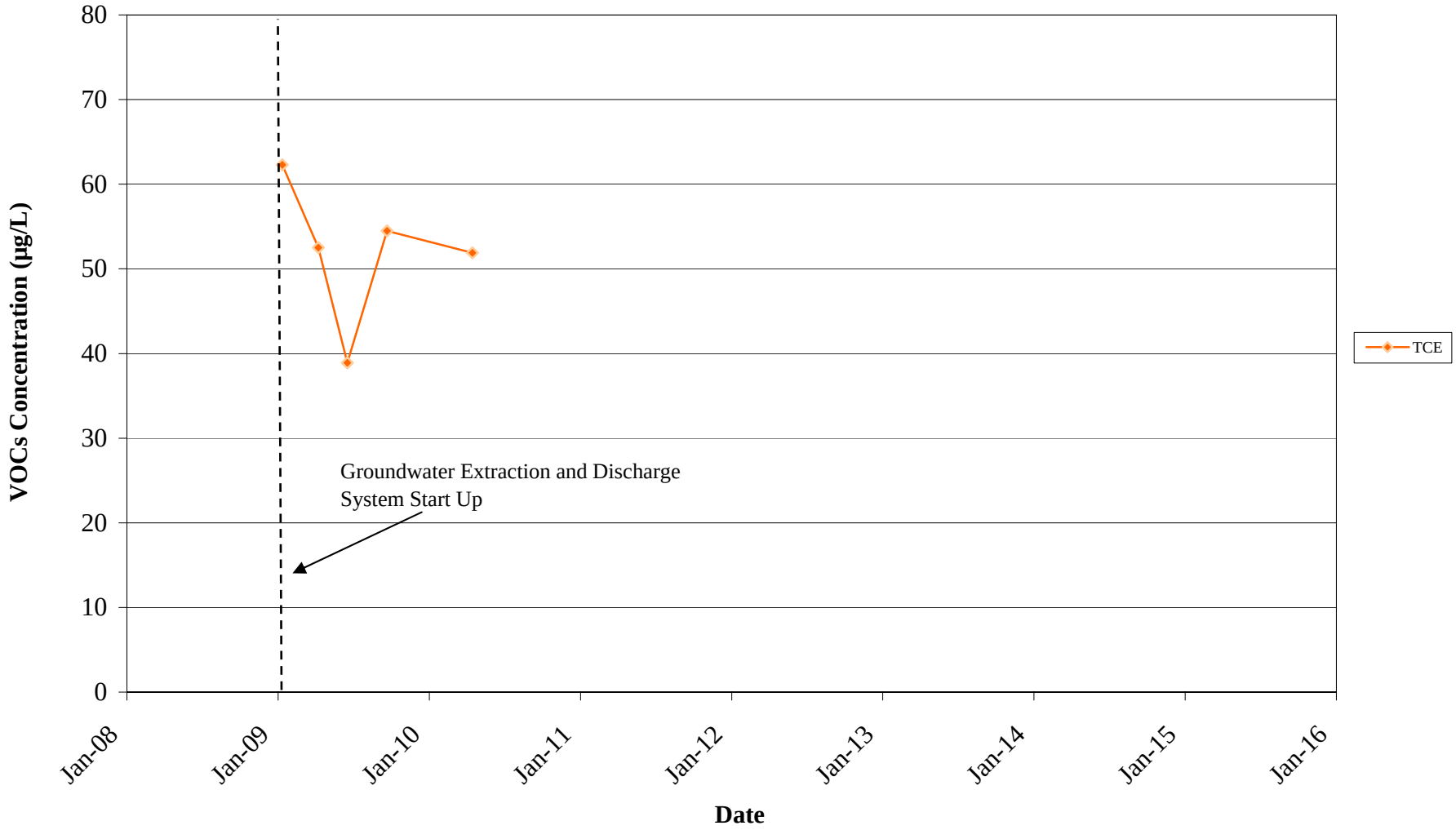
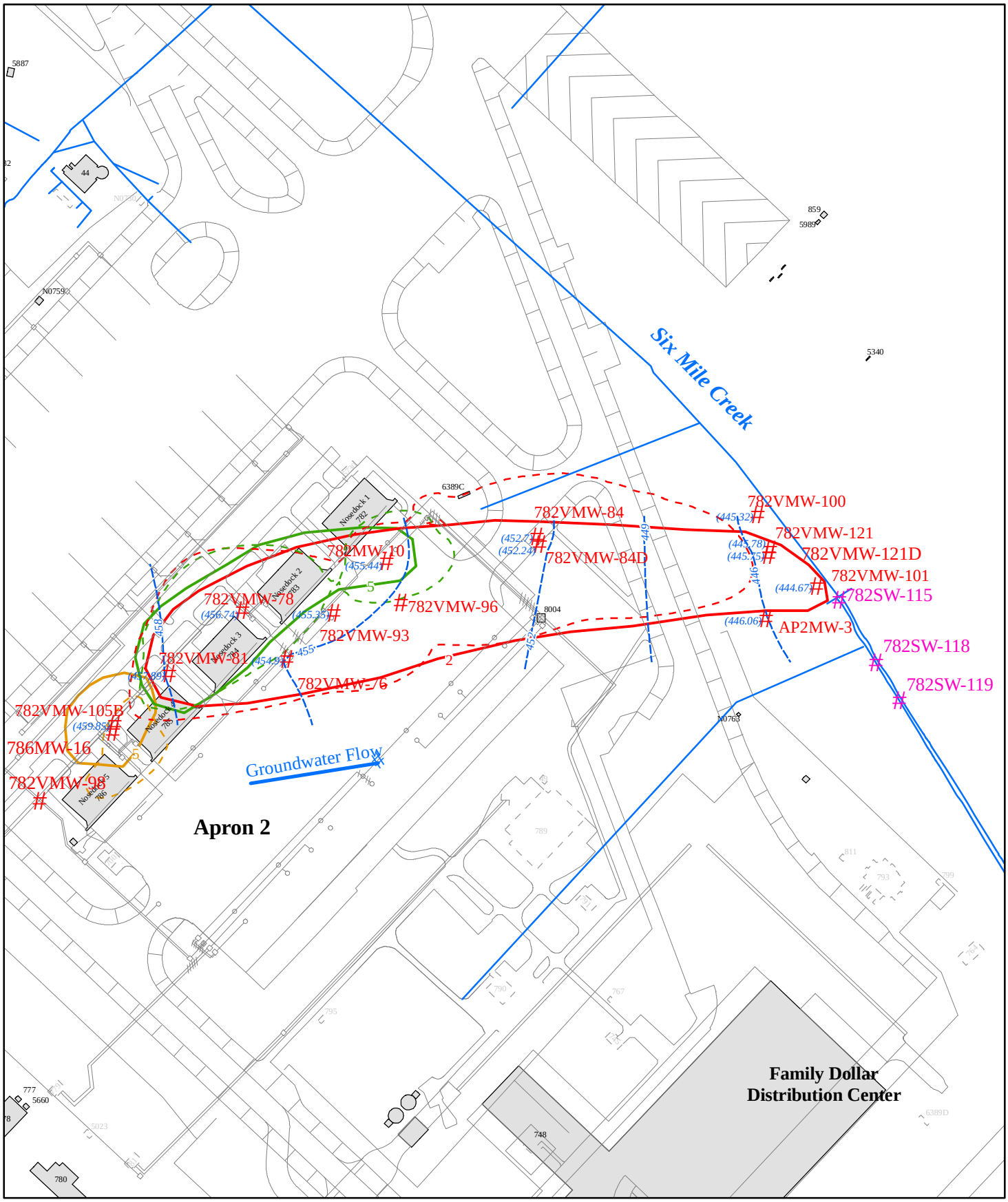


Figure 4-11
Effluent 1 VOCs Discharge





Legend

VOC Contour Apr 2010
- TCE 5 µg/L
- DCE 5 µg/L
- VC 2 µg/L

TCE 5 µg/L Baseline 2006
- disDCE 5 µg/L Baseline 2006
- VC 2 µg/L Baseline 2006
- # Monitoring Well
- # Surface Water Location

Facilities
- Existing
- Demolished
- Airfield
- storm drain/creek
- GW Contour Apr 2010

180 90 0 180 360
Feet

Figure 5-1: Apron 2 Sampling Locations

UNITED STATES AIR FORCE
FORMER GRIFFISS AIR FORCE BASE
ROME, NY

FPM group

Date: 12/3/2010

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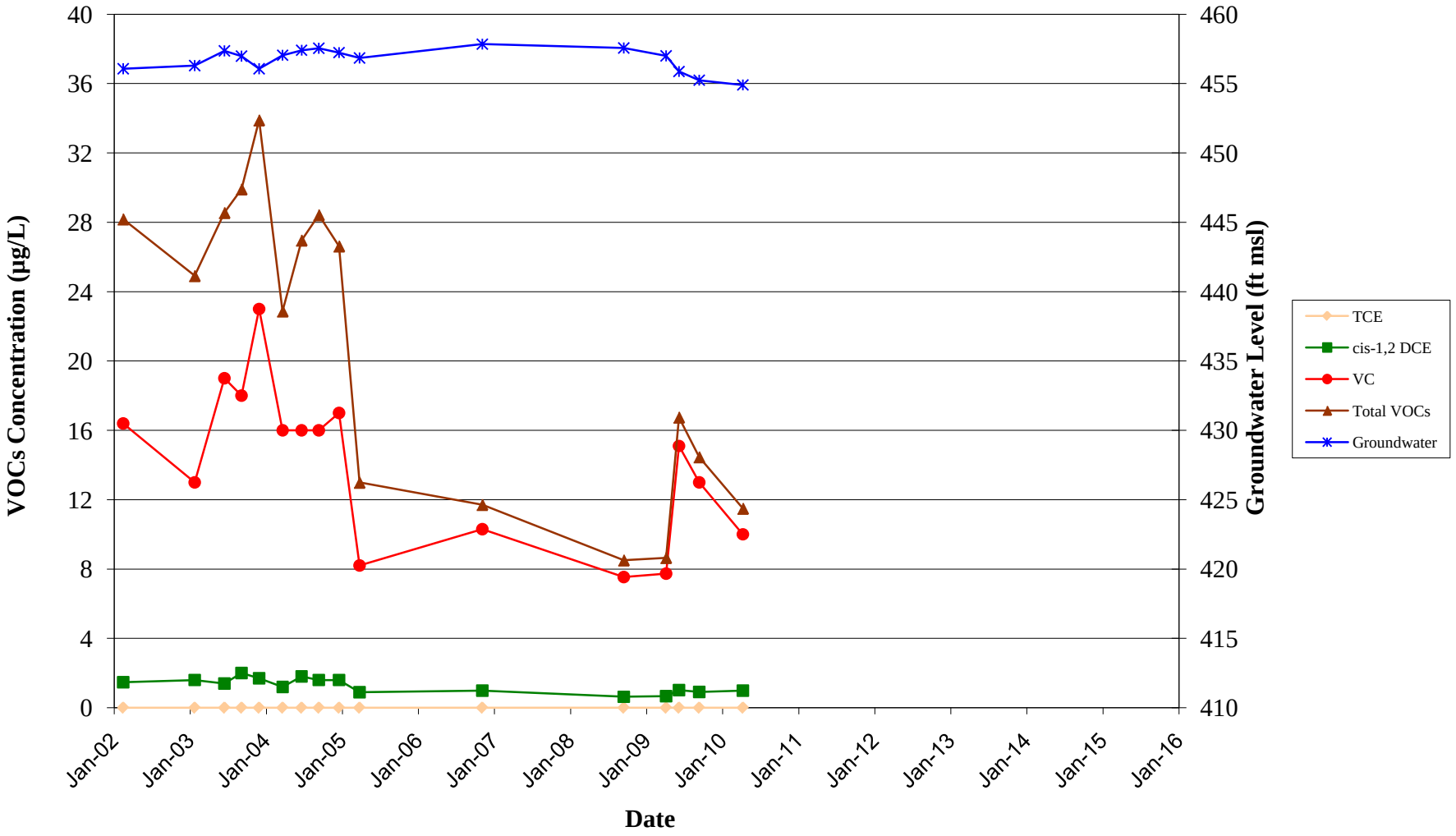
Figure 5-2
782VMW-76 VOCs Trend



* Methyl tert-butyl ether has been detected during the last four sampling events.

Figure 5-3
782VMW-78 VOCs Trend

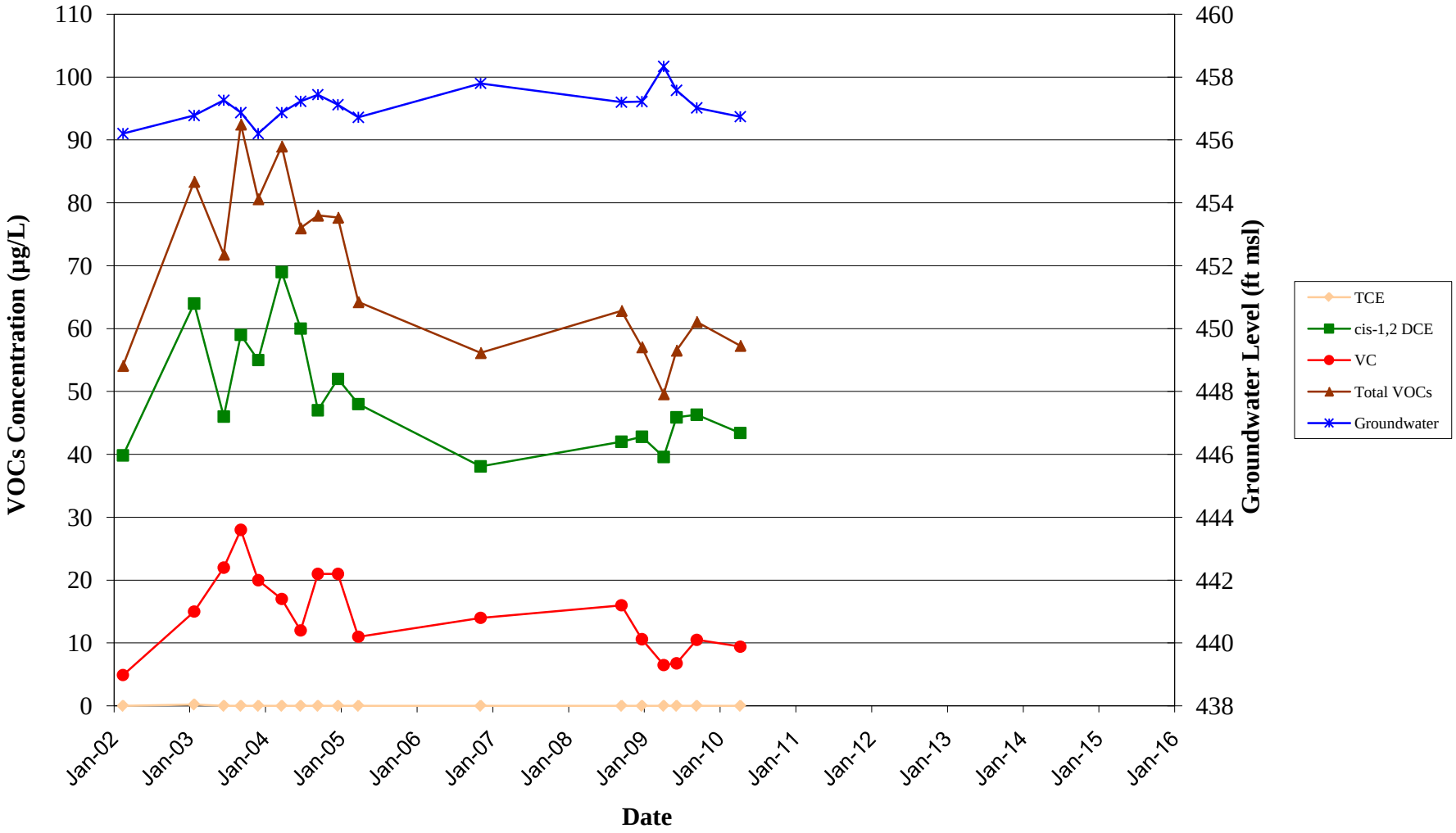


Figure 5-4
782VMW-81 VOCs Trend

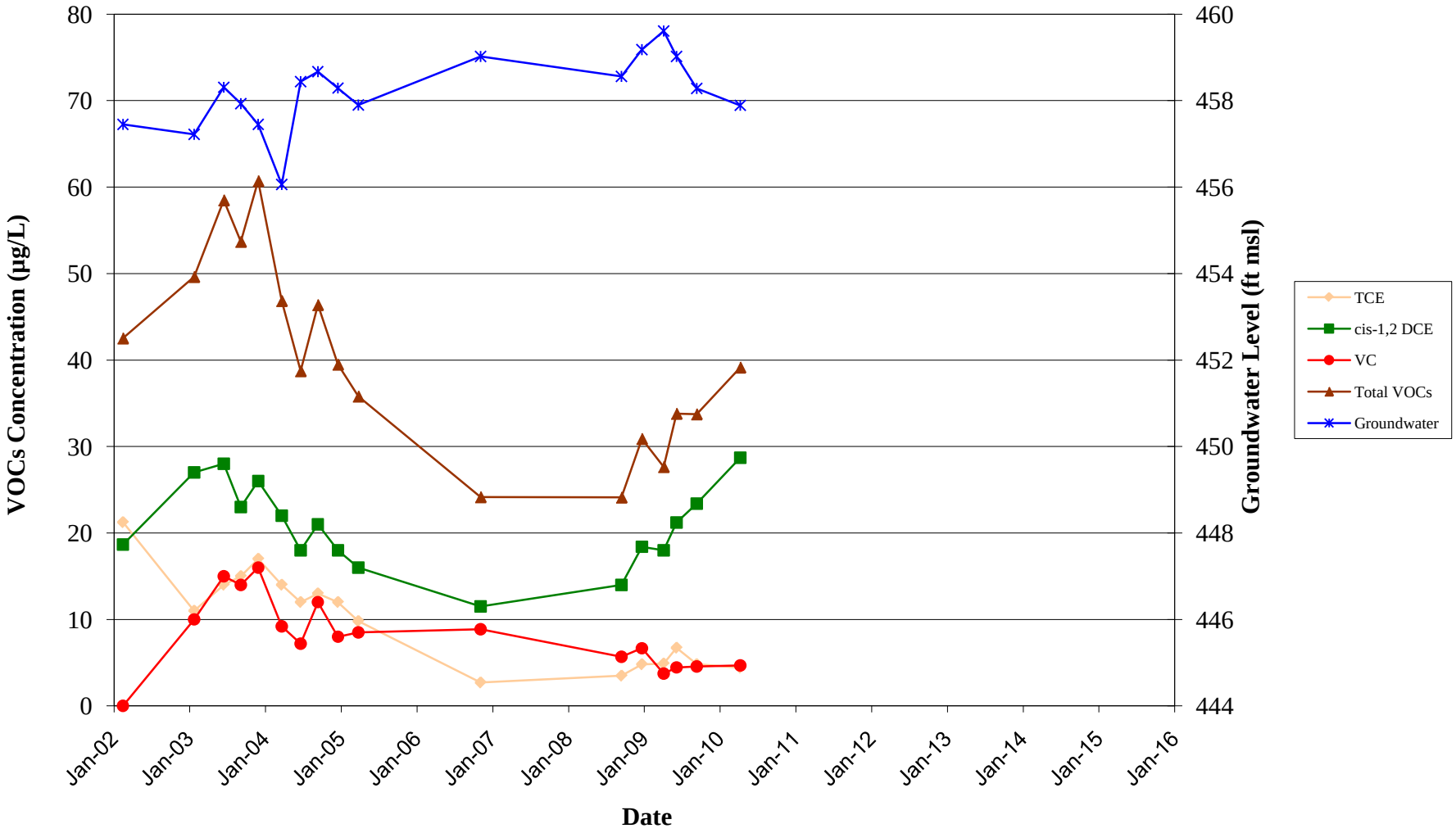


Figure 5-5
782VMW-84 VOCs Trend

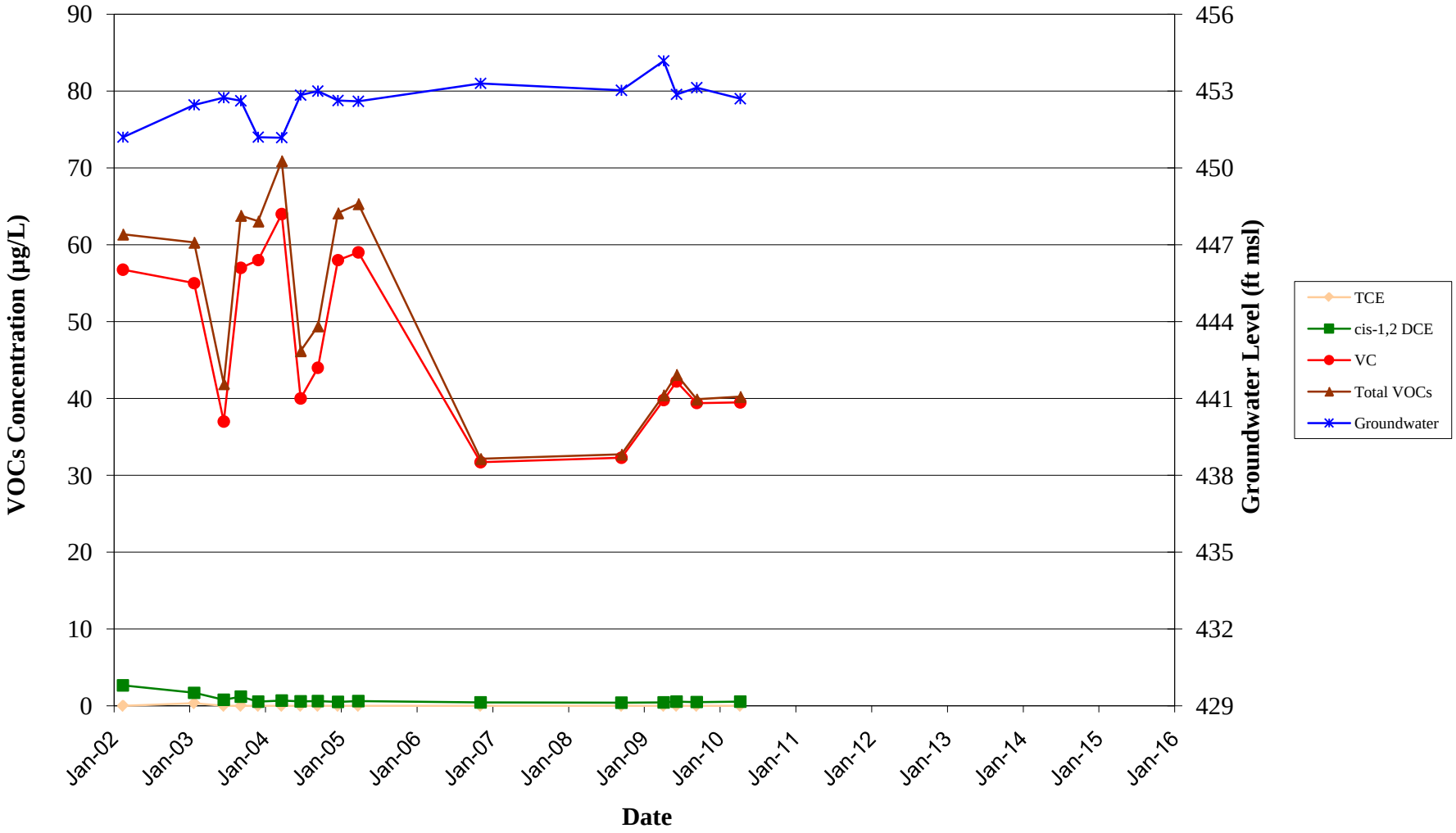


Figure 5-6
782VMW-93 VOCs Trend

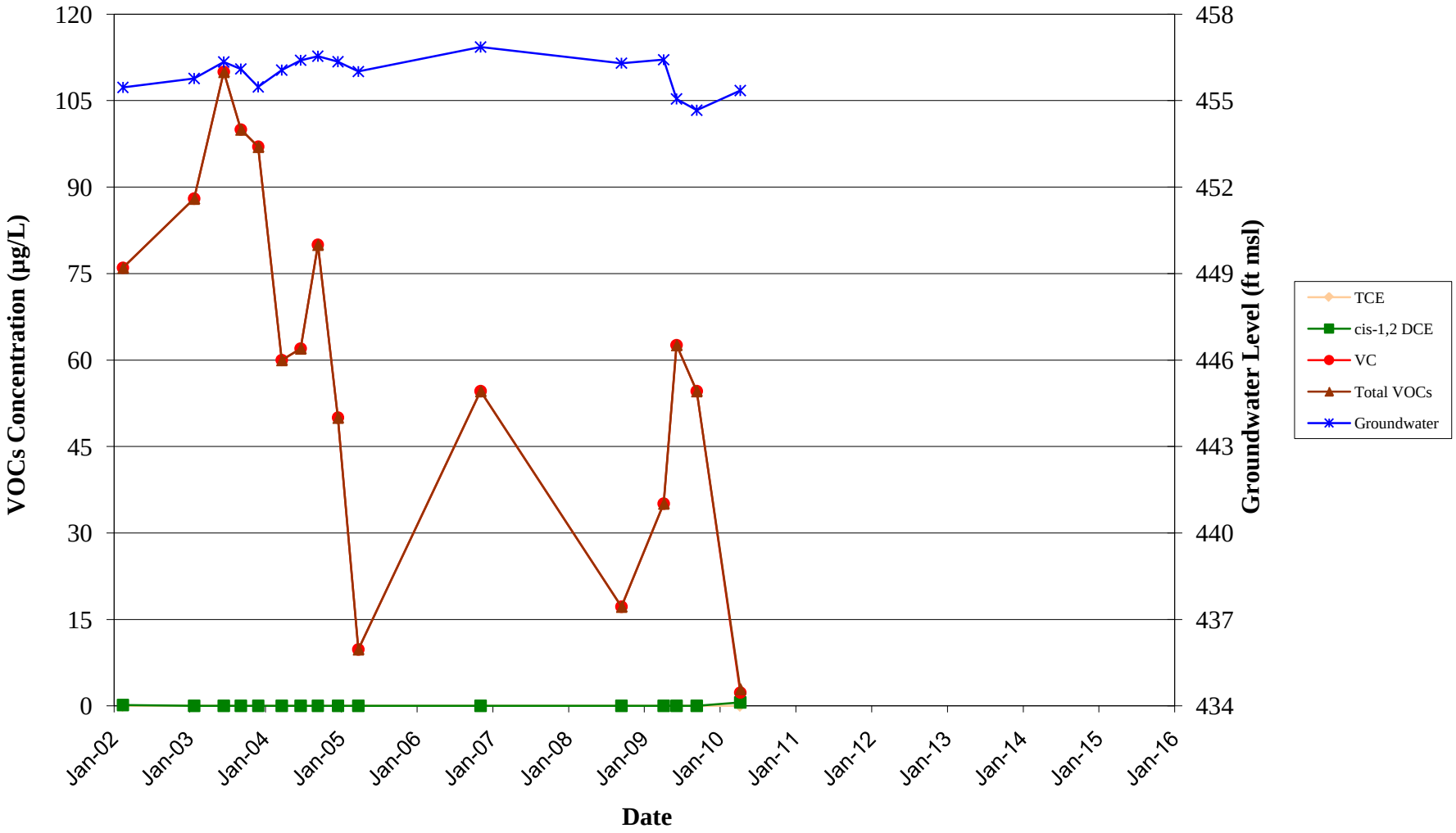


Figure 5-7
782VMW-101 VOCs Trend

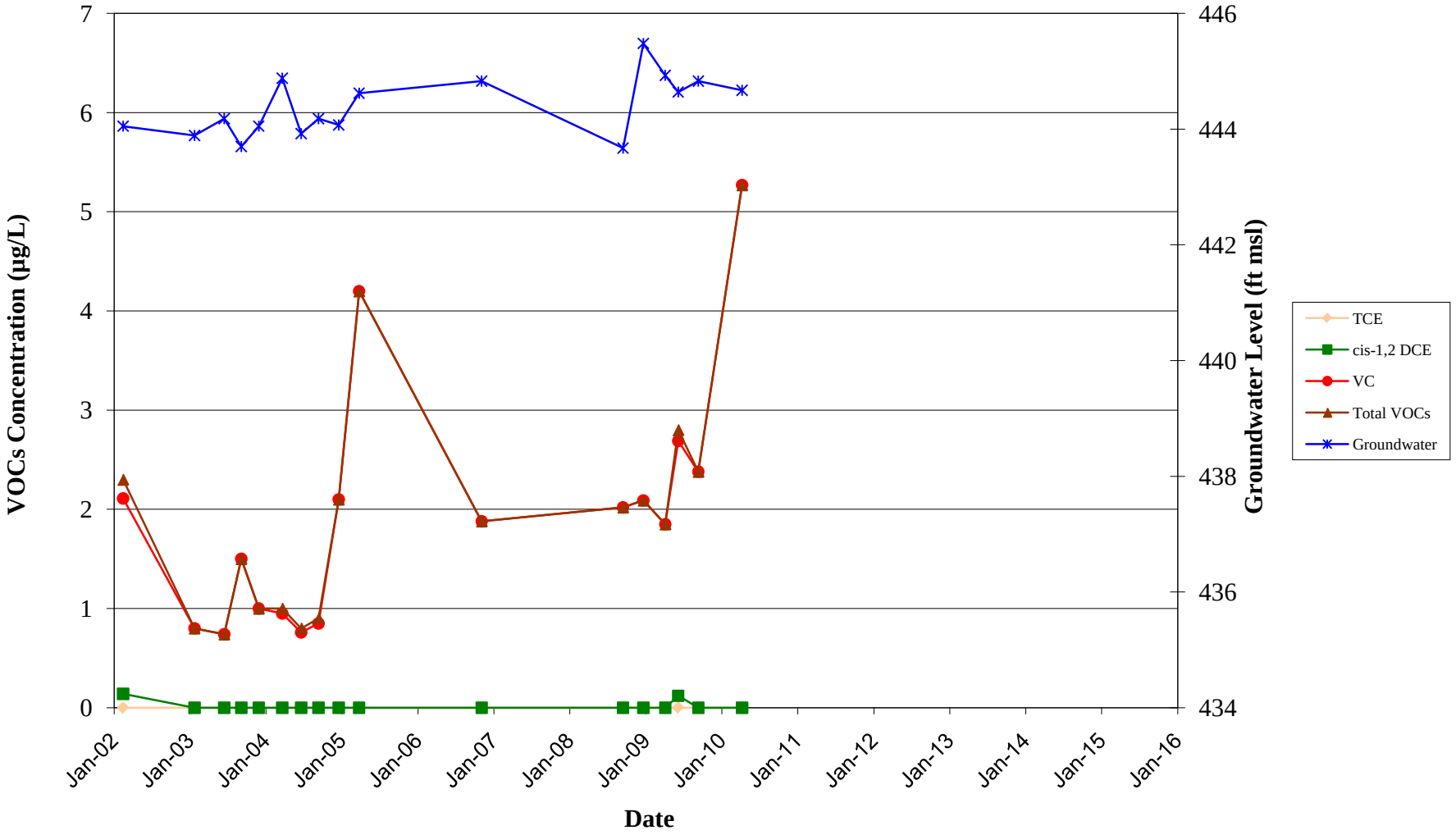


Figure 5-8
782VMW-105B VOCs Trend

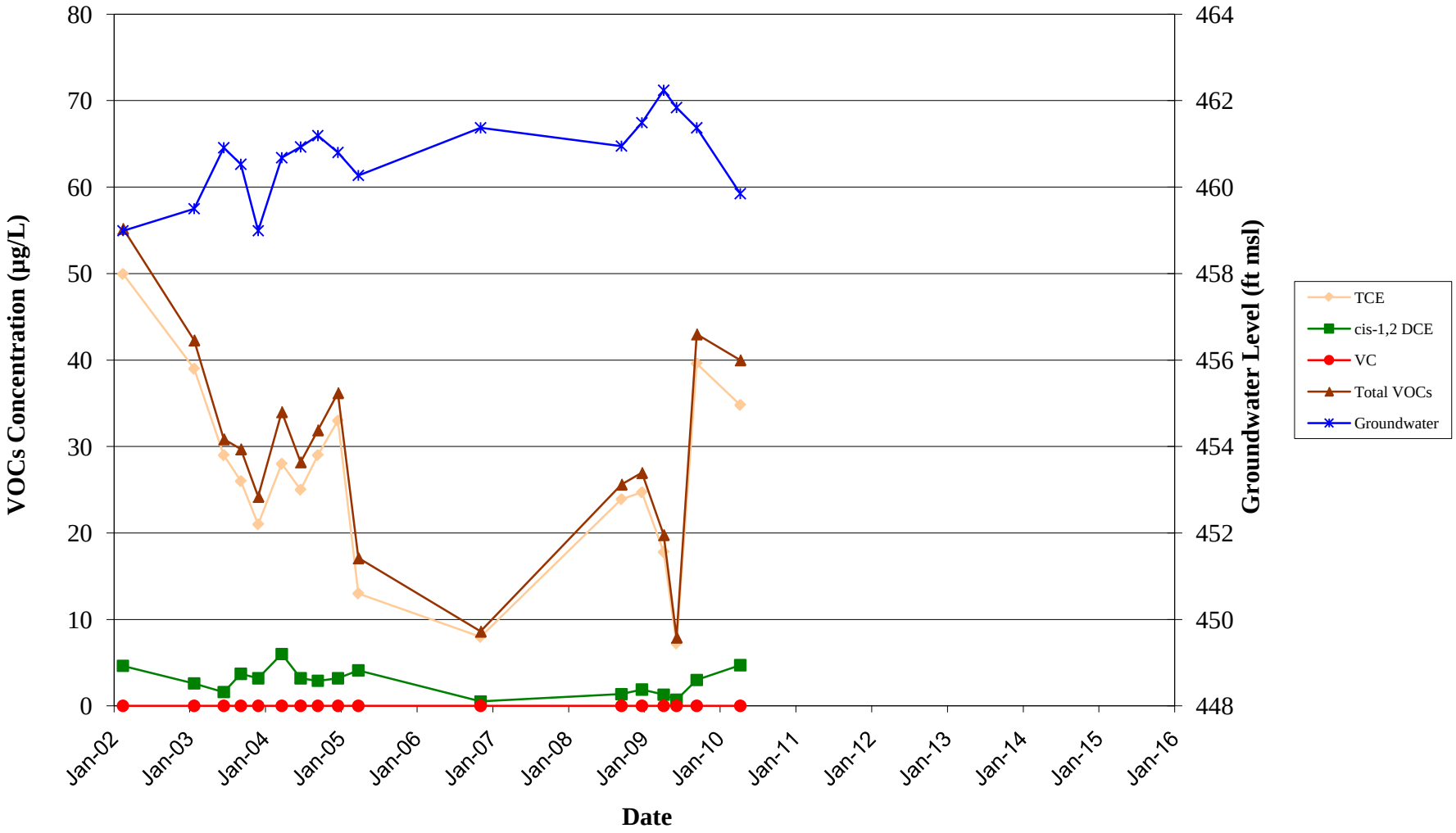


Figure 5-9
782MW-10 VOCs Trend

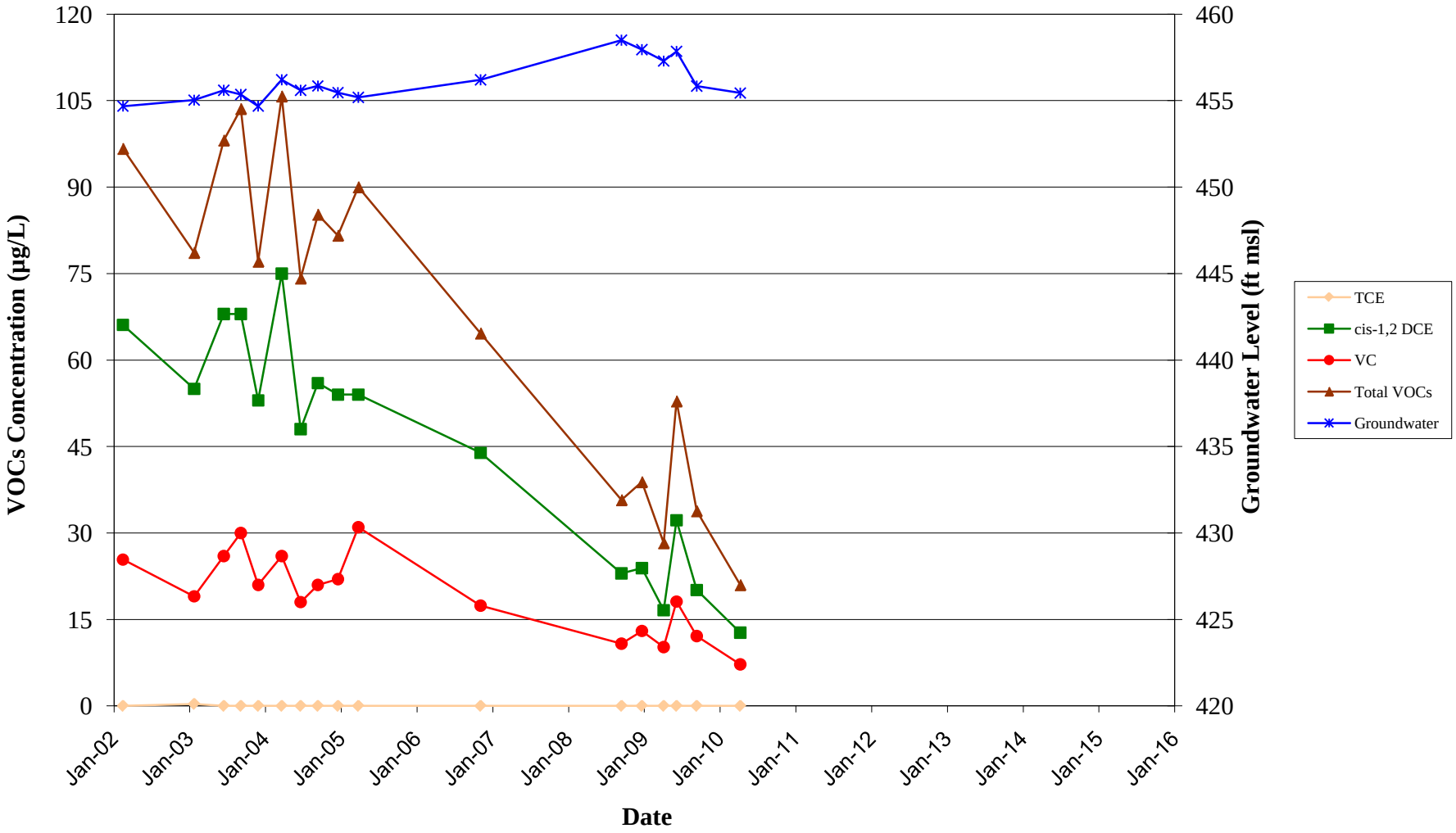


Figure 5-10
782VMW-121 VOCs Trend

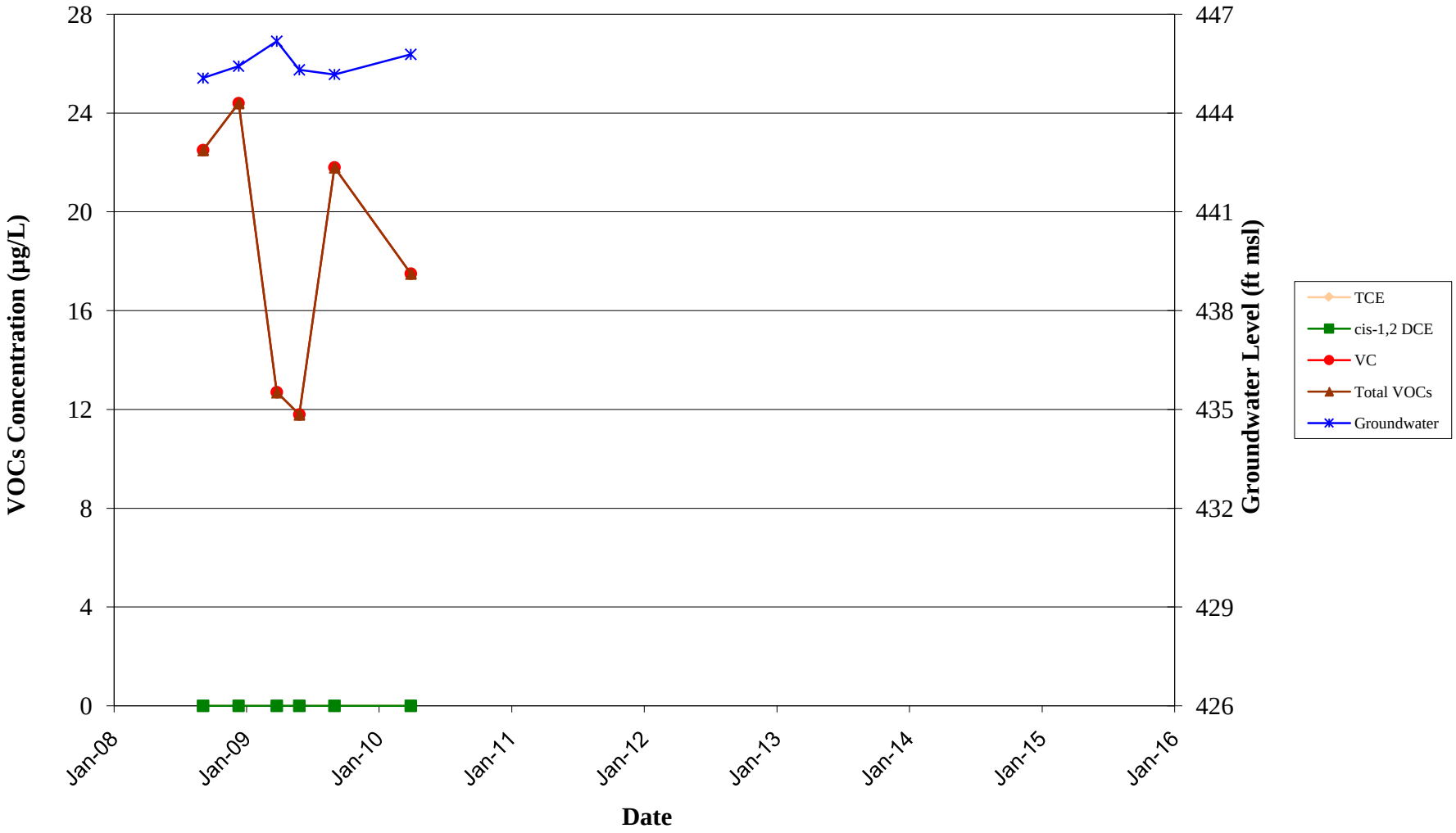


Figure 5-11
782VMW-121D VOCs Trend

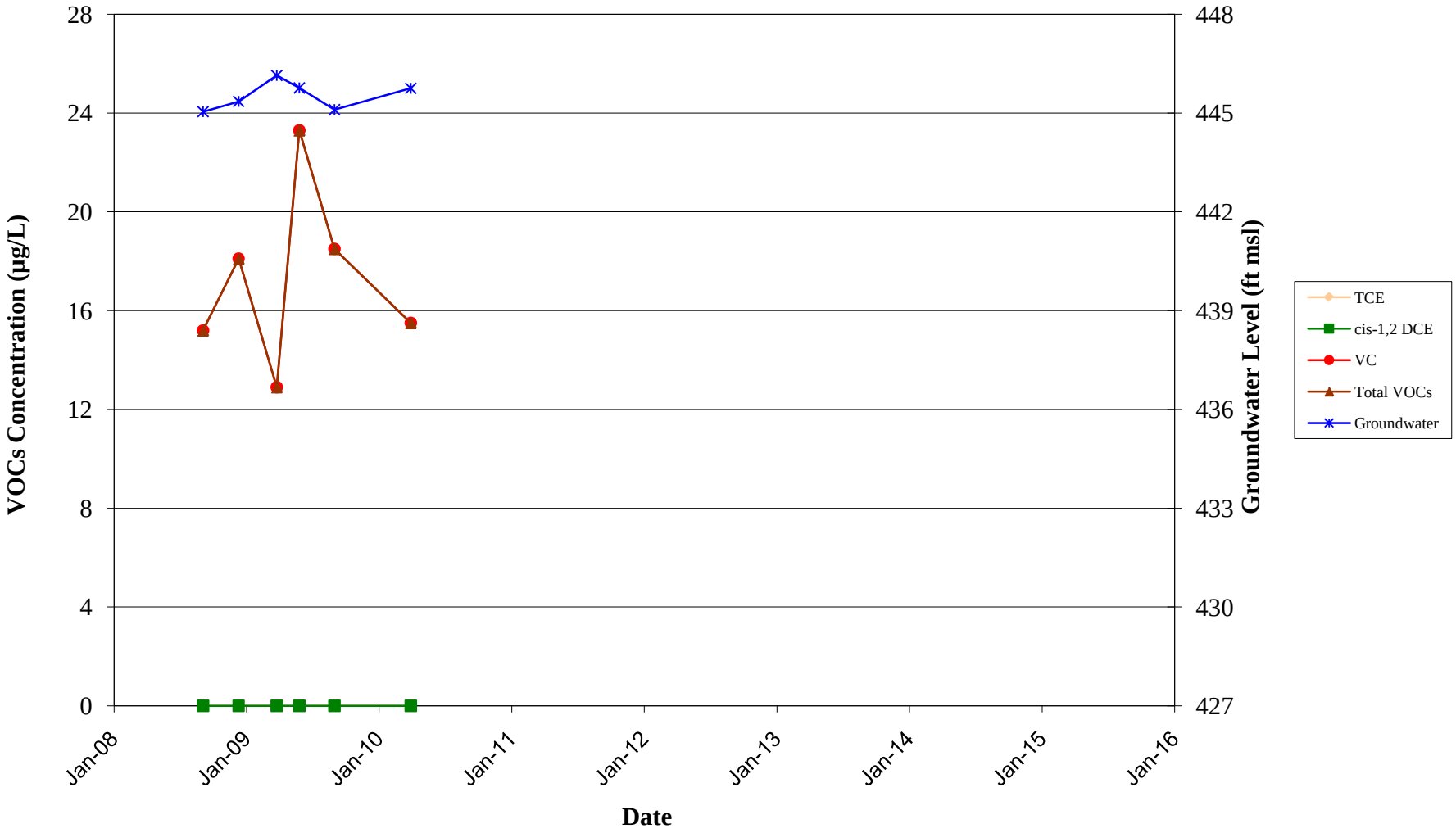


Figure 5-12
782VMW-84D VOCs Trend

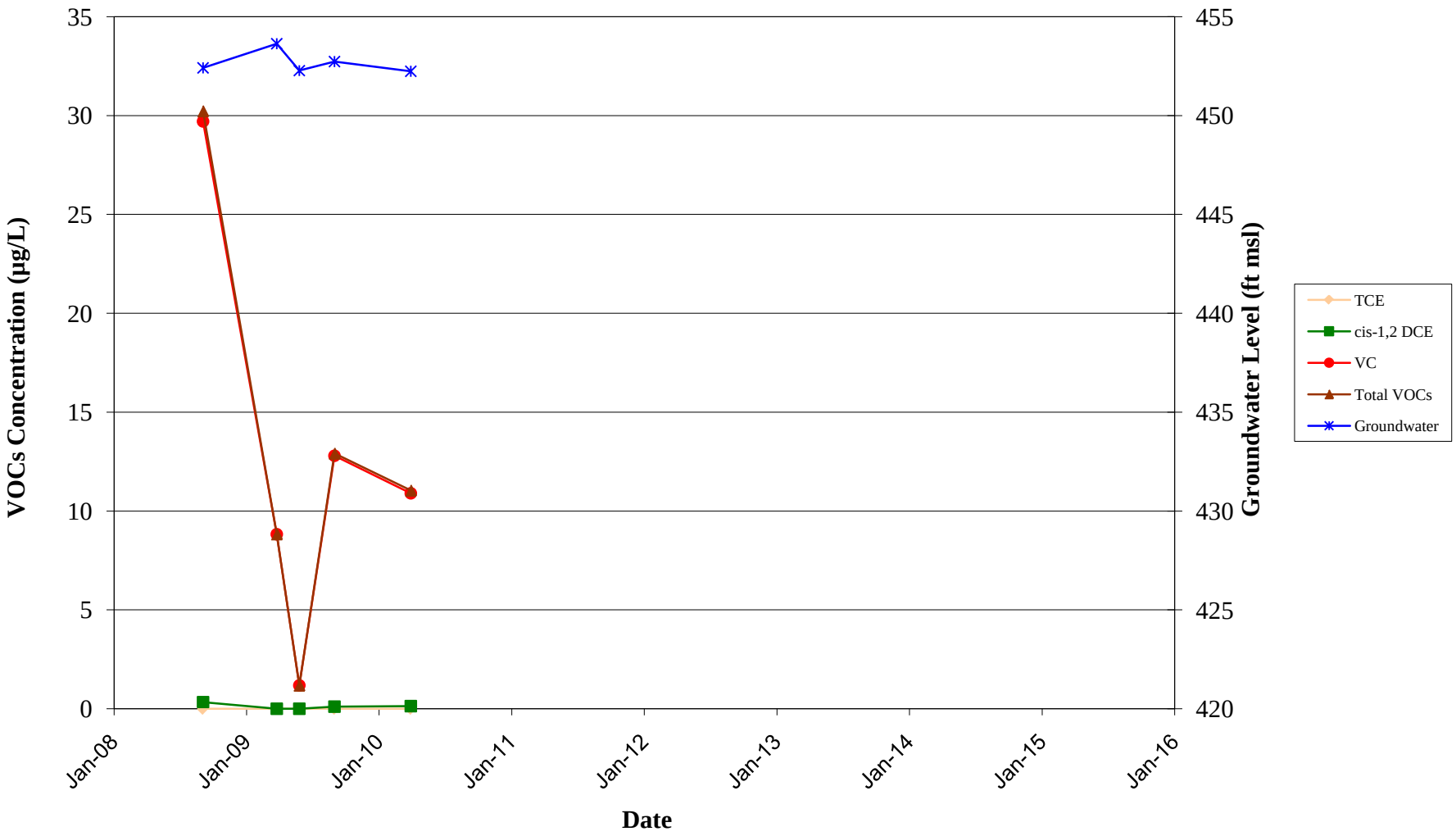
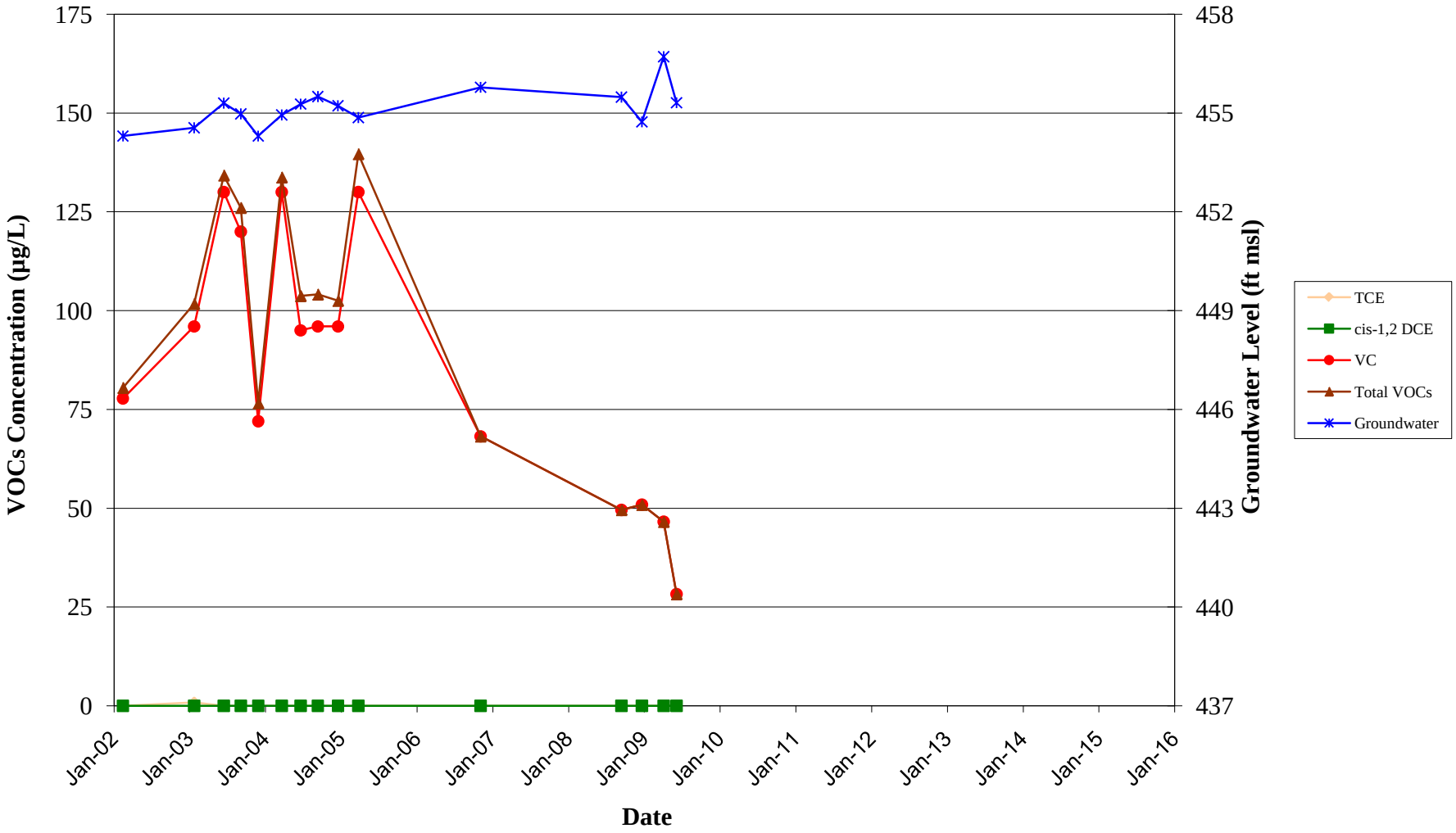


Figure 5-13
782VMW-96 VOCs Trend



Tables

Table 2-1
Landfill 6 TCE Performance Monitoring Sample Analysis Summary

Sampling Locations	Screen Interval (ft mean sea level [msl])	Sampling Rationale	Target Analytes/ EPA Method Numbers	Initial Monitoring (quarterly after injections)	Performance (Semi-annual, after 1st year)	# of Samples[1]
LF6VMW-13R	416.12 - 436.12	Downgradient extent	• VOCs - SW8260B • Sulfate - SW9056 • DOC - SM5310B • Methane/Ethane/ Ethene - RSK-175 • Field Parameters: ORP, oxygen, pH, water levels	√	√	14
LF6VMW-13RD	411.51 - 431.51	Potential vertical migration		√	√	
LF6MW-16	408.41 - 418.41	Within 500 ppb contour		√	√	
LF6MW-17	401.04 - 411.04	Within 500 ppb contour		√	√	
LF6MW-20	404.35 - 414.35	Within 500 ppb contour		√	-	
LF6VMW-26	400.08 - 410.08	Within 50 ppb contour		√	√	
LF6MW-31	398.20 - 418.20	Downgradient extent		√	√	
LF6TW-33	417.17 - 437.17	Within 50 ppb contour		√	√	
LF6TW-34	402.60 - 422.60	Within 50 ppb contour		√	√	
LF6TW-35	402.39 - 422.39	Upgradient extent		√	√	
LF6TW-36	400.08 - 420.08	Within 50 ppb contour		√	√	
LF6TW-38	402.35 - 422.35	Within 50 ppb contour		√	√	
LF6MW-39	426.70 -446.70	Downgradient extent		√	√	
Surface Water						
LF6-SW1 PM		Between surface water samples LF6/TMCSW-1 and 2			√	

Notes:

1 Please refer to FSP for details concerning the number of quality assurance/ quality control (QA/QC) samples and their locations. At least one matrix spike/matrix spike duplicate (MS/MSD) and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6VMW-12							
Sample ID			**LF6M1246AA**	**LF6M1246BB**	**LF6M1246CA**	**LF6M1246DA**	**LF6M1246EA**	**LF6M1246FA**	**LF6M1246GA**	**LF6M1246HA**
Date of Collection			**6/29/2006**	**9/19/2006**	**12/13/2006**	**4/17/2007**	**6/25/2007**	**10/1/2007**	**12/12/2007**	**4/7/2008**
Sample Depth (ft TOIC)			**46**	**46**	**46.00**	**46.00**	**46.00**	**46**	**46**	**46.00**
Dilution Factor (-)			**40**	**25**	**25**	**25**	**25**	**20**	**25**	**50**
VOCs (µg/L)										
acetone	50	10	0.76 F	U	U	U	U	U	U	U
benzene	1	0.4	0.62	0.47 F	U	0.360 F	U	0.390 F	U	0.310 F
2-butanone	50	10	U	U	U	U	U	U	U	U
chloroform	7	0.3	U	U	U	U	U	U	U	U
chloromethane	--	1.0	U	U	U	U	U	U	U	U
cis-1,2-dichloroethene	5*	1.0	470	264	275	192 J	175	179	163	158
methylene chloride	5*	1.0	U	U	U	U	U	U	U	U
trans-1,2-dichloroethene	5*	1.0	16	12.8	8.75 F	4.68	9.00 F	14.9	20.2 F	5.31
trichloroethene (TCE)	5*	1.0	1,500	942	1,060 J	851 J	702	741	791	767
vinyl chloride	2	1.0	2.7	2.4	U	1.27	U	1.57	U	U
total VOCs	-	--	1,990.08	1,222.30	1,348.75	1,049.80	892.00	937.39	974.2	931.11
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	NA	NA	NA	NA	NA	NA
ethene	--	5	NA	NA	NA	NA	NA	NA	NA	NA
methane	--	5	NA	NA	NA	NA	NA	NA	NA	NA
Wet Chemistry										
DOC (mg/L)	--	--	2.2	1.7	2.0	1.6	1.5	1.8	1.7	1.8
sulfate (mg/L)	250	1	56.9	59	55	53	60	68	72	66
Field Parameters										
ORP (mV)	--	--	208	244	23	-55	129	91	92	188
oxygen (mg/L)	--	--	0.92	1.77	0.00	0.00	0.00	0.00	0.00	0.00
pH (-)	--	--	7.41	7.57	6.98	7.10	6.69	7.02	7.10	7.20

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6VMW-12							
Sample ID			**LF6M1246IA**	**LF6M1246JA**	**LF6M1246KA**	**LF6M1246LA**	**LF6M1246MA**	**LF6M1246NA**	**LF6M1246OA**	
Date of Collection			**6/18/2008**	**10/2/2008**	**12/11/2008**	**4/16/2009**	**7/1/2009**	**9/16/2009**	**3/24/2010**	
Sample Depth (ft TOIC)			**46.00**	**46.00**	**46**	**46**	**46**	**46**	**46**	
Dilution Factor (-)			**25**	**25**	**25**	**25**	**25**	**25**	**25**	
VOCs (µg/L)										
acetone	50	10	U	66.0 F	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	138	160	266	120	117	174	241	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	8.25	28.5	11 F	4.75 F	6.00 F	9.25 F	7.25 F	
trichloroethene (TCE)	5*	1.0	727	664	523	653	709	711	655	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	873.25	929.00	800	777.75	832	894.25	903.25	
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	NA	NA	NA	NA	NA	
ethene	--	5	NA	NA	NA	NA	NA	NA	NA	
methane	--	5	NA	NA	NA	NA	NA	NA	NA	
Wet Chemistry										
DOC (mg/L)	--	--	1.6	33	8.3	1.6	1.7	3.0	4.5	
sulfate (mg/L)	250	1	82	23	55	79	70	62	66	
Field Parameters										
ORP (mV)	--	--	51	-267	-105	-197	-94	-43	-104	
oxygen (mg/L)	--	--	0.00	0.00	0.99	1.70	1.42	3.86	0.00	
pH (-)	--	--	6.70	6.22	6.63	8.29	7.81	6.88	7.16	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6VMW-13R							
Sample ID			**LF6VM13R31AA**	**LF6VM13R31AB**	**LF6VM13R31BB**	**LF6VM13R31CA**	**LF6VM13R31DA**	**LF613R31EB**	**LF6VM13R31FB**	
Date of Collection			**11/16/2006**	**9/26/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/23/2009**	**4/20/2010**	
Sample Depth (ft TOIC)			**31**	**31**	**31**	**31**	**31**	**31**	**31**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	1.58 F	2.39 F	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	0	0	0	0	1.58	2.39	0	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	U	1.8 F	11	U	U	U	U	
Wet Chemistry										
DOC (mg/L)	--	--	0.60 F	0.79 F	1.5	0.44 F	0.94 F	0.96 F	0.68 F	
sulfate (mg/L)	250	1	34	53	60	67	64	61	51	
Field Parameters										
ORP (mV)	--	--	-130	-188	-93	-79	-142	-170	-143	
oxygen (mg/L)	--	--	0.00	1.60	1.30	0.00	7.78	1.70	0.00	
pH (-)	--	--	7.64	7.80	8.66	7.19	7.63	7.76	7.71	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6VMW-13RD							
Sample ID			**LF6VMW-13RD**	**LF6M13RD41AA**	**LF6M13RD35AB**	**LF6VM13RD35BB**	**LF6VM13RD35CA**	**LF6VM13RD35DA**	**LF613VMRD35EB**	**LF6VM13RD35FB**
Date of Collection			**11/1/2006**	**4/12/2007**	**9/26/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/23/2009**	**4/20/2010**
Sample Depth (ft TOIC)			**30**	**41**	**35**	**35**	**35**	**35**	**35**	**35**
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	1.20 F	1.26 F	U
benzene	1	0.4	U	U	U	U	U	U	U	U
2-butanone	50	10	U	U	U	U	U	U	U	U
chloroform	7	0.3	20	U	U	U	U	U	U	U
chloromethane	--	1.0	U	U	U	U	U	U	U	U
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	U
methylene chloride	5*	1.0	U	U	U	U	U	U	U	U
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	U
trichloroethene (TCE)	5*	1.0	0.60 F	U	U	U	U	U	U	U
vinyl chloride	2	1.0	U	0.240 F	U	U	U	U	U	U
total VOCs	-	--	20.6	0.24	0	0	0	1.20	1.26	0
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	U	U	U	U	U	U
ethene	--	5	NA	NA	U	U	U	U	U	U
methane	--	5	NA	NA	1.6 F	1.7 F	U	1.5 F	1.7 F	1.8 F
Wet Chemistry										
DOC (mg/L)	--	--	NA	NA	1.2	1.6	0.70 F	0.91 F	1.8	1.3
sulfate (mg/L)	250	1	NA	NA	45	48	51	48	48	49
Field Parameters										
ORP (mV)	--	--	-92	-77	-121	-70	-68	-125	-117	-131
oxygen (mg/L)	--	--	0.30	0.00	1.80	0.95	0.28	3.58	1.92	0.00
pH (-)	--	--	7.68	7.69	7.39	8.28	6.51	7.25	7.78	7.61

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6MW-16							
Sample ID			**LF6M1645AA**	**LF6M1645AB**	**LF6M1645BB**	**LF6M1645CA**	**LF6M1645DA**	**LF6M1645EB**	**LF6M1645FB**	
Date of Collection			**11/16/2006**	**9/29/2008**	**1/6/2009**	**4/13/2009**	**6/22/2009**	**9/23/2009**	**4/20/2010**	
Sample Depth (ft TOIC)			**45**	**45**	**45**	**45**	**45**	**45**	**45**	
Dilution Factor (-)			**50**	**50**	**50**	**50**	**50**	**50**	**25**	
VOCs (µg/L)										
acetone	50	10	U	77	U	U	U	U	U	
benzene	1	0.4	U	0.240 F	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	0.750 F	U	U	U	5.50 F	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	200	124	148	480	859	232	248	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	3.60	7.00 F	6.50 F	9.50 F	7.50 F	12.2 F	
trichloroethene (TCE)	5*	1.0	816	619	664	590	284	588	1010	
vinyl chloride	2	1.0	U	0.570 F	U	U	U	U	U	
total VOCs	-	--	1016	748.16	819	1076.5	1152.5	833	1270.2	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	3.7 F	12	7.8	4.7 F	5.5	2.4 F	6.6	
Wet Chemistry										
DOC (mg/L)	--	--	1.5	11	9.9	65	34	1.9	3.2	
sulfate (mg/L)	250	1	54	57	44	25	25	63	72	
Field Parameters										
ORP (mV)	--	--	343	-299	-170	-22	-269	-150	-82	
oxygen (mg/L)	--	--	1.20	0.00	1.21	0.00	3.49	3.92	0.00	
pH (-)	--	--	7.30	7.13	6.82	7.69	8.16	6.84	7.39	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6MW-17							
Sample ID			**LF6M1750AB**	**LF6M1750BB**	**LF6M1750CA**	**LF6M1750DA**	**LF6M1750EB**	**LF6M1750FB**		
Date of Collection			**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/20/2010**		
Sample Depth (ft TOIC)			**50**	**50**	**50**	**50**	**50**	**50**		
Dilution Factor (-)			**20**	**20**	**20**	**20**	**20**	**10**		
VOCs (µg/L)										
acetone	50	10	598	299 ♦	382	49.8 F	U	10.5 F♦		
benzene	1	0.4	1.31	U	U	U	U	1.20 F♦		
2-butanone	50	10	58.9	28.2 F♦	52.0 F	U	U	U		
chloroform	7	0.3	0.740	3.20 F	2.20 F	U	2.80 F	U		
chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	324	178 ♦	155	226	278	327 ♦		
methylene chloride	5*	1.0	U	U	U	U	3.60 F♦	U		
trans-1,2-dichloroethene	5*	1.0	75.2	60.2 ♦	57.0	71.2	93.0 ♦	123 ♦		
trichloroethene (TCE)	5*	1.0	181	302	265	146	162 ♦	274 ♦		
vinyl chloride	2	1.0	U	U	U	U	U	U		
total VOCs	-	--	1239.15	870.6	913.2	493	539.4	724		
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U		
ethene	--	5	U	U	U	U	U	U		
methane	--	5	8.8	4.6 F♦	5.6	11	25 ♦	8.3 ♦		
Wet Chemistry										
DOC (mg/L)	--	--	350	190	160	69	18 ♦	2.7		
sulfate (mg/L)	250	1	80	34	37	37	70 ♦	71		
Field Parameters										
ORP (mV)	--	--	-289	-321	-276	-310	-256	-232		
oxygen (mg/L)	--	--	0.00	0.05	0.00	0.72	3.70	0.00		
pH (-)	--	--	7.26	9.56	9.22	8.50	6.76	7.69		

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6MW-20							
Sample ID			**LF6M2046AA**	**LF6M2046AB**	**LF6M2046BB**	**LF6M2046CA**	**LF6M2046DA**			
Date of Collection			**3/30/2007**	**9/29/2008**	**1/6/2009**	**4/13/2009**	**6/22/2009**	**9/1/2009**	**3/1/2010**	
Sample Depth (ft TOIC)			**46**	**46**	**46**	**46**	**50**	**50**	**50**	
Dilution Factor (-)			**50**	**50**	**50**	**50**	**20**			
VOCs (µg/L)										
acetone	50	10	U	649	62.5 F	U	U	Not sampled this event	Not sampled this event	
benzene	1	0.4	U	0.450 F	U	U	U			
2-butanone	50	10	U	U	U	U	U			
chloroform	7	0.3	U	U	U	U	U			
chloromethane	--	1.0	U	U	U	U	U			
cis-1,2-dichloroethene	5*	1.0	284	200	396	347	309			
methylene chloride	5*	1.0	U	U	U	U	U			
trans-1,2-dichloroethene	5*	1.0	25.5 F	30.0	40.0 F	31.0 F	33.5 F			
trichloroethene (TCE)	5*	1.0	1140	1,000	722	664	833			
vinyl chloride	2	1.0	U	0.710 F	U	U	U			
total VOCs	-	--	1449.5	1880.16	1220.5	1042	1175.5			
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U			
ethene	--	5	NA	U	U	U	U			
methane	--	5	NA	15	U	7.9	23			
Wet Chemistry										
DOC (mg/L)	--	--	NA	120	22	20	12			
sulfate (mg/L)	250	1	NA	35	20	34	53			
Field Parameters										
ORP (mV)	--	--	-37	-290	-245	-257	-285			
oxygen (mg/L)	--	--	0.00	0.02	1.27	2.14	0.63			
pH (-)	--	--	7.24	6.70	6.96	8.99	8.36			

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6VMW-26							
Sample ID			**LF6VM2653AA**	**LF6VM2660AB**	**LF6VM2650BB**	**LF6VM2650CA**	**LF6VM2650DA**	**LF6VM2650EB**	**LF6VM2650FB**	
Date of Collection			**11/16/2006**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/17/2009**	**4/20/2010**	
Sample Depth (ft TOIC)			**53**	**60**	**50**	**50**	**50**	**50**	**50**	
Dilution Factor (-)			**2.5**	**5**	**5**	**5**	**5**	**5**	**5**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	84.0 ♦	81.6	92.0	96.8 ♦	101	101	101	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	1.28 F♦	U	1.00 F	0.700 F ♦	1.20 F ♦	1.05 F	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	0.525 F♦	U	U	U	U	U	U	
total VOCs	-	--	85.805	81.6	93.0	97.5	102.2	102.05	101	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	1.6 F♦	U	U	U	U	U	U	
Wet Chemistry										
DOC (mg/L)	--	--	0.59 F♦	0.87 F	0.99 F	1.2	0.63 F	0.44 F	1.1	
sulfate (mg/L)	250	1	42	48	51	58	54	52	50	
Field Parameters										
ORP (mV)	--	--	198	-121	-53	-70	-60	-85	-107	
oxygen (mg/L)	--	--	1.10	4.63	1.46	0.15	2.48	1.58	0.00	
pH (-)	--	--	7.30	7.38	8.57	7.30	7.20	7.49	7.73	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6MW-31							
Sample ID			**LF6MW-31**	**LF6M3145AB**	**LF6M3145BB**	**LF6M3145CA**	**LF6M3145DA**	**LF6M3145EB**	**LF6M3145FB**	
Date of Collection			**10/31/2006**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/23/2009**	**4/20/2010**	
Sample Depth (ft TOIC)			**45**	**45**	**45**	**45**	**45**	**45**	**45**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	2.26 F	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	0.38 F	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	0.52 F	0.280 F	0.230 F	0.230 F	0.250 F	0.190 F	0.210 F	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	0.29 F	U	0.430 F	0.400 F	0.480 F	0.480 F	0.380 F	
total VOCs	-	--	1.19	0.28	0.66	0.63	0.73	2.93	0.59	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	10	12	3.9 F	5.7	4.5 F	15	
Wet Chemistry										
DOC (mg/L)	--	--	NA	2.8	3.3	2.8	2.8	2.8	2.8	
sulfate (mg/L)	250	1	NA	49	55	61	61	63	60	
Field Parameters										
ORP (mV)	--	--	-123	-101	-72	-94	-176	-89	-106	
oxygen (mg/L)	--	--	0.40	0.00	0.89	1.51	0.82	4.86	0.00	
pH (-)	--	--	7.09	6.01	8.41	8.15	7.98	6.54	7.27	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6TW-33							
Sample ID			**LF6T3305AA**	**LF6T3306AB**	**LF6T3307BB**	**LF6T3305CA**	**LF6T3307DA**	**LF6T3306EB**	**LF6T3306FB**	
Date of Collection			**4/12/2007**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**19 - 39**	**19 - 39**	**19 - 39**	**19 - 39**	**19 - 39**	**19 - 39**	**19 - 39**	
Dilution Factor (-)			**5**	**5**	**10**	**10**	**10**	**10**	**10**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	1.10 F	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	31.7	22.0	40.6	39.0	44.0	83.4	68.4	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	0.120 F	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	202	80.2	255	272	252	256	218	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	233.82	102.2	295.6	311	296	340.5	286.4	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	1.9 F	8.7	4.9 F	5.2	20	13	
Wet Chemistry										
DOC (mg/L)	--	--	NA	1.5	3.7	1.5	2.5	15	3.4	
sulfate (mg/L)	250	1	NA	48	71	68	60	58	58	
Field Parameters										
ORP (mV)	--	--	97	71	154	35	58	-85	-91	
oxygen (mg/L)	--	--	9.93	6.35	7.59	7.29	9.27	9.32	1.12	
pH (-)	--	--	6.81	7.44	7.02	7.60	7.06	7.90	7.09	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6TW-34							
Sample ID			**LF6T3404AA**	**LF6T3406AB**	**LF6T3407BB**	**LF6T3405CA**	**LF6T3405DA**	**LF6T3406EB**	**LF6T3406FB**	
Date of Collection			**4/12/2007**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35-55**	
Dilution Factor (-)			**5**	**2.5**	**10**	**10**	**10**	**5**	**10**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	38.3	16.4	67	41.7	25.6	105	87.6	
methylene chloride	5*	1.0	U	U	U	U	U	1.35 F	U	
trans-1,2-dichloroethene	5*	1.0	9.85	1.38 F	16.2	10.3	6.55	26.0	26.2	
trichloroethene (TCE)	5*	1.0	78.8	37.1	162	157	93.4	226	221	
vinyl chloride	2	1.0	1.15	U	0.875 F	U	U	U	U	
total VOCs	-	--	128.1	54.88	246.075	209	125.55	358.35	334.8	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	7.9	15	12	14	16	11	
Wet Chemistry										
DOC (mg/L)	--	--	NA	2.9	4.2	9.7	3.5	6.9	2.9	
sulfate (mg/L)	250	1	NA	69	69	85	78	67	82	
Field Parameters										
ORP (mV)	--	--	-11	-77	28	-17	-4	-49	-69	
oxygen (mg/L)	--	--	7.44	9.11	5.69	10.22	5.98	8.88	3.05	
pH (-)	--	--	6.67	7.13	6.69	7.80	6.74	7.80	7.07	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6TW-35							
Sample ID			**LF6T3506AA**	**LF6T3506AB**	**LF6T3505BB**	**LF6T3505CA**	**LF6T3507DA**	**LF6T3506EB**	**LF6T3506FB**	
Date of Collection			**4/12/2007**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35-55**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	1.30 F	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	0.400 F	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	2.43	3.76	5.34	5.01	5.29	5.01	6.68	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	11.0	18.6	32.7	31.3	27.9	34.0	28.6	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	13.43	22.36	38.44	36.31	33.19	40.31	35.28	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	2.8 F	9.0	7.4	9.4	19	12	
Wet Chemistry										
DOC (mg/L)	--	--	NA	1.9	3.6	1.7	1.8	34	2.3	
sulfate (mg/L)	250	1	NA	56	85	82	74	79	71	
Field Parameters										
ORP (mV)	--	--	256	98	155	91	-99	69	93	
oxygen (mg/L)	--	--	2.74	9.89	5.55	8.03	2.85	10.11	0.86	
pH (-)	--	--	5.72	7.30	7.39	7.65	7.82	7.60	7.16	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6TW-36							
Sample ID			**LF6T3604AA**	**LF6T3604AA**	**LF6T3605BB**	**LF6T3605CA**	**LF6T3605DA**	**LF6T3606EB**	**LF6T3606FB**	
Date of Collection			**4/12/2007**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35-55**	
Dilution Factor (-)			**10**	**5**	**10**	**10**	**10**	**10**	**10**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	0.100 F	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	91.6	47.9	46.4	46.7	58.5	47.7	57.5	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	0.490 F	U	0.950 F	1.10 F	1.50 F	1.10 F	1.40 F	
trichloroethene (TCE)	5*	1.0	290	104	232	252	250	284	246	
vinyl chloride	2	1.0	0.100 F	U	U	U	U	U	U	
total VOCs	-	--	382.29	151.9	279.35	299.8	310	332.8	304.9	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	2.3 F	7.0	7.6	4.9 F	7.7	2.0 F	
Wet Chemistry										
DOC (mg/L)	--	--	NA	1.2	2.8	1.3	1.7	8.9	1.9	
sulfate (mg/L)	250	1	NA	38	58	63	62	59	55	
Field Parameters										
ORP (mV)	--	--	143	-10	77	40	-50	42	13	
oxygen (mg/L)	--	--	8.43	8.59	8.01	7.89	5.70	9.51	1.11	
pH (-)	--	--	6.48	7.39	7.29	7.68	7.72	7.84	7.06	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6TW-38							
Sample ID			**LF6T3806AA**	**LF6T3807AB**	**LF6T3807BB**	**LF6T3806CA**	**LF6T3807DA**	**LF6T3808EB**	**LF6T3808FB**	
Date of Collection			**4/12/2007**	**9/29/2008**	**1/5/2009**	**4/13/2009**	**6/22/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35 - 55**	**35-55**	
Dilution Factor (-)			**5**	**5**	**10**	**10**	**10**	**10**	**5**	
VOCs (µg/L)										
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	32.2	28.8	38.6	26.3	32.9	34.2	42.2	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	0.320 F	U	0.220 F	U	U	U	U	
trichloroethene (TCE)	5*	1.0	95.0	24.7	131	111	112	128	114	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	127.52	53.5	169.82	137.3	144.9	162.2	156.2	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	2.2 F	8.8	13	5.2	5.7	4.0 F	
Wet Chemistry										
DOC (mg/L)	--	--	NA	1.0	2.7	0.54 F	0.67 F	11	1.3	
sulfate (mg/L)	250	1	NA	42	41	40	40	41	42	
Field Parameters										
ORP (mV)	--	--	311	164	164	109	-6	97	87	
oxygen (mg/L)	--	--	9.61	4.72	8.50	6.72	5.70	10.05	4.21	
pH (-)	--	--	6.19	7.48	7.51	7.55	7.62	7.58	7.54	

Table 2-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LF6MW-39							
Sample ID			**LF6M3920AB**	**LF6M3920BB**	**LF6M3920CA**	**LF6M3920DA**	**LF6M3920EB**	**LF6M3920FB**		
Date of Collection			**9/29/2008**	**1/5/2009**	**4/15/2009**	**6/22/2009**	**9/24/2009**	**4/20/2010**		
Sample Depth (ft TOIC)			**20**	**20**	**20**	**20**	**20**	**20**		
Dilution Factor (-)			**5**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
acetone	50	10	U	U	U	U	1.96 F	U		
benzene	1	0.4	U	U	U	U	U	U		
2-butanone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	U	U	U	U	U	U		
chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
methylene chloride	5*	1.0	U	U	U	U	U	U		
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U		
vinyl chloride	2	1.0	U	U	U	U	U	U		
total VOCs	-	--	0	0	0	0	1.96	0		
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U		
ethene	--	5	U	U	U	U	U	U		
methane	--	5	U	U	U	U	U	U		
Wet Chemistry										
DOC (mg/L)	--	--	0.68 F	2.3	0.82 F	0.88 F	0.48 F	1.4		
sulfate (mg/L)	250	1	34	20	17	20	44	14		
Field Parameters										
ORP (mV)	--	--	-136	192	240	251	-163	73		
oxygen (mg/L)	--	--	1.14	4.22	2.43	5.34	4.03	0.00		
pH (-)	--	--	6.85	6.88	6.90	6.92	7.15	7.15		

Table 2-2

Sample Location	NYS Surfacewater Standards	Reporting Limit	LF6-SW1PM							
Sample ID			**LF6SW01PM01EB**	**LF6SW01PM01FB**						
Date of Collection			**9/23/2009**	**4/20/2010**						
Sample Depth (ft TOIC)			**1**	**1**						
Dilution Factor (-)			**1**	**1**						
VOCs (µg/L)										
acetone	50	10	2.28 F	2.14 F						
benzene	1	0.4	U	0.130 F						
chlorobenzene	5	0.5	0.130 F	0.330 F						
total VOCs	-	--	2.41	2.6						
Method RSK-175 (µg/L)										
ethane	--	5	U	U						
ethene	--	5	U	U						
methane	--	5	5.5	33						
Wet Chemistry										
DOC (mg/L)	--	--	6.9	4.2						
sulfate (mg/L)	250	1	42	40						
Field Parameters										
ORP (mV)	--	--	73	98						
oxygen (mg/L)	--	--	10.28	11.83						
pH (-)	--	--	7.44	8.04						

Table 3-1
Building 817/WSA Performance Monitoring Sample Analysis Summary

Sampling Locations	Screen Interval (ft mean sea level [msl])	Sampling Rationale	Target Analytes/ EPA Method Numbers	Initial Monitoring (quarterly after injections)	Performance (semi-annual, after 1st year)	# of Samples[1]
LAWMW-9	490.84 - 500.84	Downgradient	• VOCs - SW8260B • Sulfate - SW9056 • DOC - SM5310B • Methane/Ethane/ Ethene - RSK-175 • Field Parameters - ORP, oxygen, pH, water levels	√[2]	√[2]	12
WSA-MW8	506.37 - 516.37	Upgradient		√[2]	√[2]	
WSA-MW9	474.60 - 479.60	Downgradient		√	√	
WSA-MW16	491.86 - 501.86	Within 100 ppb contour		√	√	
WSA-VMW17	483.24 - 493.24	Within 30 ppb contour		√	√	
WSA-MW18	499.23 - 504.23	Within 100 ppb contour		√	√	
WSA-MW19	493.79 - 498.79	Between MW-16 and VMW-17		√	√	
WSA-MW21	484.72 - 494.72	Downgradient, within plume		√	√	
WSA-MW23	493.16 - 503.16	Cross-gradient, outside plume boundary		√[2]	√[2]	
Surface Water						
WSA-SW1PM[3]		Upstream 400 ft, in manhole	• VOCs - SW8260B • Field Parameters-water levels		√	
WSA-SW2PM[3]		Central manhole slightly downgradient from where plume potentially will intersect the creek			√	
WSA-SW3PM[3]		Downstream 400 ft, in manhole			√	
MH-1		Identify preferential pathway	Visual Monitoring (look for presence of substrate)	√		
MH-2		Identify preferential pathway		√		
MH-3		Identify preferential pathway		√		

Notes:

1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.

2 Annual sampling only.

3 Surface water samples will only be collected if results from WSA-MW9 are above NYSDEC Class GA GW standards.

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	LAWMW-9							
Sample ID			**LAWM0912AA**	**LAWM0912AB**				**LAWM0912EB**	**LAWM0912FB**	
Date of Collection			**11/20/2006**	**9/23/2008**				**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**12**	**12**				**12**	**12**	
Dilution Factor (-)			**1**	**1**				**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.170 F	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	0.140 F	0.120 F	
acetone	50	10	U	U				1.16 F	1.34 F	
chlorobenzene	5*	0.5	U	U				U	U	
chloroform	7	0.3	U	U				U	U	
cis-1,2-dichloroethene	5*	1.0	U	U				U	U	
hexachlorobutadiene	0.5	0.6	U	U				U	U	
methyl tert-butyl ether	10	5.0	U	U				U	U	
methylene chloride	5*	1.0	U	U				U	U	
tetrachloroethene (PCE)	5*	1.0	0.220 F	U				0.240 F	0.240 F	
toluene	5*	1.0	U	U				U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U				U	U	
trichloroethene (TCE)	5*	1.0	5.01	5.43				6.16	4.79	
total VOCs	-	--	5.4	5.43				7.7	6.49	
Method RSK-175 (µg/L)										
ethane	--	5	U	U				U	U	
ethene	--	5	U	U				U	U	
methane	--	5	U	U				2.0 F	11	
Wet Chemistry										
DOC (mg/L)	--	--	1.7	0.88 F				1.7	0.44 F	
sulfate (mg/L)	250	1	9.1	8.5				7.6	5	
Field Parameters										
ORP (mV)	--	--	336	126				131	147	
oxygen (mg/L)	--	--	3.93	7.84				4.12	0.00	
pH (-)	--	--	7.89	7.67				6.78	7.58	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW8							
Sample ID			**WSAM0809AA**	**WSAM0809AB**				**WSAM0809EB**	**WSAM0809FB**	
Date of Collection			**11/20/2006**	**9/23/2008**				**9/18/2009**	**4/15/2010**	
Sample Depth (ft TOIC)			**9**	**9**				**9**	**9**	
Dilution Factor (-)			**1**	**1**				**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	U	U	
acetone	50	10	U	U				U	1.52 F	
chlorobenzene	5*	0.5	U	U				U	U	
chloroform	7	0.3	0.670	0.290 F				0.260 F	0.160 F	
cis-1,2-dichloroethene	5*	1.0	U	U				U	U	
hexachlorobutadiene	0.5	0.6	U	U				U	U	
methyl tert-butyl ether	10	5.0	U	U				U	U	
methylene chloride	5*	1.0	U	U				U	U	
tetrachloroethene (PCE)	5*	1.0	U	U				U	U	
toluene	5*	1.0	U	U				U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U				U	U	
trichloroethene (TCE)	5*	1.0	1.73	1.08				1.21	3.55	
total VOCs	-	--	2.4	1.37				1.47	5.23	
Method RSK-175 (µg/L)										
ethane	--	5	U	U				U	U	
ethene	--	5	U	U				U	U	
methane	--	5	U	U				U	U	
Wet Chemistry										
DOC (mg/L)	--	--	3.7	1.1				1.2	0.43 F	
sulfate (mg/L)	250	1	5.6	5.2				4.6	5.1	
Field Parameters										
ORP (mV)	--	--	120	339				182	109	
oxygen (mg/L)	--	--	7.53	8.83				9.08	4.26	
pH (-)	--	--	7.74	5.82				6.46	7.64	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW9							
Sample ID			**WSAM0906AA**	**WSAM0906AB**	**WSAM0906BB**	**WSAM0906CA**	**WSAM0906DA**	**WSAM0906EB**	**WSAM0906FB**	
Date of Collection			**11/20/2006**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**6**	**6**	**6**	**6**	**6**	**6**	**6**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	1.68 F	1.43 F	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
total VOCs	-	--	0	0	0	0	0	1.68	1.43	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	U	3.3 F	3.6 F	1.5 F	U	1.7 F	U	
Wet Chemistry										
DOC (mg/L)	--	--	1.1	0.92 F	2.6	8.3	1.1	16	U	
sulfate (mg/L)	250	1	22	20	26	20	19	18	19	
Field Parameters										
ORP (mV)	--	--	123	26	220	213	126	86	117	
oxygen (mg/L)	--	--	3.80	8.80	4.60	1.75	9.07	5.09	0.00	
pH (-)	--	--	7.31	7.60	8.98	7.14	7.99	7.09	7.68	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW16							
Sample ID			**WSAM1615AA**	**WSAM1615AB**	**WSAM1615BB**	**WSAM1615CA**	**WSAM1615DA**	**WSAM1615EB**	**WSAM1615FB**	
Date of Collection			**11/20/2006**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**15**	**15**	**15**	**15**	**15**	**15**	**15**	
Dilution Factor (-)			**2**	**2**	**2**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.320 F	0.260 F	0.240 F	0.330 F	0.280 F	0.260 F	0.280 F	
acetone	50	10	U	U	U	U	U	1.61 F	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
chloroform	7	0.3	U	U	U	U	U	0.110 F	U	
cis-1,2-dichloroethene	5*	1.0	1.10 F	0.790 F	1.16 F	0.600 F	0.650 F	1.51	0.590 F	
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	0.460 F	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	40.3	39.0	30.9	30.1	35.5	39.6	30.4	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U	U	0.110 F	0.130 F	U	0.160 F	
trichloroethene (TCE)	5*	1.0	48.8	43.0	34.8	33.6	34.8	41.1	34.7	
total VOCs	-	--	90.98	83.05	67.1	64.74	71.36	84.19	66.13	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	U	U	U	U	U	U	U	
Wet Chemistry										
DOC (mg/L)	--	--	1.1	0.89 F	0.82 F	0.68 F	0.56 F	1.0	0.81 F	
sulfate (mg/L)	250	1	11	7.8	10	12	8.8	7.0	9.6	
Field Parameters										
ORP (mV)	--	--	365	322	252	175	203	159	101	
oxygen (mg/L)	--	--	6.91	7.87	9.03	8.20	7.57	6.76	4.17	
pH (-)	--	--	7.75	6.16	6.14	7.01	5.49	6.65	7.73	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-VMW17							
Sample ID			**WSAVM1713AA**	**WSAVM1722AB**	**WSAM1722BB**	**WSAM1722CA**	**WSAM1722DA**	**WSAM1722EB**	**WSAM1722FB**	
Date of Collection			**11/20/2006**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**13**	**22**	**22**	**22**	**22**	**22**	**22**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	1.48 F	1.16 F	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
chloroform	7	0.3	0.180 F	U	0.120 F	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	0.440 F	
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	12.6	11.5	10.5	9.19	10.7	12.3	11.6	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	24.0	17.2	18.3	15.4	15.8	19.8	17.4	
total VOCs	-	--	36.78	28.7	28.92	24.59	26.5	33.58	30.6	
Method RSK-175 (µg/L)										
ethane	--	5	U	U	U	U	U	U	U	
ethene	--	5	U	U	U	U	U	U	U	
methane	--	5	U	U	U	U	U	U	U	
Wet Chemistry										
DOC (mg/L)	--	--	2.9	1.2	0.92 F	0.76 F	0.79 F	0.96 F	0.58 F	
sulfate (mg/L)	250	1	9.3	6.5	6.4	6.1	5.7	6.4	5.4	
Field Parameters										
ORP (mV)	--	--	131	128	239	187	340	353	168	
oxygen (mg/L)	--	--	7.15	9.75	6.53	6.58	6.98	7.42	4.41	
pH (-)	--	--	7.36	6.81	5.68	6.96	6.15	6.46	6.88	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW18							
Sample ID			**WSAMW-18**	**WSAM1814BB**	**WSAM1814AB**	**WSAM1814BB**	**WSAM1814CA**	**WSAM1814DA**	**WSAM1814EB**	**WSAM1814FB**
Date of Collection			**10/24/2006**	**2/21/2007**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/15/2010**
Sample Depth (ft TOIC)			**12.3**	**14**	**14**	**14**	**14**	**14**	**14**	**14**
Dilution Factor (-)			**2**	**2.5**	**2**	**2**	**2**	**2**	**2**	**1**
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	0.310 F	0.240 F	U	0.150 F	U	0.250 F
acetone	50	10	U	U	U	U	U	U	U	U
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	U
chloroform	7	0.3	U	U	0.160 F	U	U	U	U	0.110 F
cis-1,2-dichloroethene	5*	1.0	U	U	0.310 F	0.620 F	0.600 F	0.910 F	0.720 F	0.410 F
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	U
methyl tert-butyl ether	10	5.0	0.54 F	0.525 F	U	U	U	U	U	U
methylene chloride	5*	1.0	U	U	U	U	U	U	U	U
tetrachloroethene (PCE)	5*	1.0	53 J	37.3	39.5	38.8	31.8	36.2	40.8	39.3
toluene	5*	1.0	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	5*	1.0	U	U	U	U	U	U	U	U
trichloroethene (TCE)	5*	1.0	68 J	49.1	43.6	48.7	37.5	36.3	44.4	42.1
total VOCs	-	--	121.54	86.925	83.88	88.36	69.9	73.56	85.92	82.17
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	U	U	U	U	U	U
ethene	--	5	NA	NA	U	U	U	U	U	U
methane	--	5	NA	NA	U	U	U	U	U	U
Wet Chemistry										
DOC (mg/L)	--	--	NA	NA	1.3	0.81 F	0.48 F	0.42 F	0.98 F	0.89 F
sulfate (mg/L)	250	1	NA	NA	7.3	13	11	7.8	7.0	10
Field Parameters										
ORP (mV)	--	--	181	360	378	287	190	176	158	79
oxygen (mg/L)	--	--	6.1	4.21	6.80	7.48	7.68	5.80	6.80	2.65
pH (-)	--	--	7.40	6.93	6.05	6.82	6.76	5.79	6.75	7.91

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW19							
Sample ID			**WSAMW-19**	**WSAM1918AB**	**WSAM1918BB**	**WSAM1918CA**	**WSAM1918DA**	**WSAM1918DA**	**WSAM1918FB**	
Date of Collection			**11/2/2006**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**17.8**	**17.8**	**18**	**18**	**18**	**18**	**18**	
Dilution Factor (-)			**4**	**2**	**2**	**2**	**2**	**2**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	U	U	U	U	0.190 F	
acetone	50	10	U	U	U	U	U	U	1.85 F	
chlorobenzene	5*	0.5	0.32 F	U	U	U	U	U	U	
chloroform	7	0.3	U	0.140 F	U	U	U	0.240 F	0.120 F	
cis-1,2-dichloroethene	5*	1.0	U	0.440 F	0.340 F	U	0.300 F	0.320 F	0.380 F	
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	0.49 F	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	46	36.3	33.3	29.7	34.3	34.7	42.0	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	68	51.3	49.6	42.5	47.4	53.4	55.6	
total VOCs	-	--	114.81	88.18	83.24	72.2	82.0	88.66	100.14	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	U	U	U	U	U	U	
Wet Chemistry										
DOC (mg/L)	--	--	NA	1.1	1	0.60 F	U	0.68 F	0.39 F	
sulfate (mg/L)	250	1	NA	8.6	8.2	9.3	10	9.0	8.2	
Field Parameters										
ORP (mV)	--	--	189	310	297	158	312	311	151	
oxygen (mg/L)	--	--	6.1	5.38	4.05	5.72	6.74	8.20	2.11	
pH (-)	--	--	7.37	6.28	7.03	7.11	6.92	7.14	7.53	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW21							
Sample ID			**WSAMW-21**	**WSAM2124AB**	**WSAM2124BB**	**WSAM2124CA**	**WSAM2124DA**	**WSAM2124EB**	**WSAM2124FB**	
Date of Collection			**11/2/2006**	**9/23/2008**	**12/31/2008**	**4/8/2009**	**6/15/2009**	**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**24.3**	**24.3**	**24**	**24**	**24**	**24**	**24**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	2.12 F	1.75 F	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
chloroform	7	0.3	0.58	U	0.310 F	0.300 F	U	U	0.220 F	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	0.540 F	
hexachlorobutadiene	0.5	0.6	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	1.1	0.380 F	0.860 F	0.740 F	0.380 F	0.290 F	1.11	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	31	5.28	20.4	17.4	6.95	5.45	18.3	
total VOCs	-	--	32.68	5.64	21.57	18.44	7.33	7.86	21.92	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U	U	U	U	U	U	
ethene	--	5	NA	U	U	U	U	U	U	
methane	--	5	NA	6.0	U	U	U	2.0 F	U	
Wet Chemistry										
DOC (mg/L)	--	--	NA	0.52 F	1.1	0.50 F	U	1.4	0.36 F	
sulfate (mg/L)	250	1	NA	22	7.1	6.6	19	21	9.3	
Field Parameters										
ORP (mV)	--	--	238	85	287	255	317	307	141	
oxygen (mg/L)	--	--	8.2	4.42	8.50	6.60	4.45	3.92	6.57	
pH (-)	--	--	7.03	7.61	6.16	6.91	6.96	7.47	6.99	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	WSA-MW23							
Sample ID			**WSAMW-23**	**WSAM2324AB**				**WSAM2324AB**	**WSAM2324FB**	
Date of Collection			**10/24/2006**	**9/23/2008**				**9/18/2009**	**4/14/2010**	
Sample Depth (ft TOIC)			**24.2**	**24.2**				**24.2**	**24**	
Dilution Factor (-)			**1**	**1**				**1**	**1**	
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	U	U	
acetone	50	10	U	U				2.65 F	1.70 F	
chlorobenzene	5*	0.5	U	U				U	U	
chloroform	7	0.3	U	U				U	U	
cis-1,2-dichloroethene	5*	1.0	U	U				U	U	
hexachlorobutadiene	0.5	0.6	0.40 F	U				U	U	
methyl tert-butyl ether	10	5.0	U	U				U	U	
methylene chloride	5*	1.0	U	U				U	U	
tetrachloroethene (PCE)	5*	1.0	U	U				U	U	
toluene	5*	1.0	U	U				U	U	
trans-1,2-Dichloroethene	5*	1.0	U	U				U	U	
trichloroethene (TCE)	5*	1.0	U	U				U	U	
total VOCs	-	--	0.4	0				2.65	1.7	
Method RSK-175 (µg/L)										
ethane	--	5	NA	U				U	U	
ethene	--	5	NA	U				U	U	
methane	--	5	NA	1.5 F				17	52	
Wet Chemistry										
DOC (mg/L)	--	--	NA	0.45 F				0.94 F	U	
sulfate (mg/L)	250	1	NA	15				12	13	
Field Parameters										
ORP (mV)	--	--	31	69				315	-31	
oxygen (mg/L)	--	--	4.8	4.91				4.88	0.00	
pH (-)	--	--	7.74	7.93				7.78	7.85	

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	B817-MW-001							
Sample ID			**B817-MW-001**	**817M0113BB**	**817M0112BB**	**817M0111DA**	**817M0111FB**			
Date of Collection			**10/24/2006**	**2/21/2007**	**11/24/2008**	**6/15/2009**	**4/15/2010**			
Sample Depth (ft TOIC)			**10-20**	**10-20**	**10-20**	**10-20**	**20-Oct**			
Dilution Factor (-)			**1**	**1**	**2**	**1**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	NA	NA	NA			
acetone	50	10	U	U	NA	NA	NA			
chlorobenzene	5*	0.5	U	U	NA	NA	NA			
chloroform	7	0.3	U	U	NA	NA	NA			
cis-1,2-dichloroethene	5*	1.0	U	U	NA	NA	NA			
hexachlorobutadiene	0.5	0.6	U	U	NA	NA	NA			
methyl tert-butyl ether	10	5.0	U	U	NA	NA	NA			
methylene chloride	5*	1.0	U	0.230 F	NA	NA	NA			
tetrachloroethene (PCE)	5*	1.0	0.40 F	0.680 F	NA	NA	NA			
toluene	5*	1.0	U	U	NA	NA	NA			
trans-1,2-Dichloroethene	5*	1.0	U	U	NA	NA	NA			
trichloroethene (TCE)	5*	1.0	2.4	1.08	NA	NA	NA			
total VOCs	-	--	2.8	1.99	NA	NA	NA			
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	NA	NA	NA			
ethene	--	5	NA	NA	NA	NA	NA			
methane	--	5	NA	NA	NA	NA	NA			
Wet Chemistry										
DOC (mg/L)	--	--	NA	NA	25	10	2.5			
sulfate (mg/L)	250	1	NA	NA	NA	NA	NA			
Field Parameters										
ORP (mV)	--	--	NA	317	1	-81	122			
oxygen (mg/L)	--	--	NA	10.38	5.21	5.22	3.83			
pH (-)	--	--	NA	7.76	6.57	6.87	7.56			

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	B817-MW-002							
Sample ID			**B817-MW-002**	**817M0210BB**	**817M0211BB**	**817M0210DA**	**817M0211FB**			
Date of Collection			**10/24/2006**	**2/21/2007**	**11/24/2008**	**6/15/2009**	**4/15/2010**			
Sample Depth (ft TOIC)			**10-20**	**10-20**	**10-20**	**10-20**	**10-20**			
Dilution Factor (-)			**1**	**1**	**9**	**9**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	NA	NA	NA			
acetone	50	10	U	2.13 F	NA	NA	NA			
chlorobenzene	5*	0.5	U	U	NA	NA	NA			
chloroform	7	0.3	0.49 F	0.160 F	NA	NA	NA			
cis-1,2-dichloroethene	5*	1.0	U	U	NA	NA	NA			
hexachlorobutadiene	0.5	0.6	U	U	NA	NA	NA			
methyl tert-butyl ether	10	5.0	U	U	NA	NA	NA			
methylene chloride	5*	1.0	U	0.140 F	NA	NA	NA			
tetrachloroethene (PCE)	5*	1.0	5.6	3.84	NA	NA	NA			
toluene	5*	1.0	U	0.210 F	NA	NA	NA			
trans-1,2-Dichloroethene	5*	1.0	U	U	NA	NA	NA			
trichloroethene (TCE)	5*	1.0	25	5.17	NA	NA	NA			
total VOCs	-	--	31.09	9.31	NA	NA	NA			
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	NA	NA	NA			
ethene	--	5	NA	NA	NA	NA	NA			
methane	--	5	NA	NA	NA	NA	NA			
Wet Chemistry										
DOC (mg/L)	--	--	NA	NA	88	130	2.9			
sulfate (mg/L)	250	1	NA	NA	NA	NA	NA			
Field Parameters										
ORP (mV)	--	--	NA	277	-77	-91	-90			
oxygen (mg/L)	--	--	NA	1.91	10.26	7.63	3.13			
pH (-)	--	--	NA	7.74	6.37	6.19	7.22			

Table 3-2

Sample Location	NYS Groundwater Standards	Reporting Limit	B817-MW-003							
Sample ID			**B817-MW-003**	**817M0309BB**	**817M0309BB**	**817M0309DA**	**817M0309FB**			
Date of Collection			**10/24/2006**	**2/21/2007**	**11/24/2008**	**6/15/2009**	**4/15/2010**			
Sample Depth (ft TOIC)			**10-20**	**10-20**	**10-20**	**10-20**	**10-20**			
Dilution Factor (-)			**1**	**2.5**	**9**	**1**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	NA	NA	NA			
acetone	50	10	U	3.60 F	NA	NA	NA			
chlorobenzene	5*	0.5	U	U	NA	NA	NA			
chloroform	7	0.3	U	U	NA	NA	NA			
cis-1,2-dichloroethene	5*	1.0	U	U	NA	NA	NA			
hexachlorobutadiene	0.5	0.6	U	U	NA	NA	NA			
methyl tert-butyl ether	10	5.0	0.28 F	U	NA	NA	NA			
methylene chloride	5*	1.0	U	0.325 F	NA	NA	NA			
tetrachloroethene (PCE)	5*	1.0	13	8.78 J	NA	NA	NA			
toluene	5*	1.0	U	U	NA	NA	NA			
trans-1,2-Dichloroethene	5*	1.0	U	U	NA	NA	NA			
trichloroethene (TCE)	5*	1.0	21	11.1 J	NA	NA	NA			
total VOCs	-	--	34.28	20.205	NA	NA	NA			
Method RSK-175 (µg/L)										
ethane	--	5	NA	NA	NA	NA	NA			
ethene	--	5	NA	NA	NA	NA	NA			
methane	--	5	NA	NA	NA	NA	NA			
Wet Chemistry										
DOC (mg/L)	--	--	NA	NA	82	5.5	6.2			
sulfate (mg/L)	250	1	NA	NA	NA	NA	NA			
Field Parameters										
ORP (mV)	--	--	NA	183	-62	-80	-87			
oxygen (mg/L)	--	--	NA	2.61	7.88	7.78	3.09			
pH (-)	--	--	NA	7.77	6.58	6.47	7.23			

Table 4-1
Building 775 Performance Monitoring Sample Analysis Summary

Sampling Locations	Screen Interval (ft mean sea level [msl])	Sampling Rationale	Target Analytes/ EPA Method Numbers	Performance (Quarterly)	Performance (Semi-annual, after 1st year)	# of Samples[1]
775VMW-4	447.64 - 457.64	Upgradient	• VOCs - SW8260B • Field parameters - water levels [3]	√[4]	√[4]	12
775VMW-5	442.94 - 452.94	Within 50 ppb contour		√	√	
775MW-6	439.18 - 449.18	Within 50 ppb contour		√	√	
775VMW-8	439.29 - 449.29	Within 50 ppb contour		√	√	
775VMW-9	412.92 - 427.92	Outside 50 ppb contour, downgradient		√[4]	√[4]	
775VMW-10	412.14 - 427.14	Within 50 ppb contour		√	√	
775VMW-19R	440.58 - 460.58	Downgradient		√	√	
775MW-20	398.33 - 408.33	Within 500 ppb contour		√	√	
775VMW-20R	403.85 - 413.85	Downgradient		√[4]	√[4]	
775MW-27	435.19 - 455.19	Within 50 ppb contour		√	√	
775MW-28	424.72 - 444.72	Within 50 ppb contour		√	√	
EW-1	436.56 - 456.56	Within 50 ppb contour		√	√	
			Effluent			
Effluent Sample 1[2]		At discharge point from pipe into manhole	• VOCs - SW8260B (EPA Method 624 list)	√	√	

Notes:

1 Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.

2 The total discharge flow will be recorded during sampling.

3 Water levels will be collected to verify the capture zone of the system.

4 Annual sampling only.

Sample Location	**NYS Groundwater Standards**	**Reporting Limit**	**775VMW-4**							
Sample ID			**775VM0465AA**			**775VM0465DA**	**-**			
Date of Collection			**1/12/2009**			**9/22/2009**	**4/16/2010**			
Sample Depth (ft TOIC)			**65**			**65**	**65**			
Dilution Factor (-)			**1**			**1**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.220 F	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	0.280 F	Monitoring well not sampled, annual sampling frequency.			
1,1-dichloroethane	5*	1.0	U			U				
1,1-dichloroethene	5*	1.0	U			U				
1,2,3-trichlorobenzene	5*	1.0	U			U				
1,2,4-trichlorobenzene	5*	1.0	U			U				
1,2-dichloroethane	0.6	0.5	U			U				
acetone	50	10	U			U				
chloroform	7	0.3	0.630			0.720				
cis-1,2-dichloroethene (DCE)	5*	--	U			U				
tetrachloroethene (PCE)	5*	1.0	U			U				
trichloroethene (TCE)	5*	1.0	5.18			7.26				
trichlorofluoromethane	5*	1.0	U			U				
total VOCs	-	--	6.03			8.26				
Field Parameters										
ORP (mV)	--	--	189			315				
oxygen (mg/L)	--	--	2.36			5.36				
pH (-)	--	--	7.20			7.36				

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775VMW-5							
Sample ID			**775VM0570AA**	**775VM0570AA**	**775VM0570BB**	**775VM0570CA**	**775VM0570DA**	**775VM0570FA**		
Date of Collection			**11/20/2006**	**1/12/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**70**	**70**	**70**	**70**	**70**	**70**		
Dilution Factor (-)			**5**	**2.5**	**2.5**	**2.5**	**2.5**	**2**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.810 F	0.450 F	0.450 F	0.500 F	0.550 F	0.440 F		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	0.220 F	U	U	U	0.300 F	U		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	81.2	64.7	68.8	74.0	78.9	67.6		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	82.23	65.15	69.25	74.5	79.75	68.04		
Field Parameters										
ORP (mV)	--	--	39	218	161	301	329	159		
oxygen (mg/L)	--	--	9.53	10.84	9.60	10.68	10.00	8.79		
pH (-)	--	--	7.47	7.36	6.80	7.21	7.16	7.71		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775MW-6							
Sample ID			**775M0673AA**	**775M0673AA**	**775M0673BB**	**775M0673CA**	**775M0673DA**	**775M0673FA**		
Date of Collection			**11/20/2006**	**1/12/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**73**	**73**	**73**	**73**	**73**	**73**		
Dilution Factor (-)			**2**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.700 F	0.340 F	0.260 F	0.400 F	0.310 F	0.240 F		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	0.950	1.04	0.910	1.01	0.960	0.88		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	43.9	19.9	14.9	36.5	19.4	17.7		
trichlorofluoromethane	5*	1.0	0.580 F	0.510 F	0.500 F	0.690 F	0.550 F	0.380 F		
total VOCs	-	--	45.55	21.79	16.57	38.6	21.22	19.2		
Field Parameters										
ORP (mV)	--	--	352	218	134	308	339	114		
oxygen (mg/L)	--	--	7.04	7.39	6.59	9.21	7.44	3.61		
pH (-)	--	--	7.76	7.67	6.62	7.54	7.27	8.03		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775VMW-8							
Sample ID			**775M0873AA**	**775M0873AA**	**775M0873BB**	**775VM0873CA**	**775VM0873DA**	**775VM0873FA**		
Date of Collection			**11/20/2006**	**1/12/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**73**	**73**	**73**	**73**	**73**	**73**		
Dilution Factor (-)			**1**	**1**	**2**	**2**	**2**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.760 F	0.700 F	0.760 F	0.720 F	0.700 F	0.640 F		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	U	0.110 F	0.110 F	0.110 F	U	U		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	32.4	38.2	37.1	37.5	39.3	32.1		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	33.16	39.01	37.97	38.33	40	32.74		
Field Parameters										
ORP (mV)	--	--	320	205	253	137	346	109		
oxygen (mg/L)	--	--	4.82	5.53	3.68	4.47	7.15	0.62		
pH (-)	--	--	7.10	7.65	7.27	7.14	7.19	7.90		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775VMW-9							
Sample ID			**775VM0992AA**	**775VM0992AA**			**775VM0992DA**			
Date of Collection			**11/17/2006**	**1/12/2009**			**9/22/2009**			
Sample Depth (ft TOIC)			**92**	**92**			**92**			
Dilution Factor (-)			**1**	**1**			**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	U			
1,1-dichloroethane	5*	1.0	U	U			U			
1,1-dichloroethene	5*	1.0	U	U			U			
1,2,3-trichlorobenzene	5*	1.0	U	U			U			
1,2,4-trichlorobenzene	5*	1.0	U	U			U			
1,2-dichloroethane	0.6	0.5	U	U			U			
acetone	50	10	U	U			1.83 F			
chloroform	7	0.3	U	0.320 F			0.110 F			
cis-1,2-dichloroethene (DCE)	5*	--	U	U			U			
tetrachloroethene (PCE)	5*	1.0	U	U			U			
trichloroethene (TCE)	5*	1.0	0.330 F	0.500 F			0.590 F			
trichlorofluoromethane	5*	1.0	U	U			U			
total VOCs	-	--	0.33	0.82			2.53			
Field Parameters										
ORP (mV)	--	--	283	-6			124			
oxygen (mg/L)	--	--	1.67	1.89			2.44			
pH (-)	--	--	7.56	8.81			7.10			

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775VMW-10							
Sample ID			**775VM1095AA**	**775VM1095AA**	**775VM1095BB**	**775VM1095CA**	**775VM1095DA**	**775VM1095FA**		
Date of Collection			**11/17/2006**	**1/12/2009**	**4/15/2009**	**6/18/2009**	**9/14/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**95**	**95**	**95**	**95**	**95**	**95**		
Dilution Factor (-)			**5**	**2**	**2**	**2**	**2**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.900 F	0.500 F♦	0.460 F	0.440 F	0.420 F♦	0.420 F♦		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	U	U	U	U	U	U		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	70.8	43.5♦	43.7	44.0 ♦	45.8 ♦	41.6 ♦		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	71.7	44	44.16	44.44	46.22	42.02		
Field Parameters										
ORP (mV)	--	--	353	225	154	179	104	142		
oxygen (mg/L)	--	--	9.40	9.60	9.83	9.42	9.54	8.88		
pH (-)	--	--	7.81	6.92	7.55	7.01	7.05	7.89		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775VMW-19R							
Sample ID			**775M19R67AA**	**775M19R67BB**	**775VM19R67BB**	**775VM19R67DA**	**775VM19R67FA**			
Date of Collection			**1/12/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**			
Sample Depth (ft TOIC)			**67**	**67**	**67**	**67**	**67**			
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	U	U	U			
1,1-dichloroethane	5*	1.0	U	U	U	U	U			
1,1-dichloroethene	5*	1.0	U	U	U	U	U			
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U			
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U			
1,2-dichloroethane	0.6	0.5	U	U	U	U	U			
acetone	50	10	U	U	U	1.18 F	U			
chloroform	7	0.3	0.200 F	0.140 F	U	U	U			
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U			
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U			
trichloroethene (TCE)	5*	1.0	U	U	U	U	U			
trichlorofluoromethane	5*	1.0	U	U	U	U	U			
total VOCs	-	--	0.2	0.14	0	1.18	0			
Field Parameters										
ORP (mV)	--	--	185	163	131	128	89			
oxygen (mg/L)	--	--	8.37	7.68	9.28	9.15	8.17			
pH (-)	--	--	7.19	7.27	7.04	7.09	8.42			

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775MW-20							
Sample ID			**775M20115AA**	**775M20115AA**	**775M20115BB**	**775M20115CA**	**775M20115DA**	**775M20115FA**		
Date of Collection			**11/17/2006**	**1/12/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**115**	**115**	**115**	**115**	**115**	**115**		
Dilution Factor (-)			**2.5**	**1**	**1**	**2**	**2**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	1.90 F	1.06	1.04	1.52	2.30	0.450 F		
1,1-dichloroethane	5*	1.0	1.00 F	0.540 F	0.580 F	1.20	1.70 F	0.510 F		
1,1-dichloroethene	5*	1.0	0.650 F	0.710 F	0.560 F	1.07	1.30 F	0.490 F		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	0.170 F	U	U		
acetone	50	10	U	U	U	U	U	U		
chloroform	7	0.3	U	U	U	U	0.280 F	U		
cis-1,2-dichloroethene (DCE)	5*	--	U	0.370 F	0.130 F	0.200 F	0.240 F	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	46.4	33.6	34.0	41.9	79.1	15.8		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	49.95	36.28	36.31	46.06	84.92	17.25		
Field Parameters										
ORP (mV)	--	--	284	120	25	-17	109	-29		
oxygen (mg/L)	--	--	1.10	1.97	0.43	0.90	2.50	0.00		
pH (-)	--	--	7.94	7.62	7.10	7.37	7.24	7.87		

Sample Location	**NYS Groundwater Standards**	**Reporting Limit**	**775VMW-20R**							
Sample ID			**775VM20R115AA**	**775VM20R115AA**			**775VMW20R115**			
Date of Collection			**11/20/2006**	**1/12/2009**			**9/22/2009**			
Sample Depth (ft TOIC)			**115**	**115**			**115**			
Dilution Factor (-)			**1**	**1**			**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	U	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	U			
1,1-dichloroethane	5*	1.0	U	U			U			
1,1-dichloroethene	5*	1.0	U	U			U			
1,2,3-trichlorobenzene	5*	1.0	U	U			U			
1,2,4-trichlorobenzene	5*	1.0	U	U			U			
1,2-dichloroethane	0.6	0.5	U	U			U			
acetone	50	10	U	U			1.38 F			
chloroform	7	0.3	U	U			U			
cis-1,2-dichloroethene (DCE)	5*	--	U	U			U			
tetrachloroethene (PCE)	5*	1.0	U	U			U			
trichloroethene (TCE)	5*	1.0	U	U			U			
trichlorofluoromethane	5*	1.0	U	U			U			
total VOCs	-	--	0	0			1.38			
Field Parameters										
ORP (mV)	--	--	120	-1			-52			
oxygen (mg/L)	--	--	1.59	1.81			1.60			
pH (-)	--	--	7.27	8.70			7.34			

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775MW-27							
Sample ID			**775MW-27**	**775M2771AA**	**775M2771BB**	**775M2771CA**	**775M2771DA**	**775M2771FA**		
Date of Collection			**11/2/2006**	**1/13/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**70.6**	**70.6**	**70.6**	**70.6**	**71**	**71**		
Dilution Factor (-)			**5**	**5**	**2**	**2**	**1**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	1.2	0.500 F	0.580 F	0.550 F	0.540 F	0.470 F		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	0.110 F	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	0.110 F	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	6.33	U	U	1.47 F	U		
chloroform	7	0.3	0.43 F	0.700	0.610	0.630	0.510	0.580		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	82	31.3	39.3	36.2	33.4	26		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	83.63	39.05	40.49	37.38	34.45	27.05		
Field Parameters										
ORP (mV)	--	--	243	230	144	308	121	165		
oxygen (mg/L)	--	--	9.00	10.10	9.67	10.22	9.24	7.00		
pH (-)	--	--	7.48	6.70	6.73	7.41	7.15	7.83		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775MW-28							
Sample ID			**775MW-28**	**775M2880BB**	**775M2880BB**	**775M2880CA**	**775M2880DA**	**775M2880FA**		
Date of Collection			**11/2/2006**	**1/13/2009**	**4/9/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**		
Sample Depth (ft TOIC)			**80**	**80**	**80**	**80**	**80**	**80**		
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.29 F	U	0.150 F♦	U	U	U		
1,1-dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichloroethane	0.6	0.5	U	U	U	U	U	U		
acetone	50	10	U	U	U	U	1.04 F♦	U		
chloroform	7	0.3	U	U	U	U	U	U		
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	15	0.200 F	5.61	0.290 F ♦	0.230 F♦	1.27 ♦		
trichlorofluoromethane	5*	1.0	U	U	U	U	U	U		
total VOCs	-	--	15.29	0.2	5.75	0.29	1.27	1.27		
Field Parameters										
ORP (mV)	--	--	222	209	228	115	322	55		
oxygen (mg/L)	--	--	8.50	8.63	7.83	9.11	9.15	8.49		
pH (-)	--	--	7.89	6.95	8.09	7.24	7.84	8.86		

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	775EW-1							
Sample ID			**775E0175BB**	**775E0175CA**	**775E0175DA**	**775E0175FA**				
Date of Collection			**4/15/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**				
Sample Depth (ft TOIC)			**75**	**75**	**75**	**75**				
Dilution Factor (-)			**1**	**1**	**1**	**1**				
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.420 F	0.430 F	0.410 F	0.430 F				
1,1-dichloroethane	5*	1.0	U	U	U	U				
1,1-dichloroethene	5*	1.0	U	U	U	U				
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U				
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U				
1,2-dichloroethane	0.6	0.5	U	U	U	U				
acetone	50	10	U	U	1.80 F	U				
chloroform	7	0.3	0.120 F	U	U	0.190 F				
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U				
tetrachloroethene (PCE)	5*	1.0	U	U	U	U				
trichloroethene (TCE)	5*	1.0	U	U	U	U				
trichlorofluoromethane	5*	1.0	U	U	U	U				
total VOCs	-	--	0.54	0.43	2.21	0.62				
Field Parameters										
ORP (mV)	--	--	113	207	102	93				
oxygen (mg/L)	--	--	6.66	8.17	7.74	4.57				
pH (-)	--	--	7.88	7.54	7.16	7.86				

Table 4-2

Sample Location	NYS Groundwater Standards	Reporting Limit	Effluent							
Sample ID			**Effluent 1**	**Effluent 1**	**Effluent 1**	**775EF0101DA**	**775EF0101FA**			
Date of Collection			**1/13/2009**	**4/15/2009**	**6/18/2009**	**9/22/2009**	**4/16/2010**			
Sample Depth (ft TOIC)			**0**	**0**	**0**	**0**	**0**			
Dilution Factor (-)			**1**	**1**	**1**	**2**	**1**			
VOCs (µg/L)										
1,1,1-trichloroethane	5*	1.0	0.820 F	0.580 F	0.460 F	0.640 F	0.630 F			
1,1-dichloroethane	5*	1.0	U	U	U	U	U			
1,1-dichloroethene	5*	1.0	U	U	U	U	U			
1,2,3-trichlorobenzene	5*	1.0	U	U	U	U	U			
1,2,4-trichlorobenzene	5*	1.0	U	U	U	U	U			
1,2-dichloroethane	0.6	0.5	U	U	U	U	U			
acetone	50	10	U	U	U	U	U			
chloroform	7	0.3	0.380 F	0.360 F	0.400 F	0.500 F	0.490 F			
cis-1,2-dichloroethene (DCE)	5*	--	U	U	U	U	U			
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U			
trichloroethene (TCE)	5*	1.0	62.3	52.5	38.9	54.5	51.9			
trichlorofluoromethane	5*	1.0	U	U	U	U	U			
total VOCs	-	--	63.5	53.44	39.76	55.64	53.02			
Field Parameters										
ORP (mV)	--	--	181	132	239	324	15			
oxygen (mg/L)	--	--	9.34	11.37	10.38	10.56	6.75			
pH (-)	--	--	7.58	7.85	7.79	7.64	7.92			

Table 4-3
Building 775 Groundwater Extraction and Discharge System Flow Table

Date	Cumulative Volume (gallons)	Average Pump Rate (gpm)
1/1/09	0	0
1/5/09	822	0
1/6/09	4,792	3.0
1/7/09	9,071	2.9
1/9/09	13,309	1.5
1/12/09	29,660	3.7
1/14/09	39,430	3.6
1/16/09	49,540	3.5
1/19/09	64,388	3.5
1/21/09	74,026	3.4
1/23/09	85,375	3.9
1/26/09	101,251	3.6
1/28/09	111,098	3.7
1/30/09	121,740	3.2
2/2/09	135,600	3.4
2/9/09	169,466	3.3
3/2/09	231,105	2.0
3/4/09	241,944	3.4
3/9/09	265,500	3.4
3/13/09	280,281	2.5
3/23/09	337,512	3.9
3/30/09	376,849	3.9
4/2/09	393,359	3.9
4/6/09	416,316	3.9
4/13/09	455,379	3.9
4/23/09	513,204	3.9
4/28/09	540,644	3.6
5/8/09	597,671	4.0
5/13/09	626,348	4.4
5/29/09	718,194	4.0
6/5/09	759,102	4.0
6/18/09	832,287	4.0
6/30/09	901,587	4.0
7/6/09	936,052	3.9
7/15/09	986,988	4.0
7/23/09	1,031,656	3.9
8/7/09	1,115,608	3.9
8/12/09	1,143,150	3.8
8/20/09	1,185,751	3.8
9/3/09	1,257,404	3.6

10/1/09	1,395,390	3.4
10/19/09	1,480,018	3.2
11/2/09	1,544,970	3.2
11/18/09	1,618,922	3.2
12/3/09	1,683,202	3.0
12/8/09	1,704,156	2.8
12/22/09	1,766,638	3.1
1/4/10	1,814,833	2.6
1/18/10	1,871,630	2.8
1/21/10	1,883,388	2.8
2/2/10	1,933,075	2.9
2/26/10	1,974,436	2.9

Table 5-1
Apron 2 Performance Monitoring Sample Analysis Summary

Sampling Locations	Screen Interval (ft mean sea level [msl])	Sampling Rationale	Target Analytes/ EPA Method Numbers	1st Year (quarterly)	After 1st Year (semi-annual)	# of Samples[1]
AP2MW-3	432.41 - 446.97	Cross-gradient	• VOCs – 8260B • Natural Attenuation Parameters: Nitrate, Chloride, Sulfate - SW9056, DOC - SM5310B, Total Alkalinity - SM2320B. • Field Measurements: ORP, temperature, oxygen, pH, conductivity, turbidity, water levels, ferrous iron.	√ [2]	√ [2]	18
782VMW-76	434.86 - 444.86	Downgradient within plume		√	√	
782VMW-78	436.26 - 446.26	Downgradient within plume		√	√	
782VMW-81	427.71 - 437.71	Downgradient within plume (source)		√	√	
782VMW-84	431.90 - 441.90	Downgradient within plume		√	√	
782VMW-84D	419.57 - 434.57	Potential vertical migration of plume		√	√[2]	
782VMW-93	437.79 - 447.79	Downgradient within plume		√	√	
782VMW-96	434.13 - 444.13	Downgradient within plume		√	-	
782VMW-98	442.06 - 452.06	Upgradient (source area)		√[3]	-	
782VMW-100	432.10- 447.10	Crossgradient		√	√	
782VMW-101	429.11 - 444.11	Downgradient within plume		√	√	
782VMW-105B	435.37 -450.37	Within plume (source area)		√	√	
782MW-10	443.79 -458.79	Downgradient within plume		√	√	
782VMW-121	433.06 - 448.06	Downgradient		√	√	
782VMW-121D	427.81 - 437.81	Potential vertical migration of plume		√	√	
Surface Water						
782SW-115	--	Potential contaminant receptor	• VOCs – SW8260B Water Levels			
782SW-118	--	Potential contaminant receptor				
782SW-119	--	Potential contaminant receptor				

Notes:
1. Please refer to FSP for details concerning the number of QA/QC samples and their locations. At least one MS/MSD and two field duplicates will be collected per SDG; one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs.
2. Annual sampling only.
3. To be sampled during first performance sampling round only.

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-76							
Sample ID			**782VM7638AA**	**782VM7638AB**	**782VM7638BB**	**782VM7638CA**	**782VM7638DA**	**782VM7638EB**	**782VM7638FB**	
Date of Collection			**11/15/2006**	**9/24/2008**	**12/31/2008**	**4/15/2009**	**6/16/2009**	**9/21/2009**	**4/19/2010**	
Sample Depth (ft TOIC)			**38**	**38**	**38**	**38**	**38**	**38**	**38**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	1.74 F	2.07 F	U	1.91 F	U	
benzene	1	0.4	0.110 F	U	U	U	0.160 F	0.160 F	0.160 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	0.990 F	0.630 F	U	0.670 F	1.02	0.910 F	0.990 F	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	4.56 F	3.42 F	U	4.75 F	5.14	5.67	4.66 F	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	0.420 F	0.340 F	U	0.250 F	0.630 F	0.550 F	0.500 F	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	10.3	7.54	U	7.73	15.1	13.0	10.0	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	11.71	11.89	U	15.47	22.05	22.2	16.31	
Wet Chemistry										
DOC (mg/L)	-	-	1.6	4.6	7.4	5.5	2.3	2.7	3.0	
alkalinity (mg/L)	-	10	290	250	130	340	330	330	310	
chloride (mg/L)	250	1	44	43	5.7	53	47	47	37	
nitrate (mg/L)	10	1	0.044 F	U	4	U	U	0.037 F	0.044 F	
sulfate (mg/L)	250	1	1.1	7.0	63.0	2.0	U	U	U	
Field Parameters										
ORP (mV)	-	-	-76	-118	256	-110	-100	-72	-101	
oxygen (mg/L)	-	-	8.04	1.54	3.96	2.80	7.17	7.24	6.75	
pH (-)	-	-	6.52	7.00	6.95	6.61	7.06	6.69	7.18	
ferrous iron (mg/L)	-	-	0.0	2.0	NS	2.2	4.0	2.0	1.6	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-78							
Sample ID			**782VM7840AA**	**782VM7840AB**	**782VM7840BB**	**782VM7840CA**	**782VM7840DA**	**782VM7840EB**	**782VM7840FB**	
Date of Collection			**11/14/2006**	**9/25/2008**	**12/31/2008**	**3/26/2009**	**6/16/2009**	**9/21/2009**	**4/19/2010**	
Sample Depth (ft TOIC)			**40**	**40**	**40**	**40**	**40**	**40**	**40**	
Dilution Factor (-)			**1**	**2**	**2**	**2**	**2**	**2**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	0.190 F♦	0.200 F	U	U	U	U	0.150 F	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	0.230 F	0.260 F	U	U	U	0.240 F	0.270 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	38.1 ♦	42.0	42.8	39.6	45.9	46.3	43.4 J	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	4.04	4.37	3.66	3.48	3.84	4.04	4.31	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	14.0	16.0	10.6	6.50	6.78	10.5	9.42	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	56.14	62.83	57.06	49.58	56.52	61.08	57.55	
Wet Chemistry										
DOC (mg/L)	-	-	1.6	1.7	1.9	2.0 B	2.5	1.8	2.2	
alkalinity (mg/L)	-	10	270	260	250	250	240	240	230	
chloride (mg/L)	250	1	170	24	28	27	25	19	22	
nitrate (mg/L)	10	1	0.027 F ♦	U	U	0.024 F	U	0.015 F	U	
sulfate (mg/L)	250	1	12	8.2	7.9	7.7	7.4	6.5	7	
Field Parameters										
ORP (mV)	-	-	-125	-144	-56	-47	-80	-77	-104	
oxygen (mg/L)	-	-	0.00	1.63	1.39	0.00	2.05	6.35	7.49	
pH (-)	-	-	6.93	7.02	5.91	6.40	7.45	6.86	7.52	
ferrous iron (mg/L)	-	-	2.4	1.8	NS	1.0	1.2	1.8	1.2	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-81							
Sample ID			**782VM8146AA**	**782VM8146AB**	**782VM8146BB**	**782VM8146CA**	**782VM8146DA**	**782VM8146EB**	**782VM8146FB**	
Date of Collection			**11/14/2006**	**9/24/2008**	**12/30/2008**	**4/15/2009**	**6/16/2009**	**9/21/2009**	**4/15/2010**	
Sample Depth (ft TOIC)			**46**	**46**	**46**	**46**	**46**	**46**	**46**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	0.110 F	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	0.190 F	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	11.5	14.0	18.4	18.0	21.2	23.4	28.7	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	1.09	0.940 F	1.01	1.02	1.13	0.970 F	1.35	
trichloroethene (TCE)	5*	1.0	2.7	3.49	4.81	4.89	6.72	4.82	4.42	
vinyl chloride	2	1.0	8.86	5.68	6.67	3.73	4.45	4.55	4.68	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	24.15	24.11	30.89	27.64	33.8	33.74	39.15	
Wet Chemistry										
DOC (mg/L)	-	-	0.58 F	1.7	0.84	0.88 F	0.65 F	1.7	1.4	
alkalinity (mg/L)	-	10	220	220	230	200	210	210	210	
chloride (mg/L)	250	1	48	29	26	24	21	18	20	
nitrate (mg/L)	10	1	U	U	U	0.036 F	0.022 F	0.024 F	0.035 F	
sulfate (mg/L)	250	1	4.7	5.0	6.3	6.7	7.2	7.3	8.5	
Field Parameters										
ORP (mV)	-	-	144	-182	-101	-50	-50	-61	-83	
oxygen (mg/L)	-	-	1.40	1.69	0.67	2.71	2.84	6.44	0.00	
pH (-)	-	-	6.94	7.61	7.81	6.38	7.56	7.22	8.00	
ferrous iron (mg/L)	-	-	1.0	1.0	NS	1.0	0.1	0.8	0.4	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-84							
Sample ID			**782VM8440AA**	**782VM8440AB**	**782VM8440BB**	**782VM8440CA**	**782VM8440DA**	**782VM8440EB**	**782VM8440FB**	
Date of Collection			**11/15/2006**	**9/26/2008**	**12/31/2008**	**3/26/2009**	**6/17/2009**	**9/23/2009**	**4/19/2010**	
Sample Depth (ft TOIC)			**40**	**40**	**40**	**40**	**40**	**40**	**40**	
Dilution Factor (-)			**2**	**2**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	0.130 F	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	U	U	0.130 F	0.140 F	U	0.130 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	0.460 F	0.420 F	U	0.460 F	0.560 F	0.500 F	0.560 F	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	3.00 F	3.20 F	U	3.06 F	3.24 F	2.54 F	2.70 F	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	0.180 F	0.210 F	U	0.170 F	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	31.7	32.3	U	39.8	42.2	39.4	39.5	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	31.7	35.92	0	43.63	46.48	42.44	43.06	
Wet Chemistry										
DOC (mg/L)	-	-	5.0	5.8	0.64 F	5.6	5.3	4.9	5.2	
alkalinity (mg/L)	-	10	340	340	20	330	330	320	310	
chloride (mg/L)	250	1	48	68	0.48 F	45	39	38	35	
nitrate (mg/L)	10	1	0.046 F	U	0.19	U	0.014 F	0.020 F	0.039 F	
sulfate (mg/L)	250	1	2.7	45	0.76 F	3.2	4.1	2.9	1.6	
Field Parameters										
ORP (mV)	-	-	-99	-113	136	-97	-126	-103	-114	
oxygen (mg/L)	-	-	1.12	0.62	9.84	0.00	0.00	4.11	0.00	
pH (-)	-	-	6.87	6.34	6.36	6.00	6.49	6.51	6.91	
ferrous iron (mg/L)	-	-	3.0	3.4	NS	2.0	4.8	5.5	4.2	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-84D							
Sample ID			**782VM84D50AB**	**782VM8440BB**	**782VM84D50CA**	**782VM84D50DA**	**782VM84D50EB**	**782VM84D50FB**		
Date of Collection			**9/26/2008**	**12/31/2008**	**3/25/2009**	**6/17/2009**	**9/23/2009**	**4/19/2010**		
Sample Depth (ft TOIC)			**50**	**40**	**50**	**50**	**50**	**50**		
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U		
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
acetone	50	10	U	2.34 F	2.74 F	1.25 F	2.85 F	2.41 F		
benzene	1	0.4	U	U	U	U	U	U		
2-butanone	50	10	U	U	U	U	U	U		
chlorobenzene	5*	0.5	U	U	U	U	U	U		
Chloroform	7	0.3	U	U	U	U	U	U		
Chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	0.340 F	U	U	U	0.110 F	0.140 F		
ethylbenzene	5*	1.0	U	U	U	U	U	U		
isopropylbenzene	5*	1.0	U	U	U	U	U	U		
methyl tert-butyl ether	10	5.0	4.36 F	U	1.94 F	U	1.43 F	1.51 F		
methylene chloride	5*	1.0	U	U	U	U	U	U		
n-butylbenzene	5*	1.0	U	U	U	U	U	U		
n-propylbenzene	5*	1.0	U	U	U	U	U	U		
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U		
naphthalene	10	1.0	U	U	U	U	U	U		
o-xylene	5*	1.0	U	U	U	U	U	U		
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U		
sec-butylbenzene	5*	1.0	U	U	U	U	U	U		
t-butylbenzene	5*	1.0	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
toluene	5*	1.0	U	U	U	U	U	U		
trans-1,2-dichloroethene	5*	1.0	0.180 F	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U		
vinyl chloride	2	1.0	29.7	U	8.83	1.18	12.8	10.9		
xylenes, total	5*	-	U	U	U	U	U	U		
total VOCs	-	-	34.58	2.34	13.51	2.43	17.19	14.96		
Wet Chemistry										
DOC (mg/L)	-	-	6.0	1.4	4.4	2.8	4.2	3.9		
alkalinity (mg/L)	-	10	350	260	72	48	170	180		
chloride (mg/L)	250	1	50	1.5	20	1.4	18	19		
nitrate (mg/L)	10	1	U	0.14	0.14	0.016 F	0.063 F	0.18		
sulfate (mg/L)	250	1	7.4	5.4	6.5	14	7.8	4.2		
Field Parameters										
ORP (mV)	-	-	-114	-33	40	-3	-61	-74		
oxygen (mg/L)	-	-	0.51	8.22	0.20	0.66	5.43	0.84		
pH (-)	-	-	6.50	9.30	10.79	11.14	7.21	7.26		
ferrous iron (mg/L)	-	-	3.6	NS	0.0	0.0	1.2	0.0		

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-93							
Sample ID			**782VM9335AA**	**782VM9335AB**		**782VM9335CA**	**782VM9335DA**	**782VM9335EB**	**782VM9335FB**	
Date of Collection			**11/15/2006**	**9/26/2008**		**4/15/2009**	**6/16/2009**	**9/23/2009**	**4/19/2010**	
Sample Depth (ft TOIC)			**35**	**35**		**35**	**35**	**35**	**35**	
Dilution Factor (-)			**2**	**50**		**50**	**50**	**50**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	This monitoring well could not be sampled due to the large amount of run-off from the landfarm containing petroleum contaminated soils on Apron 2. This is contaminating the well with silt and petroleum constituents.	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U		U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U		U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U		U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U		U	U	U	U	
acetone	50	10	U	176		1.94 F	U	U	U	
benzene	1	0.4	U	U		U	U	U	U	
2-butanone	50	10	U	90.0 J		U	U	U	U	
chlorobenzene	5*	0.5	U	U		U	U	U	U	
Chloroform	7	0.3	U	U		0.280 F	U	U	U	
Chloromethane	--	1.0	U	U		U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U		U	U	U	0.590 F	
ethylbenzene	5*	1.0	U	4.49		U	U	U	U	
isopropylbenzene	5*	1.0	U	U		U	U	U	U	
methyl tert-butyl ether	10	5.0	8.04 F	4.47 F		7.40	10.9	9.40 F	U	
methylene chloride	5*	1.0	U	U		U	U	U	U	
n-butylbenzene	5*	1.0	U	U		U	U	U	U	
n-propylbenzene	5*	1.0	U	U		U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U		U	U	U	U	
naphthalene	10	1.0	U	U		U	U	U	U	
o-xylene	5*	1.0	U	U		U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U		U	U	U	U	
sec-butylbenzene	5*	1.0	U	U		U	U	U	U	
t-butylbenzene	5*	1.0	U	U		U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U		U	U	U	U	
toluene	5*	1.0	U	1150		1.78	1.70	0.800 F	U	
trans-1,2-dichloroethene	5*	1.0	U	U		U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U		U	U	U	U	
vinyl chloride	2	1.0	54.6	17.2		35.1	62.6	54.6	2.31	
xylenes, total	5*	-	U	U		U	U	U	U	
total VOCs	-	-	54.6	1442.16		46.5	75.2	64.8	2.9	
Wet Chemistry										
DOC (mg/L)	-	-	2.7	120		11	2.9	3.5	1.7	
alkalinity (mg/L)	-	10	320	520		320	330	360	250	
chloride (mg/L)	250	1	32	37		49	56	53	140	
nitrate (mg/L)	10	1	0.089 F	47		0.098 F	0.046 F	0.018 F	U	
sulfate (mg/L)	250	1	0.36 F	0.99 F		13	0.61 F	U	U	
Field Parameters										
ORP (mV)	-	-	-20	-208		-76	-101	-104	-130	
oxygen (mg/L)	-	-	1.11	1.07		1.54	4.02	1.76	0.00	
pH (-)	-	-	6.83	6.54		6.36	7.08	7.56	7.82	
ferrous iron (mg/L)	-	-	0.2	1.6		1.0	NS	3.2	0.0	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-96							
Sample ID			**782VM9637AA**	**782VM9637AB**	**782VM9637BB**	**782VM9637CA**	**782VM9637DA**			
Date of Collection			**11/14/2006**	**9/25/2008**	**12/31/2008**	**3/26/2009**	**6/17/2009**			
Sample Depth (ft TOIC)			**37**	**37**	**37**	**37**	**37**			
Dilution Factor (-)			**2**	**2**	**2**	**2**	**2**			
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U			
1,1-dichloroethene	5*	1.0	U	U	U	U	U			
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U			
1,2-dichlorobenzene	3	1.0	U	U	U	U	U			
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U			
acetone	50	10	U	U	U	U	U			
benzene	1	0.4	U	U	U	U	U			
2-butanone	50	10	U	U	U	U	U			
chlorobenzene	5*	0.5	U	U	U	U	U			
Chloroform	7	0.3	U	U	U	U	U			
Chloromethane	--	1.0	U	U	U	U	U			
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U			
ethylbenzene	5*	1.0	U	U	U	U	U			
isopropylbenzene	5*	1.0	U	U	U	U	U			
methyl tert-butyl ether	10	5.0	7.72 F	12.7	10.5	12.3	7.28 F			
methylene chloride	5*	1.0	U	U	U	U	U			
n-butylbenzene	5*	1.0	U	U	U	U	U			
n-propylbenzene	5*	1.0	U	U	U	U	U			
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U			
naphthalene	10	1.0	U	U	U	U	U			
o-xylene	5*	1.0	U	U	U	U	U			
p-isopropyltoluene	5*	1.0	U	U	U	U	U			
sec-butylbenzene	5*	1.0	U	U	U	U	U			
t-butylbenzene	5*	1.0	U	U	U	U	U			
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U			
toluene	5*	1.0	U	U	U	U	U			
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U			
trichloroethene (TCE)	5*	1.0	U	U	U	U	U			
vinyl chloride	2	1.0	68.2	49.6	50.9	46.6	28.3			
xylenes, total	5*	-	U	U	U	U	U			
total VOCs	-	-	68.2	62.3	61.4	58.9	35.58			
Wet Chemistry										
DOC (mg/L)	-	-	2.5	2.3	2.6	3.4	2.6			
alkalinity (mg/L)	-	10	320	320	310	330	320			
chloride (mg/L)	250	1	54	42	44	46	44			
nitrate (mg/L)	10	1	0.035 F	0.041 F	0.068	U	0.023 F			
sulfate (mg/L)	250	1	0.17 F	U	0.2	U	0.11 F			
Field Parameters										
ORP (mV)	-	-	124	-129	-69	-68	-127			
oxygen (mg/L)	-	-	3.39	4.23	0.90	0.00	0.00			
pH (-)	-	-	7.28	6.98	6.60	6.12	6.06			
ferrous iron (mg/L)	-	-	1.5	1.8	NS	1.2	3.2			

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-98							
Sample ID			**782VM9829AA**	**782VM9832AB**						
Date of Collection			**11/14/2006**	**9/24/2008**						
Sample Depth (ft TOIC)			**29**	**32**						
Dilution Factor (-)			**1**	**1**						
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	Monitoring well not sampled. This well was designated for one time only sampling in the first round of performance monitoring.					
1,1-dichloroethene	5*	1.0	U	U						
1,2,4-trimethylbenzene	5*	1.0	U	U						
1,2-dichlorobenzene	3	1.0	U	U						
1,3,5-trimethylbenzene	5*	1.0	U	U						
acetone	50	10	U	U						
benzene	1	0.4	U	U						
2-butanone	50	10	U	U						
chlorobenzene	5*	0.5	U	U						
Chloroform	7	0.3	U	U						
Chloromethane	--	1.0	U	U						
cis-1,2-dichloroethene	5*	1.0	U	U						
ethylbenzene	5*	1.0	U	U						
isopropylbenzene	5*	1.0	U	U						
methyl tert-butyl ether	10	5.0	U	U						
methylene chloride	5*	1.0	U	U						
n-butylbenzene	5*	1.0	U	U						
n-propylbenzene	5*	1.0	U	U						
m,p,-xylene (sum of isomers)	5*	2.0	U	U						
naphthalene	10	1.0	U	U						
o-xylene	5*	1.0	U	U						
p-isopropyltoluene	5*	1.0	U	U						
sec-butylbenzene	5*	1.0	U	U						
t-butylbenzene	5*	1.0	U	U						
tetrachloroethene (PCE)	5*	1.0	U	U						
toluene	5*	1.0	U	U						
trans-1,2-dichloroethene	5*	1.0	U	U						
trichloroethene (TCE)	5*	1.0	U	U						
vinyl chloride	2	1.0	U	U						
xylenes, total	5*	-	U	U						
total VOCs	-	-	0	0						
Wet Chemistry										
DOC (mg/L)	-	-	0.26 F	0.56 F						
alkalinity (mg/L)	-	10	200	190						
chloride (mg/L)	250	1	4.0	11						
nitrate (mg/L)	10	1	0.33 F	0.44						
sulfate (mg/L)	250	1	5.1	6.6						
Field Parameters										
ORP (mV)	-	-	161	65						
oxygen (mg/L)	-	-	5.32	5.48						
pH (-)	-	-	6.55	7.21						
ferrous iron (mg/L)	-	-	0.0	0.0						

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-100							
Sample ID			**782VM10025AB**	**782VM10025BB**	**782VM10025CA**	**782VM10025DA**	**782VM10025EB**	**782VM10025FB**		
Date of Collection			**9/26/2008**	**12/31/2008**	**3/25/2009**	**6/17/2009**	**9/21/2009**	**4/15/2010**		
Sample Depth (ft TOIC)			**25**	**25**	**25**	**25**	**25**	**25**		
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U		
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
acetone	50	10	U	U	1.20 F	U	3.68 F	1.19 F		
benzene	1	0.4	U	U	U	U	U	U		
2-butanone	50	10	U	U	U	U	U	U		
chlorobenzene	5*	0.5	U	U	U	U	U	U		
Chloroform	7	0.3	U	U	U	U	U	U		
Chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
ethylbenzene	5*	1.0	U	U	U	U	U	U		
isopropylbenzene	5*	1.0	U	U	U	U	U	U		
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U		
methylene chloride	5*	1.0	U	U	U	U	U	U		
n-butylbenzene	5*	1.0	U	U	U	U	U	U		
n-propylbenzene	5*	1.0	U	U	U	U	U	U		
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U		
naphthalene	10	1.0	U	U	U	U	U	U		
o-xylene	5*	1.0	U	U	U	U	U	U		
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U		
sec-butylbenzene	5*	1.0	U	U	U	U	U	U		
t-butylbenzene	5*	1.0	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
toluene	5*	1.0	U	U	U	U	U	U		
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U		
vinyl chloride	2	1.0	U	U	U	U	U	U		
xylenes, total	5*	-	U	U	U	U	U	U		
total VOCs	-	-	0	0	1.2	0	3.68	1.19		
Wet Chemistry										
DOC (mg/L)	-	-	4.2	4	2.5 B	3.7	4.6	4.2		
alkalinity (mg/L)	-	10	280	180	150	230	300	190		
chloride (mg/L)	250	1	5.2	3.4	2.2	1.5	1.8	3.5		
nitrate (mg/L)	10	1	1.8	U	U	U	0.015 F	U		
sulfate (mg/L)	250	1	11	16	15	6.1	16	7.4		
Field Parameters										
ORP (mV)	-	-	38	-16	0	-51	-102	-78		
oxygen (mg/L)	-	-	1.43	2.19	0.00	0.00	1.61	0.00		
pH (-)	-	-	6.35	8.15	6.92	7.18	7.62	7.52		
ferrous iron (mg/L)	-	-	0.2	NS	0.6	0.8	1.6	0.8		

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-101							
Sample ID			**782VM10118AA**	**782VM10118AB**	**782VM10118BB**	**782VM10118CA**	**782VM10118DA**	**782VM10118EB**	**782VM10118FB**	
Date of Collection			**11/15/2006**	**9/24/2008**	**12/30/2008**	**3/26/2009**	**6/16/2009**	**9/21/2009**	**4/15/2010**	
Sample Depth (ft TOIC)			**18**	**18**	**18**	**18**	**18**	**18**	**18**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	1.96 F	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	0.120 F	U	U	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	1.87 F	7.09	6.78	6.37	5.70	6.64 ♦	9.15 ♦	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	1.88	2.02	2.09 ♦	1.85 ♦	2.69	2.38	5.27 ♦	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	3.75	9.11	8.81	8.22	8.51	10.92	14.42	
Wet Chemistry										
DOC (mg/L)	-	-	2.2	4.1	3.8 ♦	3.9	3.3	3.6 ♦	4.9 ♦	
alkalinity (mg/L)	-	10	260	310	340	320	320	320	320	
chloride (mg/L)	250	1	4.3	21	31	25 ♦	17 ♦	28	38 ♦	
nitrate (mg/L)	10	1	0.021 F	0.037 F	U	0.021 F ♦	U	U	U	
sulfate (mg/L)	250	1	3.9	150	140	130	140	120	210	
Field Parameters										
ORP (mV)	-	-	-131	-89	-49	-46	-76	-89	-99	
oxygen (mg/L)	-	-	5.99	1.36	1.41	0.00	0.48	2.19	0.00	
pH (-)	-	-	6.95	5.76	6.65	5.36	7.09	7.86	6.9	
ferrous iron (mg/L)	-	-	4.2	3.8	NS	1.6	1.8	2.9	4.1	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-105B							
Sample ID			**782VM105B33AA**	**782VM105B33AB**	**782VM105B36BB**	**782VM105B36CA**	**782VM105B36DA**	**782VM105B36EB**	**782VM105B36FB**	
Date of Collection			**11/14/2006**	**9/24/2008**	**12/30/2008**	**4/15/2009**	**6/17/2009**	**9/21/2009**	**4/15/2010**	
Sample Depth (ft TOIC)			**33**	**33**	**36**	**36**	**36**	**36**	**36**	
Dilution Factor (-)			**1**	**2.5**	**2**	**2**	**2**	**2**	**2**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	28.7	64.1 M♦	157 J♦	123	35.5 ♦	1.06 F	
1,2-dichlorobenzene	3	1.0	U	U	U	0.220 F	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	44.4	44.5 M♦	66.5	32.7	17.0 ♦	U	
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	U	0.180 F	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	0.510 F	1.36	1.88 F	1.30 F♦	0.720 F ♦	3.00 ♦	4.70 ♦	
ethylbenzene	5*	1.0	U	31.8	22.6	65.4 M♦	29.1 ♦	21.0 ♦	U	
isopropylbenzene	5*	1.0	U	37.4	25.5 M♦	30.9 ♦	18.3 ♦	24.4	1.22 F	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	0.38 F♦	U	U	U	U	
n-butylbenzene	5*	1.0	U	1.08	1.12 F	1.80 F♦	1.24 F	1.10 F ♦	U	
n-propylbenzene	5*	1.0	U	36.4	26.0 M♦	31.1 ♦	18.1 ♦	22.6 ♦	0.640 F	
m,p,-xylene (sum of isomers)	5*	2.0	U	21.2	38.6 ♦	148 M♦	99.6 ♦	18.4 ♦	U	
naphthalene	10	1.0	U	29.3	15.8 ♦	36.7	20.9	17.1♦	0.880 F	
o-xylene	5*	1.0	U	U	0.560 F♦	1.10 F♦	0.220 F♦	U	U	
p-isopropyltoluene	5*	1.0	U	0.630 F	2.00 ♦	4.20	2.20	1.46 F ♦	U	
sec-butylbenzene	5*	1.0	U	6.43	4.74 ♦	5.96	3.10	4.98 ♦	1.10 F	
t-butylbenzene	5*	1.0	U	0.790 F	U	U	0.400	0.540 F	U	
tetrachloroethene (PCE)	5*	1.0	0.130 F	0.360 F	0.380 F♦	0.680 F	U	0.400 F	0.500 F	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	7.97	23.9	24.7	17.8	7.20 ♦	39.6 ♦	34.8	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
xylenes, total	5*	-	U	21.2	39.2 ♦	150 M♦	U	U	U	
total VOCs	-	-	8.61	263.93	250.26	718.66	356.78	207.08	44.9	
Wet Chemistry										
DOC (mg/L)	-	-	1.6	2.4	2.6 ♦	2.7 ♦	3.3 ♦	2.2	2.6 J♦	
alkalinity (mg/L)	-	10	250	260	240	190	210 ♦	250	190	
chloride (mg/L)	250	1	12	11	9.3	6.7 ♦	7.5 ♦	7.5	4.9 ♦	
nitrate (mg/L)	10	1	0.32 F	0.68	0.39 ♦	0.17 ♦	0.21 ♦	0.33	0.083 F ♦	
sulfate (mg/L)	250	1	9.0	7.0	6.8	5.2 ♦	6.4 ♦	9.5	8.6 ♦	
Field Parameters										
ORP (mV)	-	-	-22	-199	-145	-138	-147	-152	-133	
oxygen (mg/L)	-	-	0.00	1.53	0.78	0.34	0.00	5.56	0.93	
pH (-)	-	-	7.01	7.36	7.49	6.50	7.40	7.18	7.68	
ferrous iron (mg/L)	-	-	0.5	2.0	NS	2.0	3.6	2.5	2.0	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782MW-10							
Sample ID			**782M1027AA**	**782M1027AB**	**782M1027BB**	**782VM1027CA**	**782M1027DA**	**782M1027EB**	**782M1027FB**	
Date of Collection			**11/14/2006**	**9/24/2008**	**12/31/2008**	**3/26/2009**	**6/16/2009**	**9/23/2009**	**4/19/2010**	
Sample Depth (ft TOIC)			**27**	**27**	**27**	**27**	**27**	**27**	**27**	
Dilution Factor (-)			**2**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	0.420 F	0.240 F	0.240 F	0.190 F	0.340 F	0.200 F	0.120 F	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U			U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	1.14 F	U	U	1.47 F	1.19 F	
benzene	1	0.4	0.420 F	0.250 F	0.250 F	0.200 F	0.310 F	0.190 F	0.170 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	U	U	U	U	U	U	U	
Chloroform	7	0.3	U	U	U	U	U	U	U	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	43.9	23.0	23.9	16.6	32.2	20.1	12.7	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	0.220 F	U	0.170 F	U	0.280 F	U	U	
methylene chloride	5*	1.0	0.200 F	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	2.92	1.69	1.71	1.27	2.22	1.41	0.970 F	
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U	U	
vinyl chloride	2	1.0	17.4	10.8	13.0	10.2	18.1	12.1	7.22	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	64.64	35.98	40.41	28.46	53.45	35.47	22.35	
Wet Chemistry										
DOC (mg/L)	-	-	3.1	5.1	5.3	5.5	6.8	5.5	10	
alkalinity (mg/L)	-	10	270	270	260	270	260	280	250	
chloride (mg/L)	250	1	110	16	13	13	15	9.2	6.9	
nitrate (mg/L)	10	1	U	0.018 F	0.46	0.41	0.35	0.12 B	U	
sulfate (mg/L)	250	1	4.9	2.1	1.2	9.7	1.8	1.3	0.67 F	
Field Parameters										
ORP (mV)	-	-	-109	-92	159	-8	17	-18	-105	
oxygen (mg/L)	-	-	0.93	1.05	1.99	0.00	3.45	1.48	0.00	
pH (-)	-	-	6.97	6.86	6.25	5.90	7.06	7.26	6.74	
ferrous iron (mg/L)	-	-	5.0	NS	NS	0.0	0.9	0.8	2.4	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-121							
Sample ID			**782M12116AB**	**782VM12116BB**	**782MW12116CA**	**782VM12116DA**	**782VM12116EB**	**782VM12116FB**		
Date of Collection			**9/25/2008**	**12/31/2008**	**3/25/2009**	**6/17/2009**	**9/21/2009**	**4/15/2010**		
Sample Depth (ft TOIC)			**16**	**16**	**16**	**16**	**16**	**16**		
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U		
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
acetone	50	10	U	U	1.19 F	U	2.57 F	U		
benzene	1	0.4	U	U	U	U	U	U		
2-butanone	50	10	U	U	U	U	U	U		
chlorobenzene	5*	0.5	U	U	U	U	U	U		
Chloroform	7	0.3	U	U	U	U	U	U		
Chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
ethylbenzene	5*	1.0	U	U	U	U	U	U		
isopropylbenzene	5*	1.0	U	U	U	U	U	U		
methyl tert-butyl ether	10	5.0	3.95 F	3.29 F	2.34 F	2.18 F	4.16 F	2.68 F		
methylene chloride	5*	1.0	U	U	0.170 F	U	U	U		
n-butylbenzene	5*	1.0	U	U	U	U	U	U		
n-propylbenzene	5*	1.0	U	U	U	U	U	U		
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U		
naphthalene	10	1.0	U	U	U	U	U	U		
o-xylene	5*	1.0	U	U	U	U	U	U		
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U		
sec-butylbenzene	5*	1.0	U	U	U	U	U	U		
t-butylbenzene	5*	1.0	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
toluene	5*	1.0	U	U	U	U	U	U		
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U		
vinyl chloride	2	1.0	22.5	24.4	12.7	11.8	21.8	17.5		
xylenes, total	5*	-	U	U	U	U	U	U		
total VOCs	-	-	26.45	27.69	16.4	13.98	28.53	20.18		
Wet Chemistry										
DOC (mg/L)	-	-	4.5	4.0	3.8	4.2	4.7	4.1		
alkalinity (mg/L)	-	10	320	320	330	340	320	290		
chloride (mg/L)	250	1	57	57	39	47	51	34		
nitrate (mg/L)	10	1	U	U	0.17 F	U	0.059 F	U		
sulfate (mg/L)	250	1	270	190	110	180	120	260		
Field Parameters										
ORP (mV)	-	-	-105	-59	-33	-54	-88	-81		
oxygen (mg/L)	-	-	0.55	0.91	1.59	0.00	1.97	0.00		
pH (-)	-	-	6.17	8.79	6.89	6.67	7.53	6.98		
ferrous iron (mg/L)	-	-	3.0	NS	1.8	1.4	3.2	1.8		

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782VMW-121D							
Sample ID			**782M121D26AB**	**782VM121D26BB**	**782VM121D26CA**	**782VM121D26DA**	**782VM121D26EB**	**782VM121D26FB**		
Date of Collection			**9/25/2008**	**12/31/2008**	**3/25/2009**	**6/16/2009**	**9/21/2009**	**4/15/2010**		
Sample Depth (ft TOIC)			**26**	**26**	**26**	**26**	**26**	**26**		
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**		
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U		
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U		
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U		
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U		
acetone	50	10	U	U	1.13 F	U	1.22 F	1.52 F		
benzene	1	0.4	U	U	U	U	U	U		
2-butanone	50	10	U	U	U	U	U	U		
chlorobenzene	5*	0.5	U	U	U	U	U	U		
Chloroform	7	0.3	U	U	U	U	U	U		
Chloromethane	--	1.0	U	U	U	U	U	U		
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
ethylbenzene	5*	1.0	U	U	U	U	U	U		
isopropylbenzene	5*	1.0	U	U	U	U	U	U		
methyl tert-butyl ether	10	5.0	5.35	5.71	5.66	6.60	6.76	6.5		
methylene chloride	5*	1.0	U	U	U	U	U	U		
n-butylbenzene	5*	1.0	U	U	U	U	U	U		
n-propylbenzene	5*	1.0	U	U	U	U	U	U		
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U		
naphthalene	10	1.0	U	U	U	U	U	U		
o-xylene	5*	1.0	U	U	U	U	U	U		
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U		
sec-butylbenzene	5*	1.0	U	U	U	U	U	U		
t-butylbenzene	5*	1.0	U	U	U	U	U	U		
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U		
toluene	5*	1.0	U	U	U	U	U	U		
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U		
trichloroethene (TCE)	5*	1.0	U	U	U	U	U	U		
vinyl chloride	2	1.0	15.2	18.1	12.9	23.3	18.5	15.5		
xylenes, total	5*	-	U	U	U	U	U	U		
total VOCs	-	-	20.55	23.81	19.69	29.9	26.48	23.52		
Wet Chemistry										
DOC (mg/L)	-	-	4.9	5.0	4.6	7.9	5.4	19		
alkalinity (mg/L)	-	10	360	350	350	360	340	350		
chloride (mg/L)	250	1	61	56	56	53	55	48		
nitrate (mg/L)	10	1	U	U	U	U	0.048 F	U		
sulfate (mg/L)	250	1	32	27	27	25	17	79		
Field Parameters										
ORP (mV)	-	-	-95	-38	-61	-95	-103	-96		
oxygen (mg/L)	-	-	0.87	1.25	0.32	0.64	2.17	0.00		
pH (-)	-	-	6.01	8.6	6.93	7.24	7.73	6.92		
ferrous iron (mg/L)	-	-	2.8	NS	1.2	2.0	3.0	4.0		

Sample Location	NYS Groundwater Standards	Reporting Limit	AP2MW-3							
Sample ID			**AP2M0327AB**				**AP2M0327EB**	**AP2M0327FB**		
Date of Collection			**9/26/2008**				**9/21/2009**	**4/15/2010**		
Sample Depth (ft TOIC)			**27**				**27**	**27**		
Dilution Factor (-)			**25**				**25**	**25**		
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	Monitoring well not sampled, annual sampling frequency.	U	U		
1,1-dichloroethene	5*	1.0	U				U	U		
1,2,4-trimethylbenzene	5*	1.0	32.4				17.0 F	29.2		
1,2-dichlorobenzene	3	1.0	U				U	U		
1,3,5-trimethylbenzene	5*	1.0	6.73				4.00 F	7.25 F		
acetone	50	10	U				U	U		
benzene	1	0.4	658				668	708		
2-butanone	50	10	U				U	U		
chlorobenzene	5*	0.5	U				U	U		
Chloroform	7	0.3	U				3.00 F	U		
Chloromethane	--	1.0	U				U	U		
cis-1,2-dichloroethene	5*	1.0	U				U	U		
ethylbenzene	5*	1.0	2.57				U	5.00 F		
isopropylbenzene	5*	1.0	2.54				U	U		
methyl tert-butyl ether	10	5.0	U				51.5 F	55.8 F		
methylene chloride	5*	1.0	U				U	U		
n-butylbenzene	5*	1.0	U				U	U		
n-propylbenzene	5*	1.0	2.52				U	4.00 F		
m,p,-xylene (sum of isomers)	5*	2.0	61.0				35.2 F	32.2 F		
naphthalene	10	1.0	11.9				5.50 F	6.75 F		
o-xylene	5*	1.0	0.610 F				U	4.50 F		
p-isopropyltoluene	5*	1.0	U				U	U		
sec-butylbenzene	5*	1.0	U				U	U		
t-butylbenzene	5*	1.0	U				U	U		
tetrachloroethene (PCE)	5*	1.0	U				U	U		
toluene	5*	1.0	0.690 F				U	U		
trans-1,2-dichloroethene	5*	1.0	U				U	U		
trichloroethene (TCE)	5*	1.0	U				U	U		
vinyl chloride	2	1.0	U				U	U		
xylenes, total	5*	-	61.6				35.2 F	36.8 F		
total VOCs	-	-	778.96				802.4	852.7		
Wet Chemistry										
DOC (mg/L)	-	-	6.1				6.4	6.7		
alkalinity (mg/L)	-	10	350				360	370		
chloride (mg/L)	250	1	72				75	62		
nitrate (mg/L)	10	1	U				U	U		
sulfate (mg/L)	250	1	U				U	U		
Field Parameters										
ORP (mV)	-	-	-116				-101	-105		
oxygen (mg/L)	-	-	1.60				1.79	0.00		
pH (-)	-	-	6.74				7.60	6.98		
ferrous iron (mg/L)	-	-	1.6				3.8	6.0		

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782SW-115							
Sample ID			**782SW11501AA**	**782SW11501AB**	**782SW11501BB**	**782SW11501CA**	**782SW11501DA**	**782SW11501EB**	**782SW11501FB**	
Date of Collection			**11/15/2006**	**9/24/2008**	**1/2/2009**	**4/16/2009**	**6/16/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	1.12 F	U	1.11 F	U	
benzene	1	0.4	U	U	U	U	U	U	U	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	0.160 F	U	0.230 F	0.220 F	0.120 F	U	0.190 F	
Chloroform	7	0.3	U	U	U	U	U	U	0.150 F	
Chloromethane	--	1.0	U	U	U	U	U	0.590 F	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	0.120 F	U	U	
ethylbenzene	5*	1.0	U	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	U	U	U	U	U	U	U	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	0.140 F	U	0.110 F	U	U	0.130 F	U	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	0.3	0	0.34	1.34	0.24	1.83	0.34	
Wet Chemistry										
DOC (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	
alkalinity (mg/L)	-	10	NS	NS	NS	NS	NS	NS	NS	
chloride (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
nitrate (mg/L)	10	1	NS	NS	NS	NS	NS	NS	NS	
sulfate (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
Field Parameters										
ORP (mV)	-	-	-40	169	51	187	7	-5	-38	
oxygen (mg/L)	-	-	9.33	12.34	11.11	11.79	8.79	10.01	7.10	
pH (-)	-	-	7.09	5.90	6.21	5.44	7.20	7.65	7.48	
ferrous iron (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	

Sample Location	NYS Groundwater Standards	Reporting Limit	782SW-118							
Sample ID			**782SW11801AA**	**782SW11801AB**	**782SW11801BB**	**782SW11801CA**	**782SW11801DA**	**782SW11801EB**	**782SW11801FB**	
Date of Collection			**11/15/2006**	**9/24/2008**	**1/2/2009**	**4/16/2009**	**6/16/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	1.10 F	U	U	1.27 F	
benzene	1	0.4	1.85	1.42	1.11	0.620	0.620	0.740	0.350 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	0.150 F	U	0.200 F	0.170 F	0.130 F	U	0.230 F	
Chloroform	7	0.3	U	U	U	U	U	U	0.150 F	
Chloromethane	--	1.0	U	U	U	U	U	0.390 F	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
ethylbenzene	5*	1.0	0.110 F	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	0.190 F	U	0.220 F	U	0.220 F	0.300 F	0.171 FJ	
methylene chloride	5*	1.0	U	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	0.180 F	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	0.130 F	U	U	0.120 F	U	0.110 F	0.110 F	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
xylenes, total	5*	-	0.180 F	U	U	U	U	U	U	
total VOCs	-	-	0.28	1.42	1.53	2.01	0.970	1.54	2.281	
Wet Chemistry										
DOC (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	
alkalinity (mg/L)	-	10	NS	NS	NS	NS	NS	NS	NS	
chloride (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
nitrate (mg/L)	10	1	NS	NS	NS	NS	NS	NS	NS	
sulfate (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
Field Parameters										
ORP (mV)	-	-	-37	199	38	173	33	-39	-81	
oxygen (mg/L)	-	-	9.51	12.04	11.14	10.63	9.59	10.04	7.49	
pH (-)	-	-	7.20	5.77	6.22	5.45	7.19	7.60	7.37	
ferrous iron (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	

Table 5-2

Sample Location	NYS Groundwater Standards	Reporting Limit	782SW-119							
Sample ID			**782SW11901AA**	**782SW11901AB**	**782SW11901BB**	**782SW11901CA**	**782SW11901DA**	**782SW11901EB**	**782SW11901FB**	
Date of Collection			**11/15/2006**	**9/24/2008**	**1/2/2009**	**4/16/2009**	**6/16/2009**	**9/24/2009**	**4/21/2010**	
Sample Depth (ft TOIC)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Dilution Factor (-)			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
VOCs (µg/L)										
1,1- dichloroethane	5*	1.0	U	U	U	U	U	U	U	
1,1-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
1,2,4-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
1,2-dichlorobenzene	3	1.0	U	U	U	U	U	U	U	
1,3,5-trimethylbenzene	5*	1.0	U	U	U	U	U	U	U	
acetone	50	10	U	U	U	U	U	U	U	
benzene	1	0.4	4.49	2.74	1.25	0.570	0.590	0.710	0.340 F	
2-butanone	50	10	U	U	U	U	U	U	U	
chlorobenzene	5*	0.5	0.150 F	U	0.190 F	0.170 F	0.120 F	U	0.170 F	
Chloroform	7	0.3	U	U	U	U	U	U	0.120 F	
Chloromethane	--	1.0	U	U	U	U	U	U	U	
cis-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
ethylbenzene	5*	1.0	0.150 F	U	U	U	U	U	U	
isopropylbenzene	5*	1.0	U	U	U	U	U	U	U	
methyl tert-butyl ether	10	5.0	0.510 F	0.930 F	0.260 F	U	0.190 F	0.370 F	0.200 F	
methylene chloride	5*	1.0	0.120 F	U	U	U	U	U	U	
n-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
n-propylbenzene	5*	1.0	U	U	U	U	U	U	U	
m,p,-xylene (sum of isomers)	5*	2.0	U	U	U	U	U	U	U	
naphthalene	10	1.0	U	U	U	U	U	U	U	
o-xylene	5*	1.0	U	U	U	U	U	U	U	
p-isopropyltoluene	5*	1.0	U	U	U	U	U	U	U	
sec-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
t-butylbenzene	5*	1.0	U	U	U	U	U	U	U	
tetrachloroethene (PCE)	5*	1.0	U	U	U	U	U	U	U	
toluene	5*	1.0	U	U	U	U	U	U	U	
trans-1,2-dichloroethene	5*	1.0	U	U	U	U	U	U	U	
trichloroethene (TCE)	5*	1.0	U	U	U	U	0.110 F	U	0.170 F	
vinyl chloride	2	1.0	U	U	U	U	U	U	U	
xylenes, total	5*	-	U	U	U	U	U	U	U	
total VOCs	-	-	0.15	3.67	1.7	0.74	1.01	1.08	1	
Wet Chemistry										
DOC (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	
alkalinity (mg/L)	-	10	NS	NS	NS	NS	NS	NS	NS	
chloride (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
nitrate (mg/L)	10	1	NS	NS	NS	NS	NS	NS	NS	
sulfate (mg/L)	250	1	NS	NS	NS	NS	NS	NS	NS	
Field Parameters										
ORP (mV)	-	-	-35	284	49	164	20	59	-28	
oxygen (mg/L)	-	-	9.55	12.16	12.27	9.99	9.14	10.21	7.58	
pH (-)	-	-	7.23	5.61	6.51	5.51	7.28	7.25	7.48	
ferrous iron (mg/L)	-	-	NS	NS	NS	NS	NS	NS	NS	

Notes:
BGS - Below Ground Surface.
DOC - Dissolved Organic Carbon.
F - Analyte was positively identified above the Method Detection Limit (=MDL), but the concentration is below the Reporting Limit (=RL).
M- Matrix effect is present.
NA - Not Analyzed.
NS - Not Sampled.
ORP - Oxygen Reduction Potential.
TOIC - Top of inside casing.
U - The analyte was analyzed for, but not detected. The numerical value is at or below the MDL.
- Exceedance of the NYS Groundwater Standards or Guidance Values.
♦ - Denotes higher nominal value of duplicate sample result.
* - The principal organic contaminant standard for groundwater of 5 ug/L applies to this COC.
- - No NYS Groundwater Standard or Reporting Limit available.
J - The quantification is estimated due to the inability to meet certain QA/QC criteria.