The Dow Chemical Company
PO Box 8361
3200/3300 Kanawha Turnpike
South Charleston, WV 25303
U.S.A.

February 8, 2012

Gail A. Dieter
New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau E, Section B
625 Broadway, 12th Floor
Albany, NY 12233-7017

Subject: RCRA Facility Investigation, Additional Investigations Results Report
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Dear Ms. Dieter:

Enclosed pleased find one hard copy and one electronic copy of the *Additional Investigations Results Report* for the former Hampshire Chemical Corp. Facility in Waterloo, New York. Hampshire Chemical Corp. is a wholly owned subsidiary of The Dow Chemical Company. As presented in the *Additional Groundwater Investigation Work Plan,* dated September 2010 and the *Gorham Street Investigation Work Plan,* dated February 2010, this document provides a summary of work performed.

Pursuant to a Second Amended Order on Consent executed between Hampshire Chemical Corp. and the New York State Department of Environmental Conservation under Index Number 8-20000218-3281, August 12, 2011, Resource Conservation and Recovery Act Facility Investigation activities are being conducted.

If you have any questions on this report, please contact me at 304-747-7788, or Dakon Brodmerkel at 610-280-0924.

Sincerely,

Jerome E. Cibrik, P.G.
Remediation Leader

cc: Pete Hoffmire, NYSDEC Region 8 (CD)
Scott Rodabaugh, NYSDEC Region 8 (CD)
Steve Brusso, Evans Chemetics (Hard copy)
CH2M HILL Project File (Hard copy and CD)

Additional Investigations Results Report, Former Hampshire Chemical Corp. Facility Waterloo, New York

Prepared for

The Dow Chemical Company

February 2012

CH2MHILL®

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

µg/L	microgram per liter
amsl	above mean sea level
AOC	area of concern
bgs	below ground surface
Class GA	New York State Groundwater Effluent Limitations Class GA
CVOC	chlorinated volatile organic compound
DCA	dichloroethane
DCE	dichloroethene
Dow	The Dow Chemical Company
DPT	direct push technology
ft	feet
HCC	Hampshire Chemical Corp.
HSA	hollow-stem auger
ID	identification
mg/kg	milligrams per kilogram
MTBE	methyl tertiary butyl ether
N/A	not applicable
NYSDEC	New York State Department of Environmental Conservation
OD	outside diameter
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PID	photoionization detector
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act facility investigation
RUSCO	Restricted Use Soil Cleanup Objectives

site	former Hampshire Chemical Corp. Facility (now known as the "Evans Chemetics Facility") in Waterloo, New York
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAL	target analytical list
TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

SECTION 1

Introduction

This additional investigations results report details investigation activities associated with former Hampshire Chemical Corp. (HCC) Facility (now known as the "Evans Chemetics Facility") in Waterloo, New York (hereafter referred to as the site). HCC is a subsidiary of The Dow Chemical Company (Dow). This document provides a summary of work performed as presented in the following work plans:

- *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a)
- *Gorham Street Investigation Work Plan* (CH2M HILL 2010b)

All investigation activities were completed in accordance with the methods and procedures in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a), *Gorham Street Investigation Work Plan* (CH2M HILL 2010b), and the project *Quality Assurance Project Plan* (CH2M HILL 2010c). Fieldwork associated this investigation also was performed in accordance with the procedures outlined in the *Health and Safety Plan* (CH2M HILL 2010d).

1.1 Objectives

The following sections provide a summary of the investigation objectives.

1.1.1 Groundwater Investigation

The objective of the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a) was to address the New York State Department of Environmental Conservation (NYSDEC) requirements in its January 7, 2010, comment letter (NYSDEC 2010a) relative to the following activities associated with groundwater characterization:

- Groundwater investigation of chlorinated volatile organic compounds (CVOCs) upgradient of Area of Concern (AOC) B
- Sampling and potential eventual well abandonment (after approval from NYSDEC) of the standby production well located in Building 4 (BLDG4-PW)
- Implementation of a surface water, overburden, and bedrock groundwater interaction study
- Groundwater investigation at Solid Waste Management Unit (SWMU) 1

1.1.2 Gorham Street Off-Site Soil Investigation

The overall objective of the *Gorham Street Investigation Work Plan* (CH2M HILL 2010b) was to perform further characterization of arsenic and cadmium concentrations in shallow soil in the vicinity of the Gorham Street employee parking lot of the site.

1.2 Background

The site is located at 228 East Main Street in the village of Waterloo, Seneca County, New York. The site is bordered to the north by East Main Street, to the east by Gorham Street, to the west by East Water Street, and to the south by the Seneca-Cayuga Canal (Figure 1-1).

The site comprises several interconnected buildings that house offices, quality control laboratory, manufacturing, maintenance, and shipping/receiving operations, as well as a chemical treatment plant. The site also includes outside drum storage areas and several tank farms.

The Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report (CH2M HILL 2006) and RFI addendum report (CH2M HILL 2008a) present information regarding the site setting, history, and processes. In addition, starting in October 2008, a semiannual sitewide groundwater monitoring program was implemented based on the *Groundwater Monitoring Work Plan* (CH2M HILL 2008b), which was submitted previously to NYSDEC. The semiannual monitoring events consisted of collecting groundwater samples from all site monitoring wells. The March 2010 *Groundwater Monitoring Results Report* presents the results of the October 2008, April 2009, and October 2009 sampling events (CH2M HILL 2010e).

1.2.1 Previous Investigations

The following paragraphs summarize the previous investigation activities related to the investigation work presented in this report.

Concentrations of Chlorinated Volatile Organic Compounds in Groundwater

As noted in the NYSDEC January 7, 2010, comment letter (NYSDEC 2010a), historical groundwater data indicate the presence of some compounds that are not known to have been used in the plant or laboratory areas. These compounds consist of CVOCs and include cis-1,2-dichloroethene (cis-1,2-DCE); trans-1,2-DCE; 1,2-dichloroethane (1,2-DCA); and 1,2-dichloropropane. CVOCs have been detected in samples collected from MW-19, PZ-01, PZ-03 and Building 4 former pit sump (BLDG4-Pit-SSP) at concentrations exceeding the Technical and Operational Guidance Series (TOGS) 1.1.1 New York State Groundwater Effluent Limitations Class GA (Class GA) standards during sitewide semiannual sampling events. Figure 1-1 shows the locations of these wells.

Upgradient background groundwater monitoring wells MW-10 and MW-20 historically have not exhibited any CVOCs at concentrations exceeding TOGS Class GA standards. Therefore, investigation activities were performed to identify whether a potential source of CVOCs is present north of the facility Buildings 1 and 4. This reports presents these results.

Building 4 Production Well

The Building 4 production well (BLDG4-PW) is inside Building 4 (Figure 1-1). Based on available information, the approximately 90-foot-deep well was installed in the 1960s and is no longer used by the facility. As part of RFI activities, BLDG4-PW was sampled for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), filtered and unfiltered target analytical list (TAL) metals, and polychlorinated biphenyls (PCBs). No VOCs, SVOCs, or PCB compounds were detected above the laboratory method detection

limit. At the time of the investigation, metals concentrations consisting of iron and sodium were detected above TOGS Class GA groundwater standards.

In 2005, attempts were made to abandon the well in place. Grout was pumped into the production well using a tremie pipe, which was ineffective, as the grout did not hold an adequate seal. A downhole camera subsequently was mobilized to view the interior of the well, which was constructed with steel casing to bedrock where it was completed as an open borehole. Voids in the open borehole portion of the wells were observed at 31 feet below ground surface (bgs) and at the bottom of the borehole at 89 feet bgs. Given the presence of these voids, an alternate method to complete abandonment was proposed in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a), which is summarized below:

- A downhole camera will be run down the production well to videotape the borehole wall. The depth and size of the fractures will be documented and evaluated.
- Depending on the size of the fractures, coarse-grained sand or gravel may be placed in the bottom of the well to a depth immediately above the fractures before grouting the rest of the borehole. If the fractures are too big and/or the adding of coarse-grained material is found to be ineffective, a pneumatic packer will be installed in the well a small distance above the fractures and grouted in place.
- Grout will be mixed and pumped through a tremie pipe in the annular space above the packer or sand pack.
- Once the grout has cured, a concrete mixture will be added as needed to complete the decommissioning of the well and restore the borehole to conditions of the surrounding area.
- All well abandonment activities will be performed in accordance with the NYSDEC groundwater monitoring well decommissioning policy (NYSDEC 2003).

Before abandoning the well, NYSDEC requested in its January 7, 2010 comment letter that BLDG4-PW be sampled (NYSDEC 2010a). This report presents the sampling results of the well.

Surface Water, Overburden Groundwater, and Bedrock Groundwater Interaction Study

The overburden/bedrock interaction study was defined in the February 2004 RFI work plan (CH2M HILL 2004). The purpose of the interaction study was to determine if there is a hydraulic connection between the surface water, overburden groundwater, and bedrock groundwater. The field implementation of this study was conducted in December and January 2009 to coordinate with a facility shutdown. This report presents the results of the interaction study.

SWMU 1

The January 7, 2010, NYSDEC response letter to the RFI addendum report (CH2M HILL 2008a) requested a work plan for a comprehensive corrective measures study be submitted that will evaluate the need for and propose appropriate corrective measures for the SWMU 1 area (NYSDEC 2010a). Additional groundwater data were collected to support the design of future corrective measures and are presented in this report.

Offsite Gorham Street Soil Sampling

During 2007 RFI activities, arsenic and cadmium were detected in soil borings on the eastern side of Gorham Street at concentrations exceeding applicable NYSDEC (2006) Restricted Use Soil Cleanup Objectives (RUSCO): Protection of Public Health, Residential (6 NYCRR Part 375-6.8(b)). In a letter dated December 9, 2008, NYSDEC indicated that arsenic and cadmium concentrations detected at two sampling locations located along Gorham Street need to be investigated further (NYSDEC 2008).

Additional soil sampling was proposed to NYSDEC in the *Gorham Street Interim Measures Work Plan Addendum* (CH2M HILL 2009). In an e-mail correspondence dated May 2009, NYSDEC provided comments on the scope of work and requested that the work plan be submitted as an investigation work plan (NYSDEC 2009). The *Gorham Street Investigation Work Plan* was prepared and submitted to NYSDEC in February 2010 (CH2M HILL 2010b). NYSDEC provided comments on the *Gorham Street Investigation Work Plan* in a letter dated July 23, 2010 (NYSDEC 2010b), and Dow responded with a Response to Comment letter dated November 12, 2010 (Dow 2010). NYSDEC provided additional comments in a letter dated December 2, 2010 (NYSDEC 2010c). The comments were verbally discussed with the NYSDEC case manager and incorporated into the scope of work of the field investigation. This report presents the results of the Gorham Street soil sampling event.

SECTION 2

Investigation Activities

The following subsections provide a summary of the supplemental investigation activities performed at the site, which included the following activities:

- Groundwater investigation north of Buildings 1 and 4
- Sampling of BLDG4-PW
- Surface water, overburden, and bedrock interaction study
- SWMU 1 groundwater investigation
- Gorham Street offsite soil investigation

The following sections present details pertaining to each of these activities. Table 2-1 provides a summary of sampling activities, and Table 2-2 provides a summary of well construction details of monitoring wells installed during the field investigation. The samples were submitted to Microbac Laboratories, Inc. for laboratory analysis. Quality assurance/quality control samples were collected in accordance with the project *Quality Assurance Project Plan* (CH2M HILL 2010c).

Soil and groundwater investigation-derived waste was containerized in 55-gallon drums for subsequent offsite disposal.

2.1 Groundwater Investigation North of Buildings 1 and 4

A groundwater investigation was performed to investigate the extent of CVOC concentrations in overburden groundwater north of AOC B, Building 1, and Building 4. The investigation consisted of collecting discrete depth groundwater samples from shallow overburden groundwater (water table) and deep overburden groundwater (at the bedrock interface or refusal depth). The field sampling was performed on December 7, 8, and 9, 2010, and consisted of collecting discrete groundwater samples from four soil borings, designated as UG-01 through UG-04 (Figure 2-1).

The borings were installed using a track-mounted drill rig equipped with direct push technology (DPT). A CH2M HILL geologist collected continuous soil cores in 4-foot macro liners from select borings (UG-01 and UG-02) to characterize lithology. Boring logs for each boring are provided in Appendix A. Refusal depths were reached at depths ranging from approximately 27 feet bgs (UG-01) to 32 feet bgs (UG-04).

The groundwater samples were collected using a discrete groundwater sampling probe, which consists of a narrow-diameter drive point fitted with a 3-foot retractable screen. After advancing the probe to the desired depth, the screen was retracted and exposed to the formation. The groundwater samples were collected using a peristaltic pump that was connected to the discrete groundwater sampling probe via dedicated 0.25-inch, Teflon-lined polyethylene tubing. The shallow overburden groundwater samples were collected at depth at which saturated soil was encountered, which ranged from approximately 10 to 13 feet bgs. Deep groundwater samples were collected at the deepest depth interval where

enough water could be extracted for a sample, which ranged from 19 to 21 feet bgs in UG-01 to 29 to 32 feet bgs in UG-04. Table 2-1 presents a summary of sample depths. The sampling results are presented in Section 3.2.

2.2 Sampling of BLDG4-PW

Before abandonment, the Building 4 production well (BLDG4-PW) was sampled to evaluate bedrock groundwater concentrations. The location of the well is shown on Figure 1-1. BLDG4-PW was sampled on December 16, 2010, in accordance with the U.S. Environmental Protection Agency (USEPA) *Groundwater Sampling Procedures – Low Stress (Low Flow) Purging and Sampling* (USEPA 1998) and the procedures described in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a). Purging and sampling was conducted using a Grunfos pump fitted with Teflon-lined 0.5-inch outside diameter (OD) high-density polyethylene tubing. Samples for water quality parameters were collected inline using a Horiba U-52 water quality meter with a flow-through cell. A separate turbidity meter was used to collect turbidity readings from the effluent of the flow-through cell. The pump was set at approximately 80 feet bgs and within the open borehole portion of the well.

During purging, water quality parameters were recorded and are provided as Appendix B. Once the parameters stabilized into their appropriate ranges, groundwater samples were collected and submitted for VOC, SVOC, and TAL metals analysis. The sampling results are presented in Section 3.3.

2.3 Surface Water, Overburden Groundwater, and Bedrock Groundwater Interaction Study

The overburden/bedrock interaction study was defined in the February 2004 RFI work plan (CH2M HILL 2004) and performed during the winter of 2009/2010 during a facility shutdown. The scope involved monitoring groundwater levels in eight onsite monitoring wells with pressure transducers, shutting down the production wells that extract groundwater from the bedrock zone, and then returning the production wells to service. In addition, pressure transducers were placed in the canal and raceway stilling wells to monitor surface water elevations during the interaction study.

Automated level loggers were installed at monitoring points and calibrated to collect continuous groundwater elevation measurements at concurrent 2-minute intervals. Water levels were recorded with a Schlumberger Micro-Diver transducer configured with Schlumberger's Diver Data Exchange Transceiver to allow for real-time wireless communication with the transducers during the test without disturbing the monitoring system. Before installing the transducers, synoptic depth to water measurements were collected from accessible site monitoring wells. The transducers were installed in two stilling wells, two deep overburden wells, and six shallow overburden wells as summarized in the following table.

Well ID	Well Screened Interval	Data Logger ID	Install / Start Date	12/21/2009 Groundwater Elevation, ft amsl	Stop / Removal Date	1/22/2010 Groundwater Elevation, ft amsl
MW-01	3-16.5	14538	12/21/2009	429.52	1/22/2010	429.18
MW-05S	3–13	15109	12/21/2009	438.48	1/22/2010	438.48
MW-05I	25-30	15170	12/21/2009	433.13	1/22/2010	433.72
MW-09R	6-16	15114	12/21/2009	429.13	1/22/2010	428.82
MW-11S	4-14	15156	12/21/2009	431.76	1/22/2010	431.74
MW-11I	22-27	15174	12/21/2009	427.29	1/22/2010	427.08
MW-12*	4-12	13110	12/21/2009	429.60	1/22/2010	429.46
MW-19	8-18	14539	12/21/2009	432.44	1/22/2010	432.83
SG-01	N/A	15112	12/21/2009	442.13	1/22/2010	442.52
SG-02	N/A	13887	12/21/2009	428.74	1/22/2010	428.15

MW-05I and MW-11I are screened in deep groundwater
* - The transducer in MW-12 malfunctioned and stopped collecting data on 1/11/2010
ID – identification
ft amsl – feet above mean sea level
N/A – not applicable

One barometric transducer also was used to gauge and correct for atmospheric barometric pressure changes during the interaction study. The loggers were programmed and synced to start collecting measurements on December 21, 2009 (17:00). The logging continued until January 22, 2010, when they were removed.

The level loggers were installed during a period of normal operating for the onsite active bedrock production wells (Dept. 68 and Dept. 69 wells). The locations of the production wells are shown on Figure 1-1. The production wells were shut down during the interaction study at the following dates:

- December 26, 2009 – Dept. 68 and Dept. 69 wells shut off
- January 3, 2010 – Dept. 68 well turned on; 70 percent capacity
- January 4, 2010 – Dept. 69 well turned on; 100 percent capacity
- January 11, 2010 – Dept. 68 well turned to 100 percent capacity

The water levels measurements collected from the data loggers in the monitoring wells and surface water monitoring points subsequently were evaluated to determine the potential interaction between surface water elevation changes and groundwater elevation change. The results of the interaction study are provided in Section 3.4.

2.4 Groundwater Investigation at SWMU 1

Groundwater monitoring wells were installed and sampled at SWMU 1 as part of ongoing investigation activities of the area.

2.4.1 Monitoring Well Installation

Three monitoring wells (MW-26, MW-27, and MW-28) and two temporary monitoring wells (TW-01 and TW-02) were installed on December 8, 9, and 10, 2010 (Figure 1-1). The borings were advanced using a track-mounted drill rig equipped with DPT and hollow-stem auger (HSA) technology. For the borings, continuous soil coring was performed using 4-foot macro core liners for MW-26, MW-27, and MW-28, and using 2-inch-diameter by 2-foot-long split-spoon samplers for TW-01 and TW-02 to facilitate geologic observations. A CH2M HILL geologist logged the lithology of the soil cores, and each core was screened using a photoionization detector (PID) and visually observed for indications of potential impact. Boring logs for each well location are provided in Appendix A.

TW-02, MW-26, MW-27, and MW-28 were constructed of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing with 10-foot-long PVC, 0.01-inch, machine slotted screen. TW-01 was constructed of the same material with a 5-foot-long screen. During well completion, a primary sand pack consisting of certified clean silica sand (#2 Filpro) was placed around each well screen. The sand was gravity-fed into the borehole at a uniform rate to allow even placement. The primary sand pack was extended from the base of each well screen to a height of approximately 2 feet above the top of the well screen. A 6-inch seal consisting of a bentonite grout was poured over the primary sand pack using tremie pipe placement. Then, a secondary sand pack filter (#00 Filpro) was placed to a height of approximately 2 feet above the primary sand pack. The remaining annular space between the borehole and the well casing was pressure grouted with bentonite grout to ground surface using tremie pipe placement.

MW-26 was completed as a stickup protective casing, and MW-27 and MW-28 were completed as a flush-mount protective casing with 2–foot-square concrete pads. TW-01 and TW-01 were not completed with protective casings or concrete pads. A surveyor licensed by the state of New York surveyed each well location to the nearest 0.01 foot. Well construction diagrams are provided in Appendix C, and well construction details are summarized in Table 2-2.

CH2M HILL developed the wells on December 10, 2010 (MW-27 and MW-28) and December 14, 2010 (MW-26, TW-10, and TW-02). Development included pumping and surging the well screen using a submersible Grundfos pump while monitoring groundwater quality parameters. Development included surging the well screen with a surge block and then purging using a submersible pump while monitoring groundwater quality parameters. Well development logs are provided in Appendix B.

2.4.2 Monitoring Well Sampling

Collection of water level measurements and groundwater samples from the newly installed wells along with select existing monitoring wells (MW-14, MW-16S, MW-16I, MW-17, and MW-18) were performed during the week of December 13, 2010. A synoptic round of water level measurements was collected from the monitoring wells on December 14 and 15, 2010, to determine groundwater flow direction. Groundwater samples were collected on December 14, 15, and 16, 2010. The wells were sampled in accordance with USEPA low-flow guidance (USEPA 1998) and procedures described in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a). Purging and sampling was conducted using a Grunfos pump fitted with 0.5-inch OD Teflon-lined high-density polyethylene tubing. At

MW-18, TW-01, and TW-02, samples were collected using a peristaltic pump because of low well recovery and/or drawdown. Samples for water quality parameters were collected inline using a Horiba U-52 water quality meter with a flow-through cell. A separate turbidity meter was used to collect turbidity readings from the effluent of the flow-through cell. The pumps were set at mid screen depths (Table 2-1).

During purging, water quality parameters were recorded and are provided in Appendix B. Once the parameters stabilized into their appropriate ranges, groundwater samples were collected and submitted for VOC, SVOC, and TAL metals analysis. The results of the SWMU 1 investigation are in Section 3.5.

2.5 Gorham Street Soil Sampling Investigation

Soil investigation activities were performed offsite and east of Gorham Street to characterize the extent of the arsenic and cadmium concentrations previously detected above RUSCO screening levels. The investigation activities were performed in accordance with the *Gorham Street Investigation Work Plan* (CH2M HILL 2010b).

Eight soil borings (DE-05 through DE-12) were performed to 5 feet bgs. The boreholes for DE-10, DE-11, and DE-12 were advanced using a track-mounted drill rig equipped with DPT technology, and the boreholes for DE-05 through DE-09 were advanced using a tripod manual drilling rig equipped with split-spoon sampler. Boring locations are shown on Figure 2-2, and boring logs are provided in Appendix A. Soil samples were collected from each boring at the following depth intervals:

- 0 to 2 inches
- 2 to 6 inches
- 6 to 12 inches
- 12 to 24 inches
- 24 to 36 inches
- 36 to 48 inches
- 48 to 60 inches

At borings DE-10, DE-11, and DE-12, samples were not collected from 0- to 2-inch, 2- to 6-inch, and 6- to 12-inch intervals because of the asphalt cover. Samples were collected and submitted for arsenic and cadmium metals analysis. The sampling results are in Section 3.6

SECTION 3

Investigation Results

This section summarizes the analytical data collected during each investigation activity. The groundwater data were compared to the TOGS Class GA groundwater standards, and the soil data were compared to the RUSCO screening levels. Full analytical results (laboratory raw data) and chain-of-custody forms are in Appendix D.

3.1 Data Quality Review Summary

Appendix E contains detailed results of the data quality review for groundwater samples collected during the sampling event. Some data were qualified because of the data evaluation, which is summarized in the data quality review documents. Refer to Table 2-1 for identifying the sample delivery groups by sample identification.

3.2 Groundwater Investigation North of Buildings 1 and 4 Sampling Results

The sampling results for UG-01 through UG-04 are shown on Figure 2-1, and the analytical data are summarized in Table 3-1. None of the sampling results exhibited VOC concentrations exceeding TOGS Class GA standards. Some VOCs were detected at concentrations below the TOGS Class GA standards and consist of the following:

- Benzene was detected below its TOGS Class GA standard of 1 microgram per liter (µg/L) at UG-01 from 10 to 13 feet bgs (0.273 J µg/L) and from 19 to 22 feet bgs (0.253 J µg/L); at UG-02 from 10 to 13 feet bgs (0.147 J µg/L); and at UG-04 from 10 to 13 feet bgs (0.228 J µg/L).
- Chloromethane was detected below its TOGS Class GA standard of 5 µg/L at UG-02 from 22 to 25 feet bgs (0.548 J µg/L).
- Methylcyclohexane was detected at UG-01 from 10 to 13 feet bgs (1.02 J µg/L). Methylcyclohexane does not have a TOGS Class GA standard.
- Methyl tertiary butyl ether (MTBE) was detected at UG-01 from 10 to 13 feet bgs (3.15 µg/L). MTBE does not have a TOGS Class GA standard.
- Toluene was detected below its TOGS Class GA standard of 5 µg/L at UG-01 from 10 to 13 feet bgs (0.611 J µg/L) and from 19-22 feet bgs (0.326 J); at UG-02 from 10-13 feet bgs (0.331 J µg/L); and at UG-04 from 10 to 13 feet bgs (0.587 J µg/L).
- Xylenes was detected below its TOGS Class GA standard of 5 µg/L at UG-01 from 10 to 13 feet bgs (0.518 J µg/L).

Also shown on Figure 2-1 are the sampling results for MW-19, PZ-01, PZ-03 and MW-03, all of which have exhibited CVOC concentrations above Class GA standards. Sampling locations UG-01 through UG-04 are north (upgradient) of these wells and did not exhibit

CVOC detections. As such, CVOCs in groundwater is isolated to areas beneath the facility building.

3.3 BLDG4-PW Well Sampling Results

The location and sampling results of the BLDG4-PW are shown on Figure 3-1, and the analytical data are summarized in Table 3-2. The following compounds were detected at concentrations exceeding their respective TOGS Class GA standard:

- Chloroform was detected above its TOGS Class GA standard (7 µg/L) at a concentration of 7.96 µg/L.
- Iron was detected above its TOGS Class GA standard (300 µg/L) at a concentration of 747 µg/L.
- Sodium was detected above its TOGS Class GA standard (20,000 µg/L) at a concentration of 88,300 µg/L.

VOC concentrations of 4-methyl-2-pentanone (7.38 J µg/L), chlorobenzene (0.297 J µg/L) and methylene chloride (0.815 J µg/L) were also detected, but below their respective TOGS Class GA standard.

Figure 3-1 and Table 3-2 also present the sampling results of the April 2004 sampling at BDLG4-PW. Concentrations of iron and sodium generally were consistent between the 2004 and 2010 sampling events.

Site-related VOCs consisting of chloroform, 4-methyl-2-pentanone, chlorobenzene, and methylene chloride were detected during the December 2010 sampling event. However, only chloroform was detected at a concentration above the TOGS Class GA standard.

It is requested that BLDG4-PW be abandoned as proposed in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a).

3.4 Groundwater / Surface Water Interaction Results

The automated data loggers in surface water, shallow overburden, and deep overburden wells collected elevations over an approximately 1-month period. Elevation data were plotted on hydrographs (Figures 3-2 and 3-3). Figure 3-2 shows the water levels of the Seneca-Cayuga Canal surface water body (SG-02) and the wells adjacent to the canal (MW-01, MW-09R, MW-11S, MW-11I, MW-12, and MW-19). Figure 3-3 shows the water levels of the Seneca-Cayuga Raceway surface water body (SG-01) and the wells adjacent to the raceway (MW-05S and MW-05I). Each figure also shows the dates of any changes to operation of the onsite bedrock production wells.

3.4.1 Canal Surface Water and Overburden Groundwater Interaction

Based on the results shown on Figure 3-2, surface water along the canal does appear to be interacting with overburden groundwater. The surface water elevations at SG-02 (canal gauge) on Figure 3-2 periodically fluctuated approximately 1 foot throughout the interaction study from 427.8 to 430 feet above mean sea level (amsl). Groundwater elevations in shallow overburden monitoring wells MW-01, MW-09R, MW-12, and deep overburden well

MW-11I also fluctuated in similar correlation with SG-02. Groundwater elevations in two monitoring wells (MW-11S and MW-19) did not appear to respond to any changes to canal surface water levels. MW-11S, which is screened at the water table, is adjacent to the canal, but did not respond to surface water fluctuations. This may be because of a localized anomaly in the soil or well construction at MW-11S, which primarily consists of fine-grained materials. MW-19 is approximately 125 feet further upgradient than the wells adjacent to the canal and does not appears to be directly influenced by surface water fluctuations. The groundwater elevations in both of these wells were three to four feet above the canal water elevation, which is a likely factor in the lack of responses to surface water fluctuations in these wells.

Deep overburden well MW-11I, which is screened just above the bedrock surface, responded more strongly to surface water fluctuations than the shallow overburden wells, indicating a hydraulic connection between the deep overburden (and potentially bedrock) and canal. MW-11I responded significantly to the shutdown and start-up of the bedrock production wells (i.e., approximately three foot change in groundwater elevation), indicating that MW-11I has a hydraulic connection to bedrock groundwater. As previously discussed, MW-11S did not appear to respond to canal fluctuations or production well pumping, indicating that most of the MW-11I response is from bedrock influence (discussed in more detail in Section 3.4.3).

MW-01, MW-09R, and MW-12 showed some response to canal water fluctuations.

3.4.2 Raceway Surface Water and Overburden Groundwater Interaction

As shown on Figure 3-3, the water elevation in the raceway is approximately 2 feet higher than in MW-5S, and approximately 4 feet higher than in MW-5I, indicating a downward hydraulic gradient in this area, and water from the raceway migrates downward to groundwater. The three monitored points show fluctuations that occurred near December 27, 2009 and January 8, 2010. However, the fluctuations had higher magnitudes in the two monitoring wells than in the raceway. The nature of the fluctuations are not apparent, and do not appear to be related to the shutdown and start-up of the production wells (groundwater elevations initially rose when the wells were shut off, but then dropped throughout the period of no pumping).

3.4.3 Overburden Groundwater and Bedrock Groundwater Interaction

Figures 3-2 and 3-3 also show the time at which the facility shut down its onsite production wells. MW-11I responded to changes in the pumping operation of the onsite productions wells, indicating an interaction between bedrock and deep overburden groundwater. The shutdown of production wells on December 26, 2009, resulted in groundwater at MW-11I rising approximately 2 feet and higher than the canal surface water elevation. When the production wells were turned back on, groundwater at MW-11I dropped approximately 1.5 feet. No other wells or surface water appeared to respond to changes to the operation of the productions wells. While the on-site bedrock production wells were pumping, water elevation in the canal was higher than in MW-11I, indicating a downward hydraulic gradient from the canal to the deeper soil (and presumably to bedrock), while the production wells were shut off, the hydraulic gradient reversed.

MW-11I is approximately 150 feet from the Dept. 69 production well and 275 feet from the Dept. 68 production well (Figure 1-1) and is screened at the overburden/bedrock surface interface. MW-05I, which is the other deep overburden monitoring well monitored during the interaction study, is approximately 350 feet from the Dept. 69 production well and 750 feet from the Dept. 68 production well (Figure 1-1). Since MW-05I did not respond to any changes to pumping rates in the production wells, it appears to be situated too far from the production wells to be influenced by bedrock pumping.

Based on these results, there appears to be interaction between deep overburden and bedrock groundwater.

3.5 SWMU 1 Investigation Results

During this investigation, three monitoring wells and two temporary monitoring wells were installed. Each well was advanced to refusal depth (top of bedrock), which ranged from approximately 11 feet bgs (TW-02) to 19 feet bgs (TW-01). Observations of the soil cores indicated potential waste material associated with the former landfill (e.g., glass, ceramic materials, etc.) were encountered to refusal depths at TW-01, TW-02, and MW-28 at depths ranging from 7 to 19 feet bgs, 6 to 11 feet bgs, and 5 to 15.5 feet bgs, respectively. Native deposits were encountered at MW-27 from 11 to 13 feet bgs. In general, PID responses were not detected above 0.1 part per million (background). During well installation, potential staining and slight odor were observed at TW-01 on the augers as they were removed from the borehole.

One soil boring (SB-S1) also was advanced via HSA southeast of the offsite property house (Figure 1-1). This boring was proposed to be completed as a monitoring well; however, bedrock refusal was reached at approximately 9 feet bgs, and no groundwater was encountered. This location subsequently was abandoned, and no well was installed.

3.5.1 Evaluation of Groundwater Flow

Table 3-3 summarizes the depth to water measurements collected from the SWMU 1 area wells. Figure 3-4 presents a water table contour map for December 2010. As shown on the figure, groundwater flow observed is consistent with historical conditions and is generally south toward the Seneca-Cayuga Canal.

3.5.2 Groundwater Sampling Results

Analytical data results for SWMU 1 groundwater sampling activities are summarized in Table 3-4 and shown on Figure 3-5. No VOCs were detected above TOGS Class GA groundwater standards in any of the wells sampled. SVOC concentrations consisting of polycyclic aromatic hydrocarbons (PAHs) were detected above their respective TOGS Class GA groundwater standards as summarized in the following:

- Benzo(a)anthracene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (0.973 µg/L), TW-02 (0.0325 J µg/L), and MW-28 (0.207 µg/L).
- Benzo(a)pyrene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (0.92 µg/L) and MW-28 (0.171 µg/L).

- Benzo(b)fluoranthene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (0.825 µg/L) and MW-28 (0.149 µg/L).
- Benzo(k)fluoranthene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (0.902 µg/L) and MW-28 (0.164 µg/L).
- Chrysene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (1.11 µg/L), TW-02 (0.0332 J µg/L) and MW-28 (0.191 µg/L).
- Indeno(1,2,3-c,d)pyrene was detected above its TOGS Class GA standard of 0.002 µg/L at TW-01 (0.595 µg/L) and MW-28 (0.0818 µg/L).

Metals consisting of iron, magnesium, manganese, and sodium also were detected at concentrations exceeding the TOGS Class GA standards of 300 µg/L, 35,000 µg/L, 300 µg/L and 20,000 µg/L, respectively. The highest concentration of iron was detected at TW-01 (34,400 µg/L), the highest concentration of magnesium was detected at TW-02 (59,800 µg/L), the highest concentration of manganese was detected at MW-27 (3,600 µg/L), and the highest concentration of sodium was detected at TW-02 (177,000 µg/L).

Overall, groundwater concentrations generally were consistent with historical groundwater sampling events. No VOCs have been detected above TOGS Class GA standards at wells associated with SWMU 1 for seven consecutive sampling events since 2002 (December 2005, December 2007, October 2008, April 2009, October 2009, April 2010, and December 2010). While PAHs were detected in groundwater, none of the individual concentrations was detected higher than 1 µg/L. The metals exceedances detected (iron, magnesium, manganese and sodium) are also generally detected in background monitoring wells MW-06 and MW-20.

Based on these results, groundwater is not impacted as a result of the historical use of the land at SMWU 1.

3.6 Gorham Street Soil Sampling Results

Analytical results are summarized in Table 3-5, and concentrations exceeding the RUSCO screening levels are shown on Figure 2-2. Results from the December 2010 arsenic and cadmium soil sampling event conducted on the eastern side of Gorham Street indicate the following:

- Arsenic exceeded the RUSCO screening level of 16 milligrams per kilogram (mg/kg) at all eight locations sampled (DE-05, DE-06, DE-07, DE-08, DE-09, DE-10, DE-11, and DE-12). The highest concentration was detected at DE-11 at a depth interval of 36 to 48 inches (435 mg/kg).
- Cadmium exceeded the RUSCO residential screening level of 2.5 mg/kg at all but one (DE-01) location sampled. The highest concentration was detected at DE-12 at a depth interval of 12 to 24 inches (1,150 mg/kg).

Based on these results, further investigation is warranted to delineate the extent of arsenic and cadmium in soil. A work plan to perform additional sampling activities was submitted to NYSDEC in June 2011 (CH2M HILL 2011).

SECTION 4

Summary and Conclusions

4.1 Groundwater Investigation North of Buildings 1 and 4

Previous sampling events have resulted in detected concentrations of CVOCs at concentrations above TOGS Class GA standards at sampling locations MW-19, PZ-01, PZ-03, and the BLDG4-PIT-SSP, which are within the facility Buildings 1 and 4 area. Groundwater samples were collected to investigate whether a potential source of these CVOCs are present north (upgradient) of these buildings.

The groundwater samples were collected from the overburden near the water table (10 to 13 feet bgs) and from the deepest depth interval at which groundwater could be collected (ranging from 19 to 32 feet bgs). No CVOCs were detected in any of the samples collected.

Based on these results, the CVOCs appear to be isolated to a localized area beneath the Buildings 1 and 4 areas. VOC concentrations will continue to be monitored in groundwater as part of sitewide monitoring activities in accordance with the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a).

4.2 Production Well Sampling

The Building 4 production well (BLDG4-PW) was first sampled in 2004 with no exceedances of site-related constituents. An attempt to abandon the well by grouting in place was performed in December 2005. This attempt proved to be unsuccessful, as the grout would not form an adequate seal to abandon the well. A downhole camera identified voids in the open borehole portion of the well. Based on these findings, a revised approach to abandon the well was proposed in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a).

To confirm concentrations in the well, which had not been sampled since 2004, the well was sampled in December 2010. One VOC (chloroform) was detected marginally above its TOGS Class GA standard of 7 µg/L at a concentration of 7.96 µg/L. Metals consisting of iron and sodium also were detected above TOGS Class GA standards.

Based on these results, it is recommended that BDLG4-PW be decommissioned in accordance with the revised abandonment procedures described in the *Additional Groundwater Investigation Work Plan* (CH2M HILL 2010a).

4.3 Surface Water/Groundwater Interaction Study

The overburden/bedrock interaction study was performed to monitor surface water and groundwater elevations in select monitoring wells over time and during changes of the operation of onsite bedrock production wells. Automated data loggers were installed in surface water gauges, shallow overburden monitoring wells, and deep overburden monitoring wells. The loggers collected elevations over an approximately 1-month period.

Elevation data were plotted on hydrographs and evaluated for potential interactions between surface water, overburden groundwater, and bedrock groundwater. Based on the data evaluation, the following conclusions were made:

- Interaction is evident between surface water and groundwater. There is a stronger interaction between deep overburden and surface water than with shallow overburden and groundwater.
- Elevation of the raceway is approximately 2 feet higher than surrounding groundwater and approximately 12 feet higher than the canal. The raceway is fed via a small lake and is likely discharging to groundwater. Historical (now abandoned) raceways used locks to connect the canal and existing raceway.
- Groundwater elevations at deep overburden well MW-11I responded to changes of operation to the site bedrock production wells, which suggest a hydraulic connection with bedrock. During pumping of the production wells there is a downward hydraulic gradient from the canal to bedrock groundwater; during the period that the production wells were inactive the hydraulic gradient reversed (flow from bedrock to canal) No other monitoring wells responded to changes to bedrock pumping. The results of the interaction study will be incorporated into an updated conceptual site model, which will be presented in a separate report.

4.4 SWMU 1 Groundwater Investigation

Three permanent monitoring wells (MW-26, MW-27, and MW-28) and two temporary monitoring wells (TW-01 and TW-02) were installed in the SWMU 1 area. The wells subsequently were sampled along with existing monitoring wells MW-16S, MW-16I, MW-17, and MW-18. Based on the sampling results, the following conclusions were made:

- Based on the review of the groundwater elevations, the groundwater flow direction is south toward the canal and is consistent with previous monitoring events.
- No VOCs were detected at concentrations exceeding the TOGS Class GA standards. No VOCs have been detected above standards at wells located within SWMU 1 for seven consecutive sampling events dating back to 2002 (December 2005, December 2007, October 2008, April 2009, October 2009, April 2010, and December 2010).
- Concentrations of PAHs detected were low (less than 1 µg/L) and were detected above the TOGS Class GA standards at three locations: TW-01, TW-02, and MW-28.
- Concentrations of metals consisting of iron, manganese, magnesium, and sodium also were detected above TOGS Class GA standards. These metals have also been previously been detected above TOGS Class GA standards in background monitoring wells (MW-06 and MW-20).

Based on these results, groundwater is not impacted as a result of the historical use of the land at SMWU 1. Groundwater at SWMU 1 will continue to be monitored as part of sitewide groundwater monitoring events.

4.5 Gorham Street Investigation Results

Eight borings were installed to delineate arsenic and cadmium concentrations previously detected during 2007 and 2009 RFI activities along Gorham Street. The borings were advanced to 60 inches bgs, and samples were collected from 0 to 2 inches bgs (DE-05 through DE-09 only), 2 to 6 inches bgs (DE-05 through DE-09 only), 6 to 12 inches bgs (DE-05 through DE-09 only), 12 to 24 inches bgs, 24 to 36 inches bgs, 36 to 48 inches bgs, and 48 to 60 inches bgs.

Arsenic and cadmium exceeded RUSCO screening levels at each boring; hence, further investigation is needed to complete delineation. A work plan was submitted on June 30, 2011, proposing additional investigation activities.

SECTION 5

References

CH2M HILL. 2004. *RCRA Facility Investigation Work Plan, Hampshire Chemical Company, Waterloo, New York*. February.

CH2M HILL. 2006. *RCRA Facility Investigation Report, Evans Chemetics Facility, Waterloo, New York.* May.

CH2M HILL. 2008a. *RCRA Facility Investigation Report Addendum, Former Hampshire Chemical Corp., Waterloo, New York*. November.

CH2M HILL. 2008b. *Groundwater Monitoring Work Plan, Former Hampshire Chemical Corp., Waterloo, New York.* October.

CH2M HILL. 2009. *Gorham Street Interim Measures Work Plan Addendum, Former Hampshire Chemical Corp., Waterloo, New York.* April.

CH2M HILL. 2010a. *Additional Groundwater Investigation Work Plan, Former Hampshire Chemical Corp., Waterloo, New York*. September.

CH2M HILL. 2010b. *Gorham Street Investigation Work Plan, Former Hampshire Chemical Corp., Waterloo, New York.* February.

CH2M HILL. 2010c. *Quality Assurance Project Plan, Former Hampshire Chemical Corp. Facility, Waterloo, New York.* July 30.

CH2M HILL. 2010d. *Health and Safety Plan, Former Hampshire Chemical Corp. Facility, Waterloo, New York.* October.

CH2M HILL. 2010e. *Groundwater Monitoring Results Report for the April 2008, October 2008 and October 2009 Monitoring Events, Former Hampshire Chemical Corp. Facility, Waterloo, New York.* March.

CH2M HILL. 2011. *Supplemental Gorham Street Investigation Work Plan*. June.

The Dow Chemical Company (Dow). 2010. *Response to the July 23, 2010 Comment Letter on the Gorham Street Investigation Work Plan*. November 12.

New York State Department of Environmental Conservation (NYSDEC). 2003. CP-43: Groundwater Monitoring Well Decommissioning Policy. November 3.

New York State Department of Environmental Conservation (NYSDEC). 2006. Restricted Use Soil Cleanup Objectives: Protection of Public Health, Residential (6 NYCRR Part 375-6.8(b)).

New York State Department of Environmental Conservation (NYSDEC). 2008. *Response Letter - Gorham Street Interim Remedial Measures*. December 9.

New York State Department of Environmental Conservation (NYSDEC). 2009. *Comments to Gorham Street Interim Remedial Measures Work Plan Addendum*. May.

New York State Department of Environmental Conservation (NYSDEC). 2010a. Letter RE: RCRA Facility Investigation Report Addendum, Former Hampshire Chemical Corporation Facility, Waterloo, New York, November 2008. January 7.

New York State Department of Environmental Conservation (NYSDEC). 2010b. *Comments to the Gorham Street Investigation Work Plan*. July 23.

New York State Department of Environmental Conservation (NYSDEC). 2010c. *Response to the November 12, 2010 Response to Comment Letter.* December 2.

U.S. Environmental Protection Agency (USEPA). 1998. *Groundwater Sampling Procedures – Low Stress (Low Flow) Purging and Sampling*.

Tables

TABLE 2-1
Sample Summary
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Sampling Location	Sample Identification	Analysis	Sample Delivery Group	Sample Type	Sampling Method	Pump placement Depth (ft. from TIC) or Sample Depth (ft)	Sample Date
Soil							
DE-05	DE-05A-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	0-2 inches	12/14/10
DE-05	DE-05B-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	2-6 inches	12/14/10
DE-05	DE-05C-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	6-12 inches	12/14/10
DE-05	DE-05D-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/14/10
DE-05	DE-05E-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/14/10
DE-05	DE-05F-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/14/10
DE-05	DE-05G-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/14/10
DE-06	DE-06A-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	0-2 inches	12/14/10
DE-06	DE-06B-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	2-6 inches	12/14/10
DE-06	DE-06C-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	6-12 inches	12/14/10
DE-06	DE-06D-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/14/10
DE-06	DE-06E-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/14/10
DE-06	DE-06F-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/14/10
DE-06	DE-06G-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/14/10
DE-07	DE-07A-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	0-2 inches	12/14/10
DE-07	DE-07B-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	2-6 inches	12/14/10
DE-07	DE-07C-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	6-12 inches	12/14/10
DE-07	DE-07D-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/14/10
DE-07	DE-07E-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/14/10
DE-07	DE-07F-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/14/10
DE-07	DE-07G-12142010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/14/10
DE-08	DE-08A-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	0-2 inches	12/13/10
DE-08	DE-08B-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	2-6 inches	12/13/10
DE-08	DE-08C-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	6-12 inches	12/13/10
DE-08	DE-08D-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/13/10
DE-08	DE-08E-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/13/10
DE-08	DE-08F-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/13/10
DE-08	DE-08G-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/13/10
DE-09	DE-09A-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	0-2 inches	12/13/10
DE-09	DE-09B-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	2-6 inches	12/13/10
DE-09	DE-09C-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	6-12 inches	12/13/10
DE-09	DUP-SOIL-12132010-02	Metals (As, Cd only)	L10120368	FD	Soil Composite	6-12 inches	12/13/10
DE-09	DE-09D-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/13/10
DE-09	DE-09E-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/13/10
DE-09	DE-09E-12132010-MS/MSD	Metals (As, Cd only)	L10120368	MS/MSD	Soil Composite	24-36 inches	12/13/10
DE-09	DE-09F-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/13/10
DE-09	DUP-SOIL-12132010-03	Metals (As, Cd only)	L10120368	FD	Soil Composite	36-48 inches	12/13/10
DE-09	DE-09F-12132010-MS/MSD	Metals (As, Cd only)	L10120368	MS/MSD	Soil Composite	36-48 inches	12/13/10
DE-09	DE-09G-12132010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/13/10
DE-09	DUP-SOIL-12132010-01	Metals (As, Cd only)	L10120368	FD	Soil Composite	48-60 inches	12/13/10
DE-09	DE-09G-12132010-MS/MSD	Metals (As, Cd only)	L10120368	MS/MSD	Soil Composite	48-60 inches	12/9/10
DE-10	DE-10D-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/9/10
DE-10	DE-10D-12092010-MS/MSD	Metals (As, Cd only)	L10120368	MS/MSD	Soil Composite	12-24 inches	12/9/10
DE-10	DE-10E-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/9/10
DE-10	DE-10F-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/9/10
DE-10	DE-10G-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/9/10
DE-10	DUP-SOIL-12092010-01	Metals (As, Cd only)	L10120368	FD	Soil Composite	48-60 inches	12/9/10
DE-11	DE-11D-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/9/10
DE-11	DE-11E-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/9/10
DE-11	DE-11E-12092010-MS/MSD	Metals (As, Cd only)	L10120368	MS/MSD	Soil Composite	24-36 inches	12/9/10
DE-11	DE-11F-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/9/10
DE-11	DE-11G-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/9/10
DE-12	DE-12D-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	12-24 inches	12/9/10
DE-12	DE-12E-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	24-36 inches	12/9/10
DE-12	DE-12F-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	36-48 inches	12/9/10
DE-12	DE-12G-12092010	Metals (As, Cd only)	L10120368	N	Soil Composite	48-60 inches	12/9/10
DE-12	DUP-SOIL-12092010-02	Metals (As, Cd only)	L10120368	FD	Soil Composite	48-60 inches	12/9/10
EB	EB-12092010-SOIL-01	Metals (As, Cd only)	L10120368	EB	N/A	N/A	12/9/10
EB	EB-12092010-SOIL-02	Metals (As, Cd only)	L10120368	EB	N/A	N/A	12/9/10
EB	EB-12132010-SOIL-01	Metals (As, Cd only)	L10120368	EB	N/A	N/A	12/13/10
EB	EB-12132010-SOIL-02	Metals (As, Cd only)	L10120368	EB	N/A	N/A	12/13/10
EB	EB-12132010-SOIL-03	Metals (As, Cd only)	L10120368	EB	N/A	N/A	12/13/10
Groundwater							
UG-01	UG-01-12072010(10-13)	VOCs	L10120369	N	GW Grab	10-13 feet	12/7/10
UG-01	UG-01-12072010(19-22)	VOCs	L10120369	N	GW Grab	19-22 feet	12/7/10
UG-01	DUP-GW-12092010	VOCs	L10120369	FD	GW Grab	19-22 feet	12/7/10
UG-02	UG-02-12082010(10-13)	VOCs	L10120369	N	GW Grab	10-13 feet	12/8/10
UG-02	UG-02-12082010(10-13)-MS/MSD	VOCs	L10120369	MS/MSD	GW Grab	10-13 feet	12/8/10
UG-02	UG-02-12082010(22-25)	VOCs	L10120369	N	GW Grab	22-25 feet	12/8/10
UG-03	UG-03-12092010(10-13)	VOCs	L10120369	N	GW Grab	10-13 feet	12/9/10
UG-03	UG-03-12092010(21-24)	VOCs	L10120369	N	GW Grab	21-24 feet	12/9/10
UG-04	UG-04-12082010(10-13)	VOCs	L10120369	N	GW Grab	10-13 feet	12/8/10
UG-04	UG-04-12082010(29-32)	VOCs	L10120369	N	GW Grab	29-32 feet	12/8/10
MW-14	MW-14-12142010	VOCs, SVOCs, Metals	L10120550	N	Submerssible Pump	14 feet TIC	12/14/10
MW-16S	MW-16S-12152010	VOCs, SVOCs, Metals	L10120582	N	Submerssible Pump	31 feet TIC	12/15/10
MW-16I	MW-16I-12152010	VOCs, SVOCs, Metals	L10120582	N	Submerssible Pump	31.5 feet TIC	12/15/10
MW-16I	DUP-GW-12152010	VOCs, SVOCs, Metals	L10120582	FD	Submerssible Pump	31.5 feet TIC	12/15/10
MW-17	MW-17-12162010	VOCs, SVOCs, Metals	L10120648	N	Submerssible Pump	13.7 feet TIC	12/16/10
MW-18	MW-18-12162010	VOCs, SVOCs, Metals	L10120648	N	Peristaltic Pump	12.5 feet TIC	12/16/10
MW-26	MW-26-12152010	VOCs, SVOCs, Metals	L10120582	N	Submerssible Pump	14 feet TIC	12/15/10
MW-27	MW-27-12162010	VOCs, SVOCs, Metals	L10120648	N	Submerssible Pump	12 feet TIC	12/16/10
MW-28	MW-28-12152010	VOCs, SVOCs, Metals	L10120582	N	Submerssible Pump	13.5 feet TIC	12/15/10
MW-28	MW-28-12152010-MS/MSD	VOCs	L10120582	MS/MSD	Submerssible Pump	13.5 feet TIC	12/15/10
TW-01	TW-01-12162010	VOCs, SVOCs, Metals	L10120648	N	Peristaltic Pump	19 feet TIC	12/16/10
TW-02	TW-02-12162010	VOCs, SVOCs, Metals	L10120648	N	Peristaltic Pump	12 feet TIC	12/16/10
BLDG4-PW	BLDG4-PW	VOCs, SVOCs, Metals	L10120648	N	Submerssible Pump	80 feet TIC	12/16/10
EB	EB-GW-12092010	VOCs	L10120369	EB	N/A	N/A	12/9/10
EB	EB-GW-12152010	VOCs	L10120582	EB	N/A	N/A	12/15/10
TB	TB-12092010-GW	VOCs	L10120369	TB	N/A	N/A	12/9/10
TB	TB-12142010-GW	VOCs	L10120550	TB	N/A	N/A	12/14/10
TB	TB-12162010-GW	VOCs	L10120648	TB	N/A	N/A	12/16/10
TB	TB-12172010-GW	VOCs	L10120582	TB	N/A	N/A	12/17/10

NOTES:

TIC - Top of Inner Casing Elevation
EB - Equipment Blank, sample of equipment rinse at end of decontamination
NA - Natural Attenuation Parameters
NM - Not Measured
N/A - Not Applicable for this location/sample

FD - Field Duplicate Sample
N - Normal Environmental Sample
MS - Matrix Spike
MSD - Matrix Spike Duplicate

TABLE 2-2
Well Construction Details
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Well Number	Installation Date	NYS State Plane Northing	NYS State Plane Easting	Ground Elevation (ft msl)	Inner Well Casing Elevation (ft msl)	Finished Well Depth (ft bgs)	Screen Length (feet)	Screen Interval (ft bgs)	Well Diameter (inches)	Well Material	Screen Slot Size (inches)
MW-26	12/9/2010	1057480.0	747388.7	437.95	440.16	14.0	10	4-14	2	PVC	0.010
MW-27	12/8/2010	1057738.0	746985.9	444.44	444.09	13.0	10	3.0-13.0	2	PVC	0.010
MW-28	12/7/2010	1057707.0	747138.5	444.83	444.55	16.0	10	6.0-16.0	2	PVC	0.010
TW-01	12/9/2010	1057642.0	747015.4	444.21	446.76	17.5	10	7.5-17.5	2	PVC	0.010
TW-02	12/10/2010	1057556.0	747097.6	437.84	440.06	10.5	5	5.5-10.5	2	PVC	0.010

Notes:
TW-01 and TW-02 were completed as temporary well points. A concrete pad and protective casing were not constructed for these wells.
ft msl = feet above mean sea level
ft bgs = feet below ground surface
All wells were surveyed to the New York Central state plane coordinate system (NAD 1983).
Standard of accuracy: horizontal (0.01'), vertical (0.01').
All measurements taken were measured in U.S. survey feet.
All onsite measurements were done with traditional surveying techniques.

TABLE 3-1
Groundwater Sampling Results - UG-01 through UG-04
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			**UG-01**			**UG-02**		**UG-03**		**UG-04**	
Sample ID		**TOGS 1.1.1**	DUP-GW-12072010	UG01-12072010(10-13)	UG01-12072010(19-22)	UG02-12082010(10-13)	UG02-12082010(22-25)	UG03-12092010(10-13)	UG03-12092010(21-24)	UG04-12082010(10-13)	UG04-12082010(29-32)
Sample Date	**CAS #**	**GA***	12/7/2010	12/7/2010	12/7/2010	12/8/2010	12/8/2010	12/9/2010	12/9/2010	12/8/2010	12/8/2010
VOA (ug/l)											
1,1,1-Trichloroethane	71-55-6	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	79-00-5	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethane	75-34-3	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,1-Dichloroethene	75-35-4	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	87-61-6	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	120-82-1	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dibromo-3-chloropropane	96-12-8	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	106-93-4	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	95-50-1	3	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,3-Dichlorobenzene	541-73-1	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	106-46-7	3	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,2-Dichloroethane	107-06-2	0.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethene, cis-	156-59-2	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethene, trans-	156-60-5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	78-87-5	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichloropropene, cis-	10061-01-5	0.4	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dichloropropene, trans-	10061-02-6	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone	78-93-3	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Hexanone	591-78-6	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Methyl-2-pentanone	108-10-1	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
Acetone	67-64-1	50	2.5 UJ	2.5 UJ	2.5 UJ	5.99 U	2.5 UJ	5.95 U	5.4 U	2.5 UJ	2.5 UJ
Benzene	71-43-2	1	0.125 U	**0.273 J**	**0.253 J**	**0.147 J**	0.125 U	0.125 U	0.125 U	**0.228 J**	0.125 U
Bromochloromethane	74-97-5	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	75-27-4	50	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromoform	75-25-2	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	74-83-9	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	75-15-0	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	56-23-5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	108-90-7	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Chloroethane	75-00-3	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	67-66-3	7	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Chloromethane	74-87-3	5	0.5 U	0.5 U	0.5 U	0.5 U	**0.548 J**	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	110-82-7	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	124-48-1	50	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	75-71-8	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethylbenzene	100-41-4	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Isopropylbenzene	98-82-8	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Methyl Acetate	79-20-9	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	108-87-2	--	1 U	**1.02 J**	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	75-09-2	5	0.394 U	0.656 U	0.473 U	0.697 U	0.663 U	0.25 U	0.25 U	0.612 U	0.472 U
Styrene	100-42-5	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
tert-Butyl Methyl Ether	1634-04-4	--	0.5 U	**3.15**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	127-18-4	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Toluene	108-88-3	5	0.25 U	**0.611 J**	**0.326 J**	**0.331 J**	0.25 U	0.25 U	0.25 U	**0.587 J**	0.25 U
Trichloroethene	79-01-6	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trichlorofluoromethane	75-69-4	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trichlorotrifluoroethane	76-13-1	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vinyl chloride	75-01-4	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Xylene, m,p-	108-38-3/1	--	0.5 U	**0.518 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene, o-	95-47-6	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U

Notes:

* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.

NA = Not analyzed

J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.

ug/l = Micrograms per Liter

Bold indicates the analyte was detected

Shading indicates the result exceeded screening criteria

TABLE 3-2
Building 4 Production Well Sampling Results
Volatile Organic Compounds
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			BLDG4-PW	
Sample ID		TOGS 1.1.1	BLDG 4-PW	BLDG4-PW-12162010
Sample Date	CAS #	GA*	4/22/2004	12/16/2010
VOA (ug/l)				
1,1,1-Trichloroethane	71-55-6	5	1 U	0.25 U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5 U	0.2 U
1,1,2-Trichloroethane	79-00-5	1	1 U	0.25 U
1,1-Dichloroethane	75-34-3	5	1 U	0.125 U
1,1-Dichloroethene	75-35-4	5	1 U	0.5 U
1,2,3-Trichlorobenzene	87-61-6	--	NS	0.5 U
1,2,4-Trichlorobenzene	120-82-1	5	NS	0.2 U
1,2-Dibromo-3-chloropropane	96-12-8	--	NS	1 U
1,2-Dichlorobenzene	95-50-1	3	NS	0.125 U
1,3-Dichlorobenzene	541-73-1	3	NS	0.25 U
1,4-Dichlorobenzene	106-46-7	3	NS	0.125 U
1,2-Dibromoethane	106-93-4	--	NS	0.25 U
1,2-Dichloroethane	107-06-2	0.6	1 U	0.25 U
1,2-Dichloroethene, cis-	156-59-2	5	1 U	0.25 U
1,2-Dichloroethene, trans-	156-60-5	5	1 U	0.25 U
1,2-Dichloropropane	78-87-5	1	1 U	0.2 U
1,3-Dichloropropene, cis-	10061-01-5	0.4	1 U	0.25 U
1,3-Dichloropropene, trans-	10061-02-6	0.4	1 U	0.5 U
1,3-Dinitrobenzene	99-65-0	--	NS	2.55 U
1,4-Dioxane	123-91-1	--	NS	0.51 U
2-Butanone	78-93-3	50	NS	2.5 U
2-Hexanone	591-78-6	50	5 U	2.5 U
4-Methyl-2-pentanone	108-10-1	50	5 U	**7.38 J**
Acetone	67-64-1	50	10 UJ	2.5 UJ
Benzene	71-43-2	1	1 U	0.125 U
Bromochloromethane	74-97-5	--	1 U	0.2 U
Bromodichloromethane	75-27-4	50	1 U	0.25 U
Bromoform	75-25-2	50	1 U	0.5 U
Bromomethane	74-83-9	5	1 UJ	0.5 U
Carbon Disulfide	75-15-0	60	NS	0.5 U
Carbon tetrachloride	56-23-5	5	1 U	0.25 U
Chlorobenzene	108-90-7	5	1 U	**0.297 J**
Chloroethane	75-00-3	5	1 U	0.5 U
Chloroform	67-66-3	7	1 U	**7.96**
Chloromethane	74-87-3	5	1 U	0.5 U
Cyclohexane	110-82-7	--	NS	1 U
Dibromochloromethane	124-48-1	50	1 U	0.25 U
Dichlorodifluoromethane	75-71-8	--	NS	0.25 U
Ethylbenzene	100-41-4	5	1 U	0.25 U
Isopropylbenzene	98-82-8	--	NS	0.25 U
Methyl Acetate	79-20-9	--	NS	1 U
Methylcyclohexane	108-87-2	--	NS	1 U
Methylene chloride	75-09-2	5	2 U	**0.815 J**
Styrene	100-42-5	5	0.5 U	0.125 U
tert-Butyl Methyl Ether	1634-04-4	--	NS	0.5 U
Tetrachloroethene	127-18-4	5	1 U	0.25 U
Toluene	108-88-3	5	1 U	0.25 U
Trichloroethene	79-01-6	5	1 U	0.25 U
Trichlorofluoromethane	75-69-4	--	NS	0.25 U
Trichlorotrifluoroethane	76-13-1	--	NS	2 U
Vinyl chloride	75-01-4	2	1 U	0.25 U
Xylenes, Total	1330-20-7	5	2 U	0.5 U

Notes:
* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

TABLE 3-2
Building 4 Production Well Sampling Results
Semivolatile Organic Compounds
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			BLDG4-PW	
Sample ID		TOGS	BLDG 4-PW	BLDG4-PW-12162010
Sample Date	CAS #	1.1.1 GA*	4/22/2004	12/16/2010
SVOA (ug/l)				
1,3,5-Trinitrobenzene	99-35-4	--	NA	2.55 U
2,4,5-Trichlorophenol	95-95-4	--	5.21 U	2.55 U
2,4,6-Trichlorophenol	88-06-2	--	5.21 U	2.55 U
2,4-Dichlorophenol	120-83-2	5	5.21 U	2.55 U
2,4-Dimethylphenol	105-67-9	50	5.21 U	2.55 U
2,4-Dinitrophenol	51-28-5	1	26 U	12.8 U
2,4-Dinitrotoluene	121-14-2	5	5.21 U	2.55 U
2,6-Dinitrotoluene	606-20-2	5	5.21 U	2.55 U
2-Chloronaphthalene	91-58-7	10	5.21 U	2.55 UJ
2-Chlorophenol	95-57-8	--	5.21 U	2.55 U
2-Methylnaphthalene	91-57-6	--	5.21 U	0.0263 U
2-Methylphenol	95-48-7	--	5.21 U	2.55 U
2-Nitroaniline	88-74-4	5	26 U	12.8 U
2-Nitrophenol	88-75-5	--	5.21 U	2.55 U
3,3'-Dichlorobenzidine	91-94-1	5	10.4 U	2.55 U
3-,4-Methylphenol	1319-77-3	--	NA	26 U
3-Nitroaniline	99-09-2	5	26 U	12.8 U
4-Bromophenyl phenyl ether	101-55-3	--	5.21 U	2.55 U
4-Chloroaniline	106-47-8	5	5.21 U	2.55 U
4-Nitrophenol	100-02-7	--	26 U	12.8 U
Acenaphthene	83-32-9	20	5.21 U	0.0263 U
Acenaphthylene	208-96-8	--	5.21 U	0.0263 U
Anthracene	120-12-7	50	5.21 U	0.0263 U
Benzo(a)anthracene	56-55-3	0.002	5.21 U	0.0263 U
Benzo(a)pyrene	50-32-8	0.002	5.21 U	0.0263 U
Benzo(b)fluoranthene	205-99-2	0.002	5.21 U	0.0263 U
Benzo(g,h,i)perylene	191-24-2	--	5.21 U	0.0263 U
Benzo(k)fluoranthene	207-08-9	0.002	5.21 U	0.0263 U
Benzoic Acid	65-85-0	--	NA	10.2 UJ
Benzyl Alcohol	100-51-6	--	NA	2.55 U
Biphenyl (diphenyl)	92-52-4	--	NA	2.55 U
Bis (2-chloroethoxy) methane	111-91-1	5	5.21 U	2.55 UJ
Bis (2-chloroethyl) ether	111-44-4	1	5.21 U	2.55 U
Bis (2-ethylhexyl) phthalate	117-81-7	5	5.21 U	2.55 U
Butyl benzylphthalate	85-68-7	50	5.21 U	2.55 U
Carbazole	86-74-8	--	5.21 U	2.55 U
Chrysene	218-01-9	0.002	5.21 U	0.0263 U
Di-n-butylphthalate	84-74-2	50	5.21 U	2.55 U
Di-n-octylphthalate	117-84-0	50	5.21 U	2.55 U
Dibenzo (a,h) anthracene	53-70-3	--	5.21 U	0.0263 U
Dibenzofuran	132-64-9	--	5.21 U	2.55 U
Diethyl phthalate	84-66-2	50	5.21 U	2.55 U
Dimethyl phthalate	131-11-3	50	5.21 U	2.55 U
Fluoranthene	206-44-0	50	5.21 U	0.0263 U
Fluorene	86-73-7	50	5.21 U	0.0263 U
Hexachlorobenzene	118-74-1	0.04	5.21 U	2.55 U
Hexachlorobutadiene	87-68-3	0.5	5.21 U	2.55 U
Hexachlorocyclopentadiene	77-47-4	5	5.21 U	2.55 U
Hexachloroethane	67-72-1	5	5.21 U	2.55 U
Indeno (1,2,3-c,d) pyrene	193-39-5	0.002	5.21 U	0.0263 U
Isophorone	78-59-1	50	5.21 U	2.55 U
n-Nitrosodiphenylamine	86-30-6	50	5.21 U	2.55 U
Naphthalene	91-20-3	10	5.21 U	0.0263 U
Nitrobenzene	98-95-3	0.4	5.21 U	2.55 U
Pentachlorophenol	87-86-5	1	26 U	12.8 U
Phenanthrene	85-01-8	50	5.21 U	0.0263 U
Phenol	108-95-2	1	5.21 U	2.55 U
Pyrene	129-00-0	50	5.21 U	0.0263 U

Notes:
* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

TABLE 3-2
Building 4 Production Well Sampling Results
TAL Metals
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			BLDG4-PW	
Sample ID			BLDG 4-PW	BLDG4-PW-12162010
Sample Date	CAS #	TOGS 1.1.1 GA*	4/22/2004	12/16/2010
METAL (ug/l)				
Aluminum	7429-90-5	--	**1,140**	**100**
Antimony	7440-36-0	3	60 U	0.5 U
Arsenic	7440-38-2	25	5 U	**1.26**
Barium	7440-39-3	1,000	100 U	**30.9**
Beryllium	7440-41-7	3	5 U	0.5 U
Cadmium	7440-43-9	5	5 U	0.25 U
Calcium	7440-70-2	--	**44,000**	**45,000**
Chromium	7440-47-3	50	10 U	**4.17 J**
Cobalt	7440-48-4	--	50 U	2.5 U
Copper	7440-50-8	200	10 U	5 U
Iron	7439-89-6	300	**906**	**747**
Lead	7439-92-1	25	5 U	0.5 U
Magnesium	7439-95-4	35,000	**11,500**	**12,900**
Manganese	7439-96-5	300	50 U	**7.41 J**
Mercury	7439-97-6	0.7	0.2 U	0.1 U
Nickel	7440-02-0	100	40 U	5 U
Potassium	7440-09-7	--	5,000 U	**2,940**
Selenium	7782-49-2	10	5 U	**0.852 J**
Silver	7440-22-4	50	10 U	5 U
Sodium	7440-23-5	20,000	**87,600**	**88,300**
Thallium	7440-28-0	0.5	10 U	**0.112 J**
Vanadium	7440-62-2	--	50 U	5 U
Zinc	7440-66-6	2,000	10 U	**15.3 J**

Notes:
* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

TABLE 3-3
Groundwater Elevation Measurements
December 14 and 15, 2010
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Well Number	Date	Ground Elevation (ft amsl)	Inner Casing Elevation (ft amsl)	Depth to Water (ft TIC)	Groundwater Elevation (ft amsl)
MW-14	12/14/2010	444.10	443.48	11.04	432.44
MW-16S	12/14/2010	453.23	453.23	23.30	429.93
MW-16I	12/14/2010	452.80	452.80	23.09	429.71
MW-17	12/14/2010	441.65	441.65	11.71	429.94
MW-18	12/14/2010	441.14	441.14	11.42	429.72
MW-26	12/14/2010	437.95	440.16	11.17	428.99
MW-27	12/15/2010	444.44	444.09	10.14	433.95
MW-28	12/15/2010	444.83	444.55	10.97	433.58
TW-01	12/14/2010	444.21	446.76	15.82	430.94
TW-02	12/14/2010	437.84	440.06	10.50	429.56
SG-1	12/14/2010	447.52	449.69	8.26	441.43
SG-2	12/14/2010	431.32	435.07	6.40	428.67

Notes:
All wells were surveyed to the New York Central state plane coordinate system (NAD 1983).
ft - feet
amsl - above mean sea level
TIC - top of inner casing

TABLE 3-4
SWMU 1 Groundwater Sampling Results
Volatile Organic Compounds
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			MW-14	MW-16I	MW-16S		MW-17	MW-18	MW-26	MW-27	MW-28	TW-01	TW-02
Sample ID		**TOGS 1.1.1**	MW-14-12142010	MW-16I-12152010	DUP-GW-12152010	MW-16S-12152010	MW-17-12162010	MW-18-12162010	MW-26-12152010	MW-27-12162010	MW-28-12152010	TW-01-12162010	TW-02-12162010
Sample Date	**CAS #**	**GA***	12/14/2010	12/15/2010	12/15/2010	12/15/2010	12/16/2010	12/16/2010	12/15/2010	12/16/2010	12/15/2010	12/16/2010	12/16/2010
VOA (ug/l)													
1,1,1-Trichloroethane	71-55-6	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	79-00-5	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethane	75-34-3	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,1-Dichloroethene	75-35-4	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	87-61-6	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	120-82-1	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dibromo-3-chloropropane	96-12-8	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	106-93-4	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	95-50-1	3	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,3-Dichlorobenzene	541-73-1	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	106-46-7	3	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
1,2-Dichloroethane	107-06-2	0.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethene, cis-	156-59-2	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethene, trans-	156-60-5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloropropane	78-87-5	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichloropropene, cis-	10061-01-5	0.4	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dichloropropene, trans-	10061-02-6	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dinitrobenzene	99-65-0	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
1,4-Dioxane	123-91-1	--	0.568 U	0.5 U	0.5 U	0.5 U	0.5 U	0.543 U	0.556 U	0.562 U	0.5 U	0.568 U	0.633 U
2-Butanone	78-93-3	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Hexanone	591-78-6	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Methyl-2-pentanone	108-10-1	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 U	2.5 U
Acetone	67-64-1	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	**4.04 J**	2.5 UJ	**6.04 J**	2.5 UJ
Benzene	71-43-2	1	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Bromochloromethane	74-97-5	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	75-27-4	50	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromoform	75-25-2	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	74-83-9	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	75-15-0	60	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	56-23-5	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	108-90-7	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Chloroethane	75-00-3	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	67-66-3	7	**2.24**	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
Chloromethane	74-87-3	5	0.5 U	**0.662 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	110-82-7	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	124-48-1	50	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	75-71-8	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethylbenzene	100-41-4	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Isopropylbenzene	98-82-8	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Methyl Acetate	79-20-9	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	108-87-2	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	75-09-2	5	**0.273 J**	0.616 U	0.33 U	0.502 U	**0.718 J**	**0.406 J**	0.555 U	0.25 U	0.327 U	0.25 U	0.25 U
Styrene	100-42-5	5	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U
tert-Butyl Methyl Ether	1634-04-4	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	127-18-4	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Toluene	108-88-3	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trichloroethene	79-01-6	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trichlorofluoromethane	75-69-4	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Trichlorotrifluoroethane	76-13-1	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vinyl chloride	75-01-4	2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Xylenes, Total	108-38-3	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:

* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.

Bold indicates the analyte was detected

Shading indicates the result exceeded screening criteria

J = The analyte was positively identified; the associated numerical value is the approximate concentration.
NA = Not analyzed
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter

TABLE 3-4
SWMU 1 Groundwater Sampling Results
Semivolatile Organic Compounds
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			MW-14	MW-16I	MW-16S		MW-17	MW-18	MW-26	MW-27	MW-28	TW-01	TW-02
Sample ID		**TOGS 1.1.1**	MW-14-12142010	MW-16I-12152010	DUP-GW-12152010	MW-16S-12152010	MW-17-12162010	MW-18-12162010	MW-26-12152010	MW-27-12162010	MW-28-12152010	TW-01-12162010	TW-02-12162010
Sample Date	**CAS #**	**GA***	12/14/2010	12/15/2010	12/15/2010	12/15/2010	12/16/2010	12/16/2010	12/15/2010	12/16/2010	12/15/2010	12/16/2010	12/16/2010
SVOA (ug/l)													
1,3,5-Trinitrobenzene	99-35-4	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,4,5-Trichlorophenol	95-95-4	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,4,6-Trichlorophenol	88-06-2	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,4-Dichlorophenol	120-83-2	5	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,4-Dimethylphenol	105-67-9	50	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,4-Dinitrophenol	51-28-5	1	14.2 U	12.5 U	12.5 U	12.5 U	12.5 U	13.6 U	13.9 U	14 U	12.5 U	14.2 U	15.8 U
2,4-Dinitrotoluene	121-14-2	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2,6-Dinitrotoluene	606-20-2	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2-Chloronaphthalene	91-58-7	10	2.84 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.72 UJ	2.78 UJ	2.81 UJ	2.5 UJ	2.84 UJ	3.16 UJ
2-Chlorophenol	95-57-8	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2-Methylnaphthalene	91-57-6	--	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	**15.5**	0.0272 U	**0.196**	**0.0566 J**	0.0269 U
2-Methylphenol	95-48-7	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
2-Nitroaniline	88-74-4	5	14.2 U	12.5 U	12.5 UJ	12.5 U	12.5 U	13.6 U	13.9 U	14 U	12.5 U	14.2 U	15.8 U
2-Nitrophenol	88-75-5	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
3,3'-Dichlorobenzidine	91-94-1	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
3-,4-Methylphenol	1319-77-3	--	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
3-Nitroaniline	99-09-2	5	14.2 U	12.5 U	12.5 UJ	12.5 U	12.5 U	13.6 U	13.9 U	14 U	12.5 U	14.2 U	15.8 U
4-Bromophenyl phenyl ether	101-55-3	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
4-Chloroaniline	106-47-8	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
4-Nitrophenol	100-02-7	--	14.2 U	12.5 U	12.5 U	12.5 U	12.5 U	13.6 U	13.9 U	14 U	12.5 U	14.2 U	15.8 U
Acenaphthene	83-32-9	20	0.0269 U	0.0255 U	**0.0338 J**	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.167**	0.0287 U	0.0269 U
Acenaphthylene	208-96-8	--	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	**0.0943**	0.0272 U	**0.195**	**0.175**	0.0269 U
Anthracene	120-12-7	50	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	**0.0286 J**	**0.166**	**0.247**	0.0269 U
Benzo(a)anthracene	56-55-3	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.207**	**0.973**	**0.0325 J**
Benzo(a)pyrene	50-32-8	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.171**	**0.92**	0.0269 U
Benzo(b)fluoranthene	205-99-2	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.149**	**0.825**	0.0269 U
Benzo(g,h,i)perylene	191-24-2	--	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.0895**	**0.685**	0.0269 U
Benzo(k)fluoranthene	207-08-9	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.164**	**0.902**	0.0269 U
Benzoic Acid	65-85-0	--	11.4 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10.9 UJ	11.1 UJ	11.2 UJ	10 UJ	11.4 UJ	12.7 UJ
Benzyl Alcohol	100-51-6	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Biphenyl (diphenyl)	92-52-4	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Bis (2-chloroethoxy) methane	111-91-1	5	2.84 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.72 UJ	2.78 UJ	2.81 UJ	2.5 UJ	2.84 UJ	3.16 UJ
Bis (2-chloroethyl) ether	111-44-4	1	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Bis (2-ethylhexyl) phthalate	117-81-7	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Butyl benzylphthalate	85-68-7	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Carbazole	86-74-8	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Chrysene	218-01-9	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.191**	**1.11**	**0.0332 J**
Di-n-butylphthalate	84-74-2	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Di-n-octylphthalate	117-84-0	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Dibenzo (a,h) anthracene	53-70-3	--	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.0375 J**	**0.159**	0.0269 U
Dibenzofuran	132-64-9	--	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Diethyl phthalate	84-66-2	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Dimethyl phthalate	131-11-3	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Fluoranthene	206-44-0	50	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	**0.0267 J**	**0.104**	**0.378**	**1.83**	**0.0614**
Fluorene	86-73-7	50	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	**0.237**	**0.0583**	**0.274**	**0.118**	0.0269 U
Hexachlorobenzene	118-74-1	0.04	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Hexachlorobutadiene	87-68-3	0.5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Hexachlorocyclopentadiene	77-47-4	5	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Hexachloroethane	67-72-1	5	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Indeno (1,2,3-c,d) pyrene	193-39-5	0.002	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	0.0263 U	0.0272 U	**0.0818**	**0.595**	0.0269 U
Isophorone	78-59-1	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
n-Nitrosodiphenylamine	86-30-6	50	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Naphthalene	91-20-3	10	0.0269 U	0.0255 U	0.025 U	0.0281 U	0.0255 U	0.025 U	**2.63**	**0.0347 J**	**0.264**	**0.144**	0.0269 U
Nitrobenzene	98-95-3	0.4	2.84 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Pentachlorophenol	87-86-5	1	14.2 U	12.5 U	12.5 U	12.5 U	12.5 U	13.6 U	13.9 U	14 U	12.5 U	14.2 U	15.8 U
Phenanthrene	85-01-8	50	0.0269 U	**0.0271 J**	0.025 U	0.0281 U	0.0255 U	0.025 U	**0.116**	**0.116**	**0.495**	**1.12**	**0.0635**
Phenol	108-95-2	1	2.84 U	2.5 U	2.5 U	2.5 U	2.5 U	2.72 U	2.78 U	2.81 U	2.5 U	2.84 U	3.16 U
Pyrene	129-00-0	50	0.0269 U	**0.0404 J**	**0.0303 J**	**0.0349 J**	0.0255 U	0.025 U	**0.031 J**	0.0272 U	**0.329**	**1.41**	**0.07**

Notes:
* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

J = The analyte was positively identified; the associated numerical value is the approximate concentration.
NA = Not analyzed
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter

TABLE 3-4
SWMU 1 Groundwater Sampling Results
TAL Metals
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Location			MW-14	MW-16I	MW-16S		MW-17	MW-18	MW-26	MW-27	MW-28	TW-01	TW-02
Sample ID			MW-14-12142010	MW-16I-12152010	DUP-GW-12152010	MW-16S-12152010	MW-17-12162010	MW-18-12162010	MW-26-12152010	MW-27-12162010	MW-28-12152010	TW-01-12162010	TW-02-12162010
Sample Date	CAS #	TOGS 1.1.1 GA*	12/14/2010	12/15/2010	12/15/2010	12/15/2010	12/16/2010	12/16/2010	12/15/2010	12/16/2010	12/15/2010	12/16/2010	12/16/2010
METAL (ug/l)													
Aluminum	7429-90-5	--	**107**	**58.7 J**	50 U	**122**	50 U	**76.1 J**	**437**	50 U	**396**	**126**	50 U
Antimony	7440-36-0	3	**1.25**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.528 J**	0.5 U	**0.785 J**	**2.32**	0.5 U
Arsenic	7440-38-2	25	**6.19**	**2.64**	**2.86**	**4.54**	**16.9**	**2.06**	**2.98**	**3.68**	**3.48**	**6.71**	**9.4**
Barium	7440-39-3	1,000	**59.9**	**135**	**263**	**271**	**209**	**141**	**184**	**434**	**106**	**347**	**415**
Beryllium	7440-41-7	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	7440-43-9	5	0.25 U	**0.534**	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.331 U	0.25 U	0.25 U
Calcium	7440-70-2	--	**130,000**	**128,000**	**117,000**	**121,000**	**174,000**	**155,000**	**99,100**	**275,000**	**121,000**	**205,000**	**242,000**
Chromium	7440-47-3	50	2.5 U	**8.27**	2.5 UJ	**15.5 J**	2.5 U	2.5 U	2.5 U	2.5 U	**2.59 J**	**5.29**	2.5 U
Cobalt	7440-48-4	--	2.5 U	2.5 U	2.5 U	2.5 U	**2.93 J**	2.5 U	2.5 U	2.5 U	**24.2**	2.5 U	2.5 U
Copper	7440-50-8	200	**7.15 J**	5 U	5 U	5 U	5 U	5 U	**20.6**	5 U	**16.4 J**	5 U	5 U
Iron	7439-89-6	300	**592**	**11,100**	**13,000 J**	**22,100 J**	**9,610**	**18,400**	**1,960**	**4,430**	**3,580**	**34,400**	**13,300**
Lead	7439-92-1	25	**1.56**	**0.942 J**	**1.53 J**	**8.88 J**	**0.544 J**	**2.73**	**13.5**	0.5 U	**5.48**	**22.5**	**2.81**
Magnesium	7439-95-4	35,000	**18,000**	**23,000**	**19,200**	**20,000**	**32,300**	**28,500**	**18,600**	**53,600**	**20,400**	**47,100**	**59,800**
Manganese	7439-96-5	300	**18.9**	**490**	**399**	**423**	**672**	**282**	**608**	**3,600**	**1,350**	**828**	**351**
Mercury	7439-97-6	0.7	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.187 J**	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	7440-02-0	100	5 U	5 U	5 U	**10.1 J**	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Potassium	7440-09-7	--	**4,440**	**4,180**	**4,160**	**4,190**	**6,270**	**6,230**	**3,520**	**11,500**	**3,380**	**11,400**	**4,970**
Selenium	7782-49-2	10	**5.12**	**1.8**	**1.6**	**2.23**	**1.8**	**1.53**	**2.43**	**8.93**	**1.42**	**3.21**	**4.14**
Silver	7440-22-4	50	**6.68 J**	**7.2 J**	**6.93 J**	**6.03 J**	**9.36 J**	**8.17 J**	**5.93 J**	**15.3**	**7.5 J**	**8.24 J**	**13.9**
Sodium	7440-23-5	20,000	**11,600**	**80,300**	**82,700**	**83,500**	**89,300**	**145,000**	**76,900**	**118,000**	**80,900**	**78,100**	**177,000**
Thallium	7440-28-0	0.5	0.1 U	**0.121 J**	**0.115 J**	**0.13 J**	**0.127 J**	**0.145 J**	**0.125 J**	**0.172 J**	**0.105 J**	**0.121 J**	**0.171 J**
Vanadium	7440-62-2	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Zinc	7440-66-6	2,000	**22.1**	**29.3**	**19.2 J**	**69.7 J**	**8.5 J**	**6.21 J**	**86.1**	**53.9**	**54.9**	**26.3**	**11.2 J**

Notes:

* - Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality Standards and Guidance Values, and Ground Water Effluent Limitations (Class GA). June 1998; modified January 1999; modified April 2000; modified June 2004.

Bold indicates the analyte was detected

Shading indicates the result exceeded screening criteria

J = The analyte was positively identified; the associated numerical value is the approximate concentration.

NA = Not analyzed

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.

ug/l = Micrograms per Liter

TABLE 3-5
Gorham Street Soil Sampling Results
Former Hampshire Chemical Corp. Facility, Waterloo, New York

		Location	SS-19		SS-20		DE-01						DE-02		
		Sample ID	SS-19A	SS-19B	SS-20A	SS-20B	DE-01A	Dup-DE-01A	DE-01B	DE-01C	DE-01D	DE-01E	DE-02A	DE-02B	DE-02C
		Sample Depth (in)	0 - 2	2 - 12	0 - 2	2 - 8	0 - 2	0 - 2	2 - 6	6 - 12	12 - 24	24 - 36	0 - 2	2 - 6	6 - 12
		Sample Date	8/14/2007	8/14/2007	8/14/2007	8/14/2007	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009
	CAS #	RUSCO*	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L
METAL (mg/kg)															
Arsenic	7440-38-2	16	9.83	**31.3**	**17**	**33.4**	10.5	10.1	12.9	**16.7**	13.3	**23.2**	**42.2**	**38.6**	**17.7**
Cadmium	7440-43-9	2.5	0.852	0.449	**2.87**	**6.17**	1.1	1.02	1.09	0.397 J	0.551	1.34	**5.63**	2.27	1.02

		Location	DE-03					DE-04			DE-05						
		Sample ID	DE-03A	DE-03B	DE-03C	DE-03D	DE-03E	DE-04A	DE-04B	DE-04C	DE-05A-12142010	DE-05B-12142010	DE-05C-12142010	DE-05D-12142010	DE-05E-12142010	DE-05F-12142010	DE-05G-12142010
		Sample Depth (in)	0 - 2	2 - 6	6 - 12	12 - 24	24 - 29	0 - 2	2 - 6	6 - 12	0 - 2	2 - 6	6 - 12	12 - 24	24 - 36	36 - 48	48 - 60
		Sample Date	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	5/7/2009	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010
	CAS #	RUSCO*	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L
METAL (mg/kg)																	
Arsenic	7440-38-2	16	**22.1**	8.78	5.33	12.4	5.94	**33.5**	**36.3**	**55.4**	**47.7**	**137**	**30.2**	**64.8**	**43.9**	12	**39.6**
Cadmium	7440-43-9	2.5	2.17	1.11	0.854	**5.12**	**12.5**	1.13	1.11	1.44	2.12	1.73	1.15	**4.55**	**2.89**	2	2.21

		Location	DE-06							DE-07						
		Sample ID	DE-06A-12142010	DE-06B-12142010	DE-06C-12142010	DE-06D-12142010	DE-06E-12142010	DE-06F-12142010	DE-06G-12142010	DE-07A-12142010	DE-07B-12142010	DE-07C-12142010	DE-07D-12142010	DE-07E-12142010	DE-07F-12142010	DE-07G-12142010
		Sample Depth (in)	0 - 2	2 - 6	6 - 12	12 - 24	24 - 36	36 - 48	48 - 60	0 - 2	2 - 6	6 - 12	12 - 24	24 - 36	36 - 48	48 - 60
		Sample Date	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010	12/14/2010
	CAS #	RUSCO*	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L
METAL (mg/kg)																
Arsenic	7440-38-2	16	**139**	**228**	**155**	12	10.6	**36.5**	**39**	**205**	**101**	**145**	**176**	8.32	6.77	17.8
Cadmium	7440-43-9	2.5	2.44	**3.64**	2.28	**10.4**	**8.34**	**4.75**	**2.74**	1.21	**7.74**	1.25	**2.93**	**78.1**	**14.8**	**39.8**

		Location	DE-08							DE-09									
		Sample ID	DE-08A-12132010	DE-08B-12132010	DE-08C-12132010	DE-08D-12132010	DE-08E-12132010	DE-08F-12132010	DE-08G-12132010	DE-09A-12132010	DE-09B-12132010	DE-09C-12132010	Dup-DE-09C	DE-09D-12132010	DE-09E-12132010	DE-09F-12132010	Dup-DE-09F	DE-09G-12132010	Dup-DE-09G
		v	0 - 2	2 - 6	6 - 12	12 - 24	24 - 36	36 - 48	48 - 60	0 - 2	2 - 6	6 - 12	6 - 12	12 - 24	24 - 36	36 - 48	36 - 48	48 - 60	48 - 60
		Sample Date	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010	12/13/2010
	CAS #	RUSCO*	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L
METAL (mg/kg)																			
Arsenic	7440-38-2	16	**85.9**	**62.6**	**84.6**	**111**	**97.7**	**22.6**	**98.4**	**33.9**	**26.1**	**45.4 J**	**139 J**	**86.1**	5.65 J	7.07 J	4.54 J	5.04 J	**31.1 J**
Cadmium	7440-43-9	2.5	**2.81**	2.46	1.97	**6.74**	**2.74**	**10.7**	**3**	**12.2**	**7.81**	**2.5 J**	**4.77 J**	**4.38**	**30.9**	**33.9**	**22.8**	**99.2 J**	**55.4 J**

		Location	DE-10					DE-11					DE-12			
		Sample ID	DE-10D-12092010	DE-10E-12092010	DE-10F-12092010	DE-10G-12092010	Dup-DE-10G	DE-11D-12092010	DE-11E-12092010	DE-11F-12092010	DE-11G-12092010	Dup-DE-11G	DE-12D-12092010	DE-12E-12092010	DE-12F-12092010	DE-12G-12092010
		Sample Depth (ft)	12 - 24	24 - 36	36 - 48	48 - 60	48 - 60	12 - 24	24 - 36	36 - 48	48 - 60	48 - 60	12 - 24	24 - 36	36 - 48	48 - 60
		Sample Date	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010	12/9/2010
	CAS #	RUSCO*	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L	Conc., mg/L
METAL (mg/kg)																
Arsenic	7440-38-2	16	11.4 J	**20.2**	**99.7**	**37.2 J**	**145 J**	7.02	**33.3**	**435**	**33.7 J**	5.34 J	**18.4**	13.2 J	10.9	5.8
Cadmium	7440-43-9	2.5	1.19 J	1.49	0.415 J	0.293 J	0.767	0.954	**3.8**	1.06	**4.84**	**5.33**	**1,150**	**111**	**3.63**	**3.23**

Notes:
* - NYSDEC RUSCO Resdiential Screening Levels (NYSDEC, 2006 - 6NYCRR Part 375)
Bold and Shading indicates the analyte exceeded screening criteria
J = The analyte was positively identified; the associated numerical value is the approximate concentration.

Figures

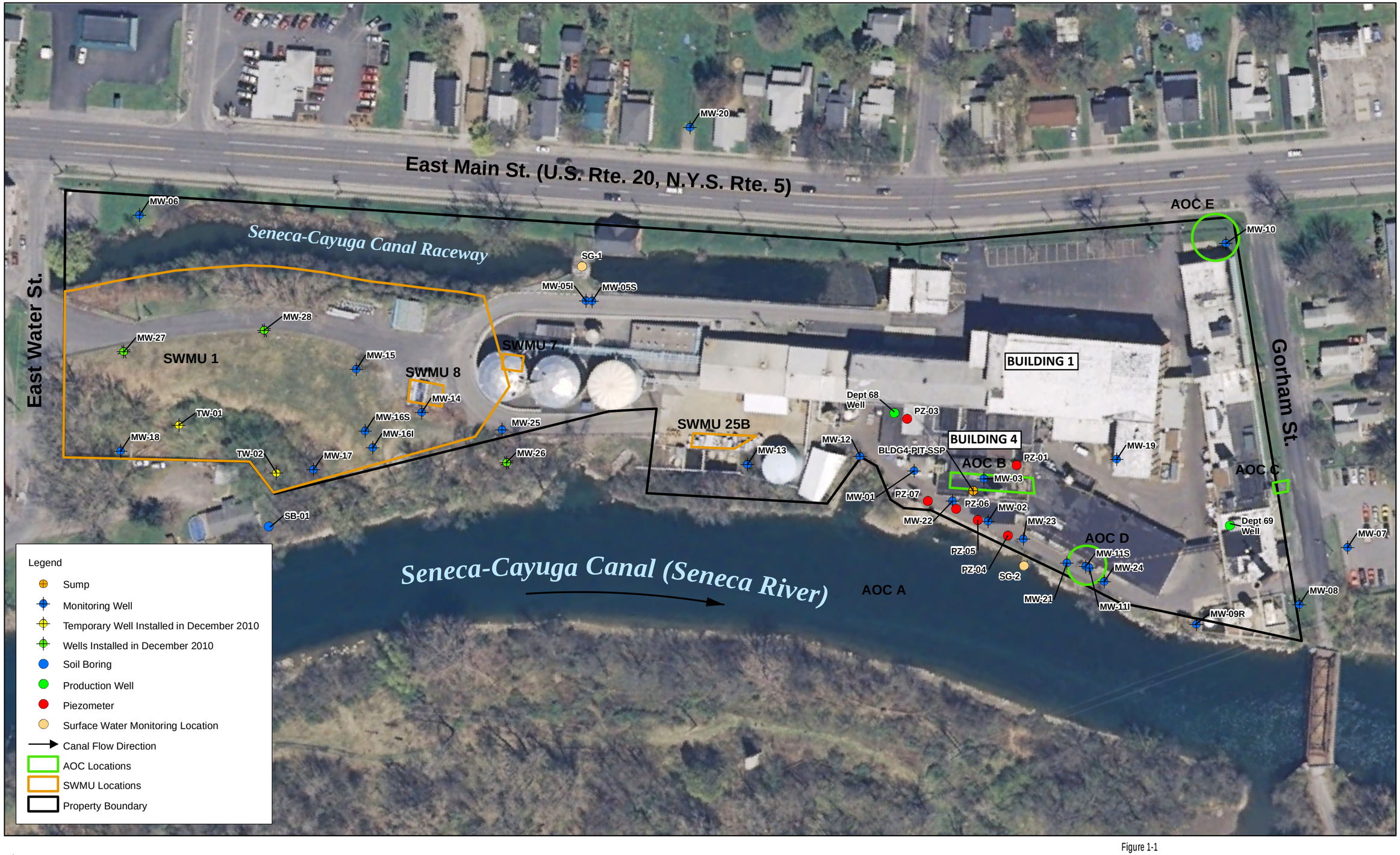


Figure 1-1
Site Map and Well Location Map
Additional Investigation Results Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

CH2MHILL

E:\GIS\DOW\WATERLOO\REPORTS\2011\416903_02_RP_01_ADDITIONALINVESRESULTSREPORT\MAPFILES\FIGURE 01-01 - SITE MAP AND WELL LOCATION MAP.MXD JHANSEN1 12/8/2011 3:59:07 PM

East Main St. (U.S. Rte. 20, N.Y.S. Rte. 5)

Seneca-Cayuga Canal Raceway

Seneca-Cayuga Canal (Seneca River)

East Water St.

Gorham

MW-06
MW-20
MW-28
MW-27
MW-15
MW-14
MW-16S
MW-16I
MW-25
MW-26
MW-18
TW-01
TW-02
MW-17
SG-1
MW-05S
MW-05I
UG-4
UG-3
UG-2
UG-1
AOC E
MW-10
SWMU 1
SWMU 8
SWMU 25B
BUILDING 1
MW-13
MW-12
Dept 68 Well
PZ-03
BLDG4-PW
BLDG4-PIT-SSP
AOC B
PZ-01
MW-03
MW-19
AOC C
MW-01
PZ-07
MW-22
PZ-06
MW-02
PZ-05
PZ-04
MW-23
SG-2
AOC A
AOC D
MW-11S
MW-11I
MW-24
MW-21
Dept 69 Well
MW-07
MW-08
MW-09R

Location	TOGS 1.1.1 Class GA Criteria	UG-01	
Sample Depth, ft		10-13	19-22
Sample Date		12/7/2010	12/7/2010
VOA (ug/l)		No VOCs Exceed Class GA Criteria	

Location	TOGS 1.1.1 Class GA Criteria	UG-02	
Sample Depth, ft		10-13	22-25
Sample Date		12/8/2010	12/8/2010
VOA (ug/l)		No VOCs Exceed Class GA Criteria	

Location	TOGS 1.1.1 Class GA Criteria	UG-03	
Sample Depth, ft		10-13	21-24
Sample Date		12/9/2010	12/9/2010
VOA (ug/l)		No VOCs Exceed Class GA Criteria	

Location	TOGS 1.1.1 Class GA Criteria	UG-04	
Sample Depth, ft		10-13	21-24
Sample Date		12/9/2010	12/9/2010
VOA (ug/l)		No VOCs Exceed Class GA Criteria	

Location	TOGS 1.1.1 Class GA Criteria	PZ-03			
Sample Date		10/16/2008	4/30/2009	10/28/2009	5/4/2010
VOA (ug/l)					
1,1,2-Trichloroethane	5	1 U	1 U	0.25 U	**1.13**
1,2-Dichloroethane	5	**1.03**	**0.675 J**	**0.658 J**	**0.651 J**
1,2-Dichloropropane	1	**1.11**	**0.771 J**	**0.904 J**	**0.846 J**
Trichloroethene	5	**0.396 J**	1 U	**0.309 J**	0.25 U

Location	TOGS 1.1.1 Class GA Criteria	MW-03			
Sample Date		10/16/2008	5/1/2009	10/27/2009	5/5/2010
VOA (ug/l)					
1,1-Dichloroethane	5	50 U	**1.68 J**	**1.34**	**1.79**
1,2-Dichloroethene, cis-	5	50 U	**1.48 J**	**0.92 J**	**1.25**
1,2-Dichloroethene, trans-	5	50 U	**0.713 J**	**0.821 J**	**0.685 J**
Trichloroethene	5	50 U	1 UJ	0.25 U	**0.552 J**

Location	TOGS 1.1.1 Class GA Criteria	BLDG4-PIT-SSP			
Sample Date		10/16/2008	5/1/2009	10/22/2009	5/3/2010
VOA (ug/l)					
1,1-Dichloroethane	5	50 U	**4.71 J**	**6.22**	125 U
1,2-Dichloroethene, cis-	5	50 U	**6.61 J**	**7.71**	250 U
1,2-Dichloropropane	1	50 U	10 U	**1.9**	200 U
Trichloroethene	5	50 U	10 U	**1.46**	250 U

Location	TOGS 1.1.1 Class GA Criteria	MW-19			
Sample Date		10/16/2008	5/1/2009	10/27/2009	5/5/2010
VOA (ug/l)					
1,2-Dichloroethene, cis-	5	50 U	**7.96**	**8.43**	**1.43**
1,2-Dichloroethene, trans-	5	50 U	**10.8**	**12.1**	**1.16**

Location	TOGS 1.1.1 Class GA Criteria	PZ-01			
Sample Date		10/16/2008	4/30/2009	10/28/2009	5/5/2010
VOA (ug/l)					
1,1-Dichloroethane	5	**0.453 J**	**0.217 J**	0.125 U	0.125 U
1,2-Dichloroethene, cis-	5	**23.2**	**38.3**	**0.616 J**	**22.1**
1,2-Dichloroethene, trans-	5	**0.382 J**	**0.678 J**	**0.94 J**	**0.669 J**

Legend

- Monitoring Well
- Temporary Well Installed in December 2010
- Wells Installed in December 2010
- Upgradient Groundwater Monitoring Well
- Sump
- Production Well
- Piezometer
- Surface Water Monitoring Location
- Canal Flow Direction
- AOC Locations
- SWMU Locations
- Property Boundary

0 100 200
Feet

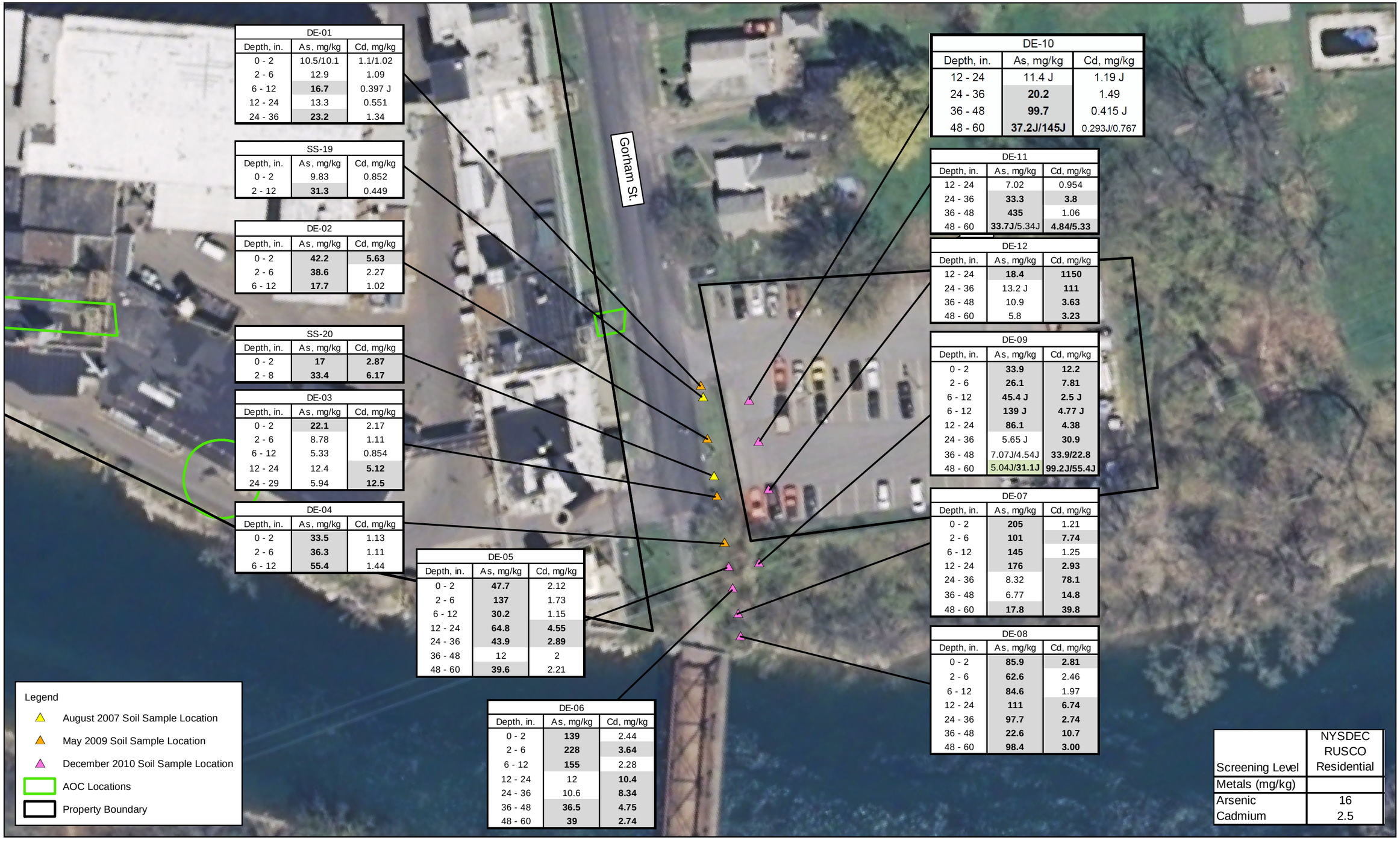
N

Note:
VOC concentrations were compared to June 1998 Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality

Figure 2-1
Discrete Groundwater Investigation Location and Sampling Results Exceedance Map
Additional Investigation Results Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

CH2MHILL

E:\GIS\DOW\WATERLOO\REPORTS\2011\416903_02_RP_01_ADDITIONALINVESRESULTSREPORT\MAPFILES\FIGURE 02-01 - DISCRETE GROUNDWATER INVESTIGATION LOCATION AND SAMPLING RESULTS EXCEEDANCE MAP.MXD JHANSEN1 12/21/2011 10:48:56 PM



Notes:
In. = Inches
mg/kg = milligrams per kilogram
Bold and Gray shading indicates analyte exceeded the NYSDEC RUSCO Residential Screening Levels (NYSDEC, 2006 - 6NYCRR Part 375)
Green shading indicated the associated field duplicate exceeded screening levels, while the parent sample did not
Figure shows exceedances in samples collected as of 12/2010

Figure 2-2
Gorham Street Sampling Location and Sampling Results Map
Former Hampshire Chemical Corp. Facility
Waterloo, New York

CH2MHILL

E:\GIS\DOW\WATERLOO\REPORTS\2011\416903_02_RP_01_ADDITIONALINVESRESULTSREPORT\MAPFILES\FIGURE 02-02 - GORHAM STREET SAMPLING LOCATION AND SAMPLING RESULTS MAP.MXD JHANSEN1 12/28/2011 2:18:01 PM

East Main St. (U.S. Rte. 20, N.Y.S. Rte. 5)

Seneca-Cayuga Canal Raceway

Seneca-Cayuga Canal (Seneca River)

East Water St.

Gorham St.

MW-20

MW-06

SG-1

MW-05I

MW-05S

MW-28

MW-27

SWMU 1

MW-15

SWMU 8

SWMU 7

MW-14

TW-01

MW-16S

MW-16I

MW-18

TW-02

MW-17

MW-25

MW-26

SWMU 25B

MW-13

MW-12

Dept 68 Well

PZ-03

BLDG4-PIT-SSP

MW-01

PZ-07

MW-22

PZ-06

PZ-05

PZ-04

MW-23

SG-2

MW-02

MW-03

AOC B

BLDG4-PW

PZ-01

AOC E

MW-10

UG-4

UG-3

UG-2

UG-1

MW-19

AOC C

MW-21

AOC D

MW-11S

MW-11I

MW-24

Dept 69 Well

MW-07

MW-08

MW-09R

AOC A

Location	TOGS 1.1.1 Class	BLDG4-PW	
Sample Date	GA Criteria	4/22/2004	12/16/2010
VOA (ug/L)			
Chloroform	7	1 U	7.96
METALS (ug/L)			
Iron	300	906	747
Sodium	20,000	87,600	88,300

Legend

- Monitoring Well
- Temporary Well Installed in December 2010
- Wells Installed in December 2010
- Upgradient Groundwater Monitoring Well
- Sump
- Production Well
- Piezometer
- Surface Water Monitoring Location
- Canal Flow Direction
- AOC Locations
- SWMU Locations
- Property Boundary

N

0 100 200

Feet

Note:
Screening concentrations were compared to June 1998 Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality

Figure 3-1
Building 4 Production Well Sampling Results Exceedance Map
Former Hampshire Chemical Corp. Facility
Waterloo, New York

CH2MHILL

E:\GIS\DOW\WATERLOO\REPORTS\2011\416903_02_RP_01_ADDITIONALINVESRESULTSREPORT\MAPFILES\FIGURE 03-01 - BUILDING 4 PRODUCTION WELL SAMPLING RESULTS EXCEEDANCE MAP.MXD JHANSEN1 12/21/2011 11:02:21 PM

Figure 3-2
Groundwater and Canal Surface Water Elevations vs. Time

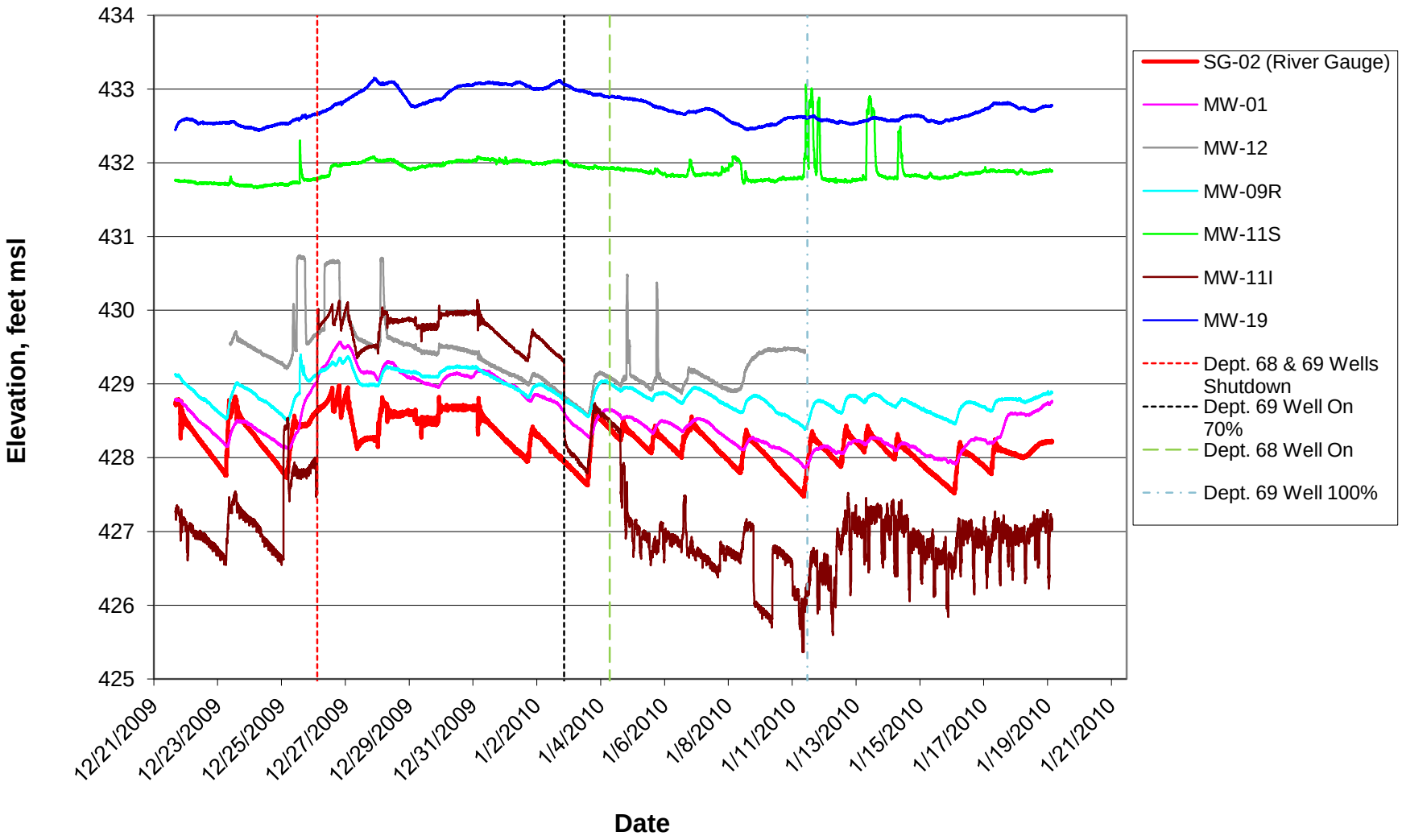
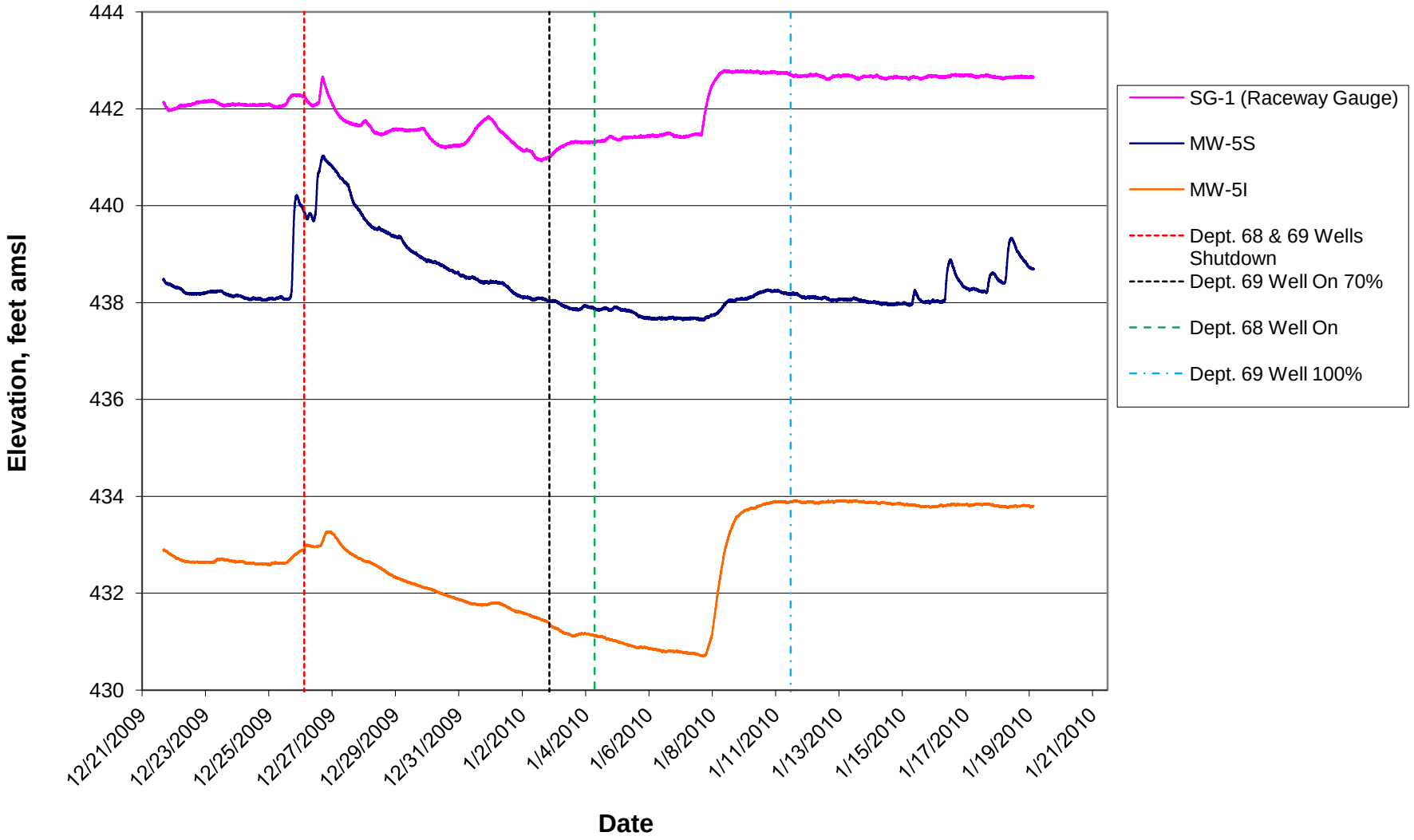


Figure 3-3
Groudwater Elevations and Raceway Surface Water Elevations vs. Time



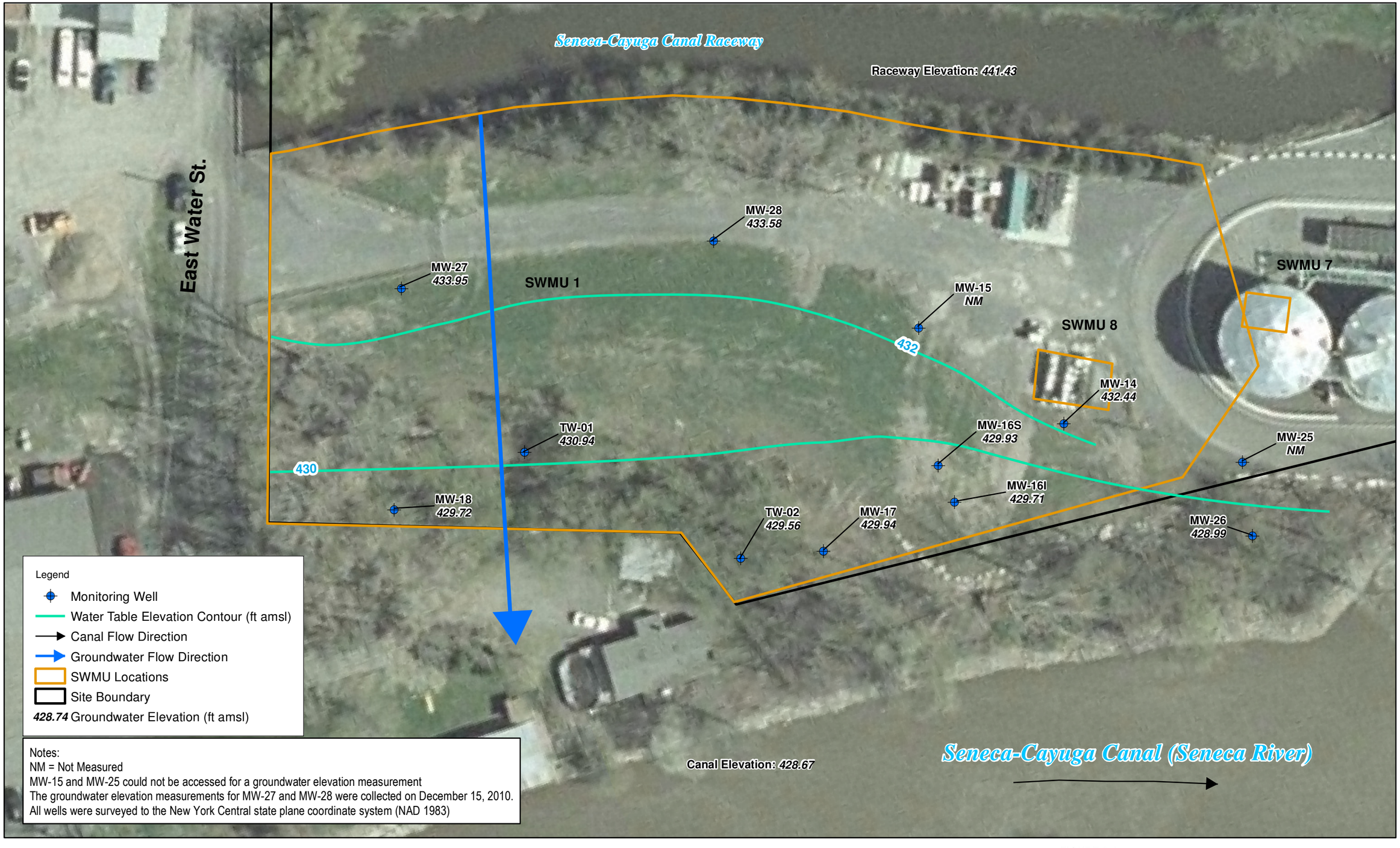


FIGURE 3-4

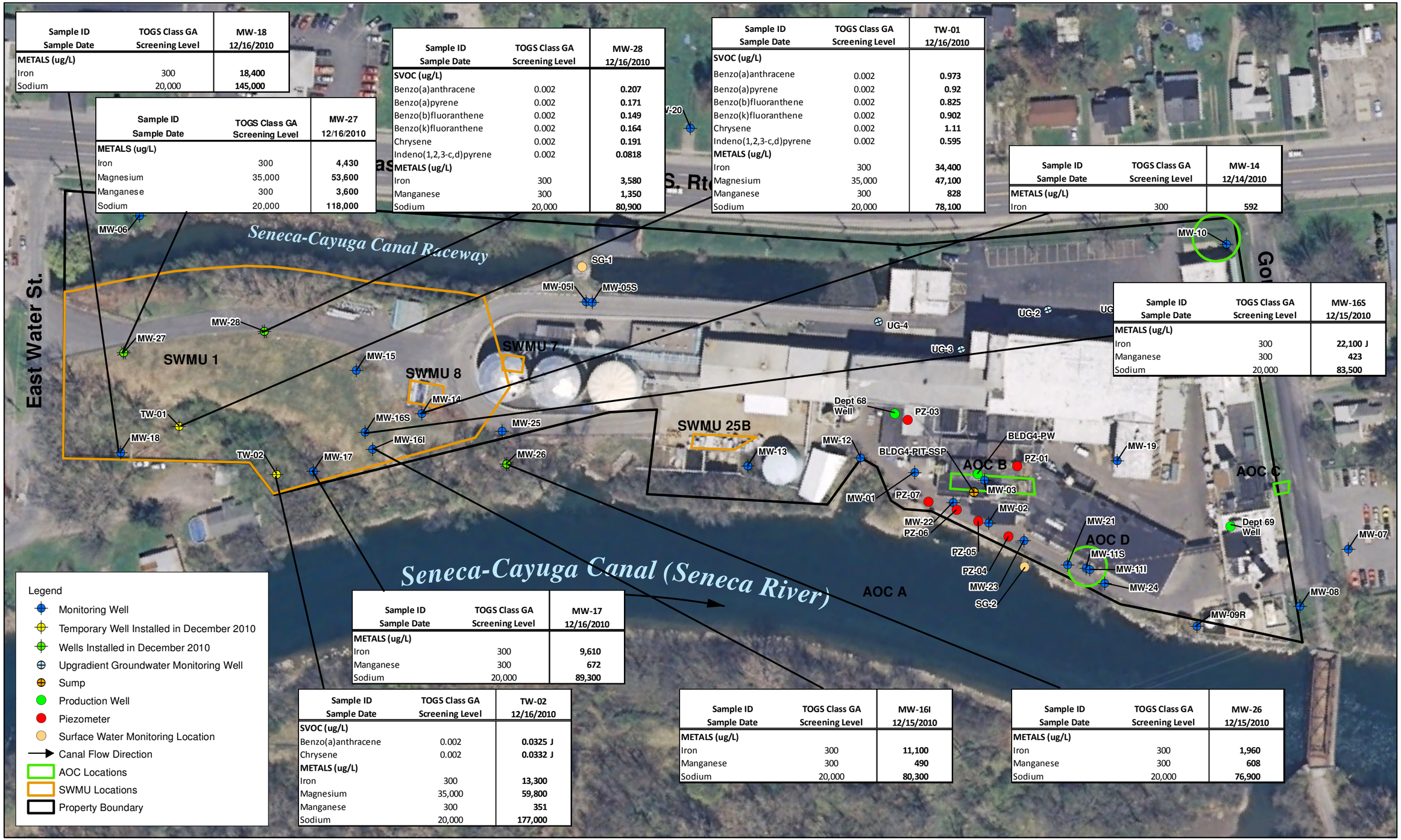
Water Table Elevation Contour Map of SWMU 1 Area - December 2010

Former Hampshire Chemical Corp Facility

Waterloo, New York

CH2MHILL

V:\DOW\WATERLOO\GIS_FOLDERS\MAPFILES\GW_REPORT\FIGURE3-4_WTE_CONTOUR.MXD MUNWIN 5/16/2011 9:13:53 AM



Sample ID Sample Date	TOGS Class GA Screening Level	MW-18 12/16/2010
METALS (ug/L)		
Iron	300	**18,400**
Sodium	20,000	**145,000**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-27 12/16/2010
METALS (ug/L)		
Iron	300	**4,430**
Magnesium	35,000	**53,600**
Manganese	300	**3,600**
Sodium	20,000	**118,000**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-28 12/16/2010
SVOC (ug/L)		
Benzo(a)anthracene	0.002	**0.207**
Benzo(a)pyrene	0.002	**0.171**
Benzo(b)fluoranthene	0.002	**0.149**
Benzo(k)fluoranthene	0.002	**0.164**
Chrysene	0.002	**0.191**
Indeno(1,2,3-c,d)pyrene	0.002	**0.0818**
METALS (ug/L)		
Iron	300	**3,580**
Manganese	300	**1,350**
Sodium	20,000	**80,900**

Sample ID Sample Date	TOGS Class GA Screening Level	TW-01 12/16/2010
SVOC (ug/L)		
Benzo(a)anthracene	0.002	**0.973**
Benzo(a)pyrene	0.002	**0.92**
Benzo(b)fluoranthene	0.002	**0.825**
Benzo(k)fluoranthene	0.002	**0.902**
Chrysene	0.002	**1.11**
Indeno(1,2,3-c,d)pyrene	0.002	**0.595**
METALS (ug/L)		
Iron	300	**34,400**
Magnesium	35,000	**47,100**
Manganese	300	**828**
Sodium	20,000	**78,100**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-14 12/14/2010
METALS (ug/L)		
Iron	300	**592**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-16S 12/15/2010
METALS (ug/L)		
Iron	300	**22,100 J**
Manganese	300	**423**
Sodium	20,000	**83,500**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-17 12/16/2010
METALS (ug/L)		
Iron	300	**9,610**
Manganese	300	**672**
Sodium	20,000	**89,300**

Sample ID Sample Date	TOGS Class GA Screening Level	TW-02 12/16/2010
SVOC (ug/L)		
Benzo(a)anthracene	0.002	**0.0325 J**
Chrysene	0.002	**0.0332 J**
METALS (ug/L)		
Iron	300	**13,300**
Magnesium	35,000	**59,800**
Manganese	300	**351**
Sodium	20,000	**177,000**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-16I 12/15/2010
METALS (ug/L)		
Iron	300	**11,100**
Manganese	300	**490**
Sodium	20,000	**80,300**

Sample ID Sample Date	TOGS Class GA Screening Level	MW-26 12/15/2010
METALS (ug/L)		
Iron	300	**1,960**
Manganese	300	**608**
Sodium	20,000	**76,900**

0 100 200
Feet

Note:
Screening concentrations were compared to June 1998 Technical & Operational Guidance Series (TOGS) 1.1.1, New York State Ambient Water Quality

Figure 3-5
SWMU 1 Area Groundwater Sampling Results Exceedances Map
Former Hampshire Chemical Corp. Facility
Waterloo, New York

Appendix A
Boring Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	SB-S1	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Track Mounted HSA rig with 2' X 2" split spoons, 4.25" ID HAS

WATER LEVELS : not encountered START : 12/10/2010 12:25 END : 12/10/2010 12:50 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-2	0	1/SS	1-2-3-4 (5)	No recovery	
	2-4	0.5	2/SS	3-4-7-6 (11)	2-4: Intermixed silty SAND and coarse sub angular gravel, some fill (brick), brown, 7.5YR 4/4, loose, moist	PID: 0.0 ppm BZ: 0.0 ppm
5	4-6	0	3/SS	3-1-1-1 (2)	Slough	
	6-8	0.9	4/SS	3-3-3-50/4"	same as 2-4', some coarse sand, more silt, bottom of recovery is fractured rock-appears the same as rock bottom of TW-02-sedimentary, very thinnly bedded laminated refusal at 8' bgs - consistent with refusal at nearby locations	PID: 0.0 ppm BZ: 0.0 ppm
10					no well installed due to lack of adequate water	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	MW-26-A	SHEET 1 OF 1

Near canal south of western most water tank

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : 438 ft amsl (Ground) DRILLING CONTRACTOR: Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Track Mounted HSA rig with 2' X 2" split spoons

WATER LEVELS NA START : 12/8/2010 14:35 END : 12/8/10 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-2	0	1/SS	1-1-1-1	No recovery	
	2-4	1.1	2/SS	WOH-1-2-4 (3)	2'-4': silty SAND, little fine sub angular gravel, trace brick, very dark brown, 7.5YR 3/2, medium stiffness, moist	PID: 0.0 ppm
5	4-6	0.9	3/SS	1-2-3-4 (5)	4'-6': SAA with out brick	PID: 0.0 ppm
	6-8	0.8	4/SS	2-3-3-4 (6)	6'-8': SAA	PID: 0.0 ppm
10	8-10	2.0+	5/SS	6-11-15-20 (26)	8'-10': Wood Core	PID: 0.0 ppm
	10-12	0	6/SS	8-7-5-35 (12)	Augered through wood. Change auger and cutterhead. Will reattempt tomorrow to go deeper. 12/9/10 : Parratt Wolff decides to abandon MW-26-A's bore hole due to wood obstructions encountered @ 8-12' bgs. Will move hole west ~15-20' and reattempt (MW-26-B)	

PROJECT NUMBER	BORING NUMBER	
405368	MW-26-B	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Reattempt of MW26-A (~8 ft west), Waterloo, NY

ELEVATION : 438 ft amsl (Ground) DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Track Mounted HSA rig with 2' X 2" split spoons, 4.25" ID HAS

WATER LEVELS 10' ft bgs START : 12/9/2010 8:45 END : 12/9/10 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
					Augered to 10' bgs (0-10 bgs logged @ MW-26-A	
	10-12	0.67	1/SS	12-11-3-10 (14)	10-12: Fractured rock, coarse gravel angular/fill, brown, 7.5YR 5/4, medium density, wet	PID: 0.0 ppm
15	12-14	0	2/SS	50/4"	12-14: No recovery - rock in shoe.	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	MW-27	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : South side of access road, wet of gate ~40 feet, Waterloo, NY

ELEVATION : 440 ft amsl (ground) DRILLING CONTRACTOR Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Ingersoll Rand A-300 Dual, truck rig - DPT w 4' cores

WATER LEVELS ~10 ft bgs START : 12/8/2010 9:30 END : 12/8/10 10:25 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-4	2.2	1/MC	NA	0-4': sandy SILT with gravel, fine sub angular gravel, trace course sub angular gravel, trace brick, fill, brown 7.5 YR 4/3, trace black @ ~2' bgs, medium stiffness to stiffness, moist	PID: 0.0 ppm
5	4-8	1.75	2/MC	NA	4-8': SILT, some fine to medium sub angular gravel, trace fine sand/fill, very dark grey, 10YR 3/1, soft to medium stiffness, moist	PID: 0.1 ppm
10	8-12	1.75	3/MC	NA	8-8.7': same as 0-4. but with some coarses angular gravel/fractured rock 8.7-11.7: SAND, some silt, fine sand, trace fine gravel sub angular, bluish grey, Gley 2 6/1, moist to wet with depth, medium to dense to loose with depth 11.7-12': SILT trace fine sand, some clay, some organic matter possibly native (ML), dark brown, 7.5YR 3/2, moist, soft to medium stiffness	PID: 0.0 ppm PID: 0.0 ppm WET at 10' bgs PID: 0.0 ppm
15	12-13	0	NA	NA	No recovery (slough) DPT refusal at ~12.1' bgs. Will attempt HSA deeper. HSA to 13.0' bgs - HSA refusal	

CH2MHILL

PROJECT NUMBER	BORING NUMBER
405368	MW-28 SHEET 1 OF 1

south of access road ~100' west of gate

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : 445 ft amsl (Ground) DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : DPT - 4' macrocore barell, HSA to install well - Ingersol Rand A-300 Truck Rig

WATER LEVELS ~10 ft bgs START : 12/7/2010 12:40 END : 12/7/10 14:45 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-4	2.9	1/MC	NA	0-1.4': Intermixed sandy SILT and fine angular-sub angular gravel, brown, 7.5YR 4/3, medium stiffnes moist 1.4-3.5: SILT, some clay, trace very fine sand, trace fine gravel, reddish brown 5YR 5/4, stiffness, moist 3.5-4.0': SILT and gravel, fine to medium angular to sub angular gravel, very dark grey, 10YR 3/1, medium density, moist	PID: 0.0 ppm PID: 0.1 ppm PID: 0.0 ppm
5	4-8	1.75	2/MC	NA	4-5.7': same as 1.4-3.5' 5.7-6.8': fine silty SAND with glass and ceramic/ porcelain shards, red, 2.5YR 4/6, medium stiffness to dense, moist 6.8-7.4': SAA but black 7.4-8.0': SAA but mottled with greenish grey, Gley 1 5/1	PID: 0.1 ppm PID: 0.0 ppm PID: 0.0 ppm PID: 0.0 ppm
10	8-12	2.5	3/MC	NA	8-12': Intermixed broken ceramic shards, fine to medium gravel, some fine to medium sand, very dark grey 10YR 3/1, moist to wet with depth, medium density	PID: 0.1 ppm Wet at approximately 10'
12-15.5	12-15.5	2.5'	4/MC	NA	12-15.5': SAA but more poorly sorted, some very fine sand, more medium gravel. DPT refusal @ 15.5' bgs	PID: 0.0 ppm

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	TW-01	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : 447 ft amsl (Ground) DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted HSA rig with 2' X 2" split spoons, 4.25" ID HAS

WATER LEVELS ~13 ft bgs START : 12/9/2010 12:50 END : 12/9/10 16:00 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-2	0.5	1/SS	WOH-2-2-3 (4)	0-2': silty CLAY with some organic matter, brown 7.5YR 5/4, soft to medium stiffness, moist	PID: 0.0 ppm
	2-4	0.5	2/SS	2-3-7-6 (10)	2-4': SAA, fractured rock at top of recovery	PID:0.0 ppm
5	4-6	0	3/SS	8-5-6-6 (11)	slough	
	6-8	0	4/SS	7-6-6-3 (12)	slough	
10	8-10	1.3	5/SS	4-3-3-6 (6)	8-8.7': silty SAND, trace fine-medium gravel sub angular trace glass, brown, 7.5YR 4/2, and black, loose, moist 8.7-10': same as 0-2' but stiff, trace glass, trace medium sub angular gravel, yellowish red, 5YR 4/6	also some pale red, 2.5 YR 7/2, sand, gravelly sand (8.6-8.7' bgs)
	10-12	1.1	6/SS	4-5-3-2 (8)	10-12': SILT, some clay, trace little gravel, fine sub angular many prominent mottles, brown 7.5YR 5/4, some black, some white, 2.5YR 8/1, some yellowish brown 10YR 5/4, moist, medium stiffness	
	12-14	0.75	7/SS	2-3-7-6 (10)	SAA, little glass, more black gravelly sand	
15	14-16	0.75	8/SS	4-1-2-2 (3)	14-16': SILT and cloth or paper-like cardboard material, black, med stiff, wet, slight petroleum product/hydrocarbon odor	PID: 0.1 ppm
	16-18	1.2	9/SS	1-3-4-9 (7)	16-18': SAND and silt and gravel (fine-medium sub angular), intermixed, little brick, trace wood, black, soft medium stiffness, wet, no odor observed	PID: 0.0 ppm
20	18-18.8	0.75	10/SS	9-50/4"	SAA, rock in shoe HSA refusal at 18.8' will move hole and reattempt will auger to 18-19 feet then collect split spoons if possible refused at approximate same depth at second attempt	PID: 0.0 ppm black potential staining and a fuel oil like odor observed when removing augers from hole

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	TW-02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted HSA rig with 2' X 2" split spoons, 4.25" ID HSAs

WATER LEVELS Not encountered START : 12/10/2010 8:20 END : 12/10/10 09:50 LOGGER : A. Harclerode

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-2	0	1/SS	WoH-1-2-3 (3)	No recovery	
	2-4	0.75	2/SS	WoH-4-7-7 (11)	2-4': silty SAND, some fine sub angular - sub rounded gravel, some small glass pieces/fill, reddish brown, 5YR 4/4, med stiffness, moist (no pic)	PID: 0.0 ppm BZ: 0.0 ppm
5	4-6	0.5	3/SS	2-2-3-3 (5)	4-6': SAA, little brick	PID: 0.0 ppm BZ: 0.0 ppm
	6-8	0.4	4/SS	2-2-1-1 (3)	6-8': SAA	PID: 0.0 ppm BZ: 0.0 ppm
10	8-10	0.5	5/SS	6-10-23-10 (33)	8-10': SAA, little brick, refusal at ~9' bgs, move ~5' south and reattempt	PID: 0.0 ppm BZ: 0.1 ppm
	10-10.8	0.75	6/SS	48-50/4"	10-10.8': Fractured rock (siltstone /limestone/dolomite), coarse gravel, parallel bedding planes which are <1 mm thick, Gley 2 3/1, very dark bluish grey terminate:refusal	PID: 0.0 ppm BZ: 0.1 ppm

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	UG-01	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS : ~10 ft bgs START : 12/7/2010 10:20 END : 12/7/10 14:30 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-5	3	1	N/A	0-3: light gray sand (fill), concrete, dry 3-5: dark brown silt and clay, hard, little gravel	PID = 0.0
5	5-10	5	2	N/A	5-10: brownish orange clay, little silt, hard, low plasticity, moist	PID = 0.0
10	10-15	5	3	N/A	10-12: light brown to tan silt with fine sand, wet 12-15: orangish clay and fine sand, wet, hard	Collect groundwater sample at 10-13' UG-01-12072010(10-13) PID = 0.0
15	15-20	0		N/A		PID = 0.0
20						Collect groundwater sample at 19-22' UG-01-12072010(19-22)
	20-25	0	5		No Soil cores Collected	Attempt to collect groundwater sample. Not enough water
25	25-27	0	6			Attempt to collect groundwater sample. Not enough water Refusal at 27'
30	28-31.5	3.5	8	N/A	28-31.5: SAA	PID = 0.0 Refusal at 31.5'

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
405368	UG-02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS : ~10 ft bgs START : 12/7/2010 14:45 END : 12/8/10 12:00 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
	0-4	3.5	1	N/A	0-1.4: asphalt/concrete (fill), wet 1.4-4.0: grayish orange clay, some silt, trace sub angular fine gravel, stiff, dry, low plasticity	PID = 0.0
5	4-8	2.5	2	N/A	4-6.2: grayish orange clay and silt, some sub angular fine grave, mosit 6.2-8.0: orange to red clay, trace silt, low plasticity, moist	PID = 0.0
10	8-12	4	3	N/A	8-10:5: orange to red clay, stiff, low plasticity dry 10.5-11.6: orange to red clay, some silt and sand, soft, little plasticity, wet 11.6-12.0: orange to red clay, stiff, low plasticity, dry	▼ Collect groundwater sample 10-13' UG-02-12082010(10-13)
15	12-16	4	4	N/A	12-16: dark orange to red clay, trae fine sand, soft, plasticity, moist	PID = 0.0
20	16-20	4	5	N/A	16-20: SAA	PID = 0.0
	20-24	4	6	N/A	20-23.5: SAA 23.5-24: C Gravel	PID = 0.0 Collect groundwater sample at 22-25' UG-02-12082010(22-25)
25	24-28	2	7	N/A	24-28: dark orange to red clay, trae fine sand, soft, plasticity, moist	PID = 0.0
30	28-31.5	3.5	8	N/A	28-31.5: SAA	PID = 0.0 Refusal at 31.5'

PROJECT NUMBER	BORING NUMBER	
405368	UG-03	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS ~10 ft bgs START : 12/9/2010 9:00 END : 12/9/2010 11:0 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
10						Collected groundwater sample 10-13' UG-03-12092010(10-13)
20	N/A	N/A	N/A	N/A	No Soil Samples Collected	Collected groundwater sample 21-24' UG-03-12092010(21-24)
30						End at 29'

PROJECT NUMBER	BORING NUMBER	
405368	UG-04	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS ~10 ft bgs START : 12/8/2010 13:10 END : 12/8/2010 14:4 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
10						Collected groundwater sample 10-13' UG-04-12082010(10-13)
20	N/A	N/A	N/A	N/A	No Soil Samples Collected	
30						Collected groundwater sample 29-32' UG-04-12082010(29-32) Refusal at 32'

PROJECT NUMBER	BORING NUMBER	
405368	DE-05	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Tri-pod direct push rig

WATER LEVELS N/A START : 12/14/2010 END : 12/14/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
0						Collect DE-05A-12132010
						Collect DE-05B-12132010
1					0-2: dark brown to orage silt and clay, some gravel, moist	Collect DE-05C-12132010
						Collect DE-05D-12132010
2						
	0-5	2.3	1	N/A		Collect DE-05E-12132010
3					2.0-4.0: brown silt, some gravel, moist	
						Collect DE-05-12132010
4						
					4.0-5.0: orange to dark brown silt, some gravel, trace fine sand	Collect DE-05G-12132010(dup)
5						End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-06	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Tri-pod direct push rig

WATER LEVELS N/A START : 12/14/2010 END : 12/14/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
0					0-0.7: brown silt, some gravel, moist	Collect DE-06A-12132010 Collect DE-06B-12132010
1					0.7-1.8: pinkish orange silt, some clay, trace gravel, dry	Collect DE-06C-12132010 Collect DE-06D-12132010
2					1.8-2.0: pink clayey silt, moist	
	0-5	2.9	1	N/A		Collect DE-06E-12132010
3					2.0-4.0: SAA	
4						Collect DE-06-12132010
5					4.0-5.0: orange silty clay, wet	Collect DE-06G-12132010(dup) End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-07	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Tri-pod direct push rig

WATER LEVELS N/A START : 12/14/2010 END : 12/14/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
1					0-2: orange silt with fine to medium sand	Collect DE-07A-12132010 Collect DE-07B-12132010 Collect DE-07C-12132010 Collect DE-07D-12132010
2	0-5	2.8	1	N/A	2-2.9: orange silt, some gravel, moist, wood fragment (fill)	Collect DE-07E-12132010
3						Collect DE-07-12132010
4					2.9-5.0: reddish orange clay and silt, trace gravel, moist	Collect DE-07G-12132010(dup)
5						End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-08	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Tri-pod direct push rig

WATER LEVELS N/A START : 12/13/2010 END : 12/13/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
1					0-2: brownish orange silt, some gravel, moist	Collect DE-08A-12132010 Collect DE-08B-12132010 Collect DE-08C-12132010 Collect DE-08D-12132010
2	0-5	5	1	N/A		Collect DE-08E-12132010
3					2-5: brownish orange silt, some gravel, trace sand, moist to wet	
4						Collect DE-08-12132010
5						Collect DE-08G-12132010(dup) End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-09	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Parratt Wolff

DRILLING METHOD AND EQUIPMENT USED : Tri-pod direct push rig

WATER LEVELS N/A START : 12/13/2010 END : 12/13/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
1	0-5	1.5	1	N/A	0-1: dark brown silt, some gravel, some organic material	Collect DE-09A-12132010 Collect DE-09B-12132010
						Collect DE-09C-12132010 (dup)
2					1-2: gray to orange clay, some sand, moist	Collect DE-09D-12132010
						Collect DE-09E-12132010(ms/msd)
3					2-4: reddish orange silty clay	
						Collect DE-09-12132010 (ms/msd)
4					4-5: dark black to orange clay and silt	
						Collect DE-09G-12132010(dup)
5						End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-10	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR : Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS N/A START : 12/9/2010 END : 12/9/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
0					0-1: asphalt/concrete (fill), dry	
1					1-1.8: light gray silt, some fine to medium sand, trace gravel, moderate stiffness, dry	Collect DE-10D-12092010 (ms/msd)
2	0-5	2.5	1	N/A		Collect DE-10E-12092010
3					1.8-5.0: dark gray gravel, some silt, poorly sorted, moist to wet	Collect DE-10F-12092010
4						Collect DE-10G-12092010
5						End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-11	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR: Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS N/A START : 12/9/2010 END : 12/9/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
0					0-1.1: asphalt/concrete (fill)	
1						
						Collect DE-11D-12092010
2					1.1-3.1: dark orange silt, trace dark brown gravel, loost, soft, moist	
	0-5	1.8	1	N/A		Collect DE-11E-12092010 (ms/msd)
3						
					3.1-3.9: dark orange brown silt, soft, moist	Collect DE-11F-12092010
4						
					3.9-5.0: very dark brown silt, some clay, some gravel, moderate stiffness, moist	Collect DE-11G-12092010
5						End at 5'

PROJECT NUMBER	BORING NUMBER	
405368	DE-12	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : Waterloo, NY

ELEVATION : N/A DRILLING CONTRACTOR: Environmental Field Services, Inc.

DRILLING METHOD AND EQUIPMENT USED : Truck Mounted Direct Push Technology drill rig

WATER LEVELS N/A START : 12/9/2010 END : 12/9/2010 LOGGER : J. Balas

DEPTH BELOW SURFACE (FT) (Not to Scale)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppm): Soil Core
0					0-0.6: asphalt / concrete (fill)	
					0.6-1.1: yellowish orange silt, some brownish gray gravel, soft, moist	
1					1.1-2.1: black silt, soft, moist	Collect DE-12D-12092010
2	0-5	2	1	N/A	2.1-3.2: orange brown silt, some gravel, soft, low plasticity, moist	Collect DE-10E-12092010
3					3.2-5.0: orange brown clay and sil, trace gravel, soft, low plasticity, moist	Collect DE-10F-12092010
4						Collect DE-10G-12092010 (Dup)
5						End at 5'

Appendix B
Well Purging and Development Logs

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	TW-01	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor: CH2M Hill

START Time 12/14/10 1120 END Time : 1135 LOGGER : Bill Moore

Diameter of Well (inches) & Type:	2"	Development Method:	surge/purge with whale pump
Depth of Well (feet):	17.5->20.02	Surge Block Used:	No
Depth to Water (ft) at START:	15.82	Screen Interval Surged:	Yes
Water Column Height (feet):	1.68		
Gallons per Foot:	0.163	Water Quality Meter (Manufacturer/Model/Serial #):	
One Well Volume (gallons):	0.27384	Horiba U 52	
Ten Well Volumes (gallons):	2.7384	LaMotte 2020	

Maximum Drawdown During Pumping:	Dry
Average Discharge Rate & Range:	0.25-1
Total Quantity of Water Discharged:	20 well volumes
Disposition of Discharge Water:	clear

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (gpm)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	Conductivity (ms/cm)	Remarks (color, odor, sheen, sediment, etc.)
1120		1	—	—	—	—	well dry after 1 minute
1122		1	—	—	—	—	restart pump, dark gray, potential slight shee
1125		1	—	—	—	—	stop pump/surge
1130	5	0.25	MAX	9.89	6.89	1.73	restart pump, slight clearing
1135	5	0.25	750	8.95	7.1	1.78	clearing

Comments:

well pumped dry immediately. Surged and purged during recharge. Water cleared up after pumping at constant rate <1 gal/min. 2.5' sediment clea

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	TW-02	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor: CH2M Hill

START Time 12/14/10 1040 END Time : 1055 LOGGER : B. Moore

Diameter of Well (inches) & Type:	2"
Depth of Well (feet):	12.2'
Depth to Water (ft) at START:	10.44
Water Column Height (feet):	1.8
Gallons per Foot:	0.163
One Well Volume (gallons):	0.2934
Ten Well Volumes (gallons):	2.934

Development Method:	surge and purge with whale pump
Surge Block Used:	No
Screen Interval Surged:	Yes

Water Quality Meter (Manufacturer/Model/Serial #):
Horiba U52
LaMotte 2020

Maximum Drawdown During Pumping:	Dry
Average Discharge Rate & Range:	0.4
Total Quantity of Water Discharged:	20 well volumes
Disposition of Discharge Water:	

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (gpm)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	Conductivity (ms/cm)	Remarks (color, odor, sheen, sediment, etc.)
1040	0	—	Max	11.32	6.61	2.7	dark brown/turbid no sheen
1041	Well Dry allow recharge			—	—		
1045	Well dry after 10 seconds, purge with pump						
1050	4	0.3	290	—	—	—	dark pump/lower pump rate
1055	5	0.5	95	10.21	6.32	2.74	

Comments:

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	MW-26	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor: CH2M Hill

START Time 12/14/2010 1520 END Time : 1545 LOGGER : Bill Moore

Diameter of Well (inches) & Type:	2"
Depth of Well (feet):	15.9
Depth to Water (ft) at START:	9.7
Water Column Height (feet):	6.2
Gallons per Foot:	0.163
One Well Volume (gallons):	1.01
Ten Well Volumes (gallons):	10.1

Development Method:	purge and surge with whale pump
Surge Block Used:	No
Screen Interval Surged:	Yes

Water Quality Meter (Manufacturer/Model/Serial #):
Horiba U52
LaMotte 2020

Maximum Drawdown During Pumping:	11.2
Average Discharge Rate & Range:	1
Total Quantity of Water Discharged:	30 gallons
Disposition of Discharge Water:	Clear

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (gpm)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	Conductivity (ms/cm)	Remarks (color, odor, sheen, sediment, etc.)
1520	5	1	Max	11.34	6.78	0.991	turbid-dark brown, no sheen
1525	10	1	Max	12.3	6.87	0.887	slightly clearing
1530	15	1	Max	12.35	6.93	0.875	slightly clearing
1535	20	1	116	12.12	6.87	0.872	slightly clearing, dtw: 11.2
1540	25	1	34.1	12.44	6.81	0.862	clearing, dtw: 11.2
1545	30	1	10.1	12.15	6.93	0.848	clear

Comments: ~0.5' of sediment removed from well

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	MW-27	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor:

START Time 12/10/2010 END Time : 1445 LOGGER : James Balas

Diameter of Well (inches) & Type:	2"	Development Method:	
Depth of Well (feet):	13.09	Surge Block Used:	
Depth to Water (ft) at START:	10.52	Screen Interval Surged:	
Water Column Height (feet):	2.57		
Gallons per Foot:	0.163	Water Quality Meter (Manufacturer/Model/Serial #):	
One Well Volume (gallons):	0.418		
Ten Well Volumes (gallons):	4.18		

Maximum Drawdown During Pumping:	dry
Average Discharge Rate & Range:	
Total Quantity of Water Discharged:	
Disposition of Discharge Water:	

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (gpm)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	Conductivity (ms/cm)	Remarks (color, odor, sheen, sediment, etc.)
1437	1.5		100				low/no recharge

Comments: no recharge-will get a peristaltic pump and continue at later time

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	MW-28	SHEET 1 OF 2

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor:

START Time: 12/10/2010 9:26 END Time : 1138 LOGGER : James Balas

Diameter of Well (inches) & Type:	2"	Development Method:	10 well volume/surge
Depth of Well (feet):	15.91	Surge Block Used:	No
Depth to Water (ft) at START:	11.42	Screen Interval Surged:	Yes
Water Column Height (feet):	4.49		
Gallons per Foot:	0.163	Water Quality Meter (Manufacturer/Model/Serial #):	
One Well Volume (gallons):	0.732	Horiba U52	
Ten Well Volumes (gallons):	7.32		

Maximum Drawdown During Pumping:	1.18'
Average Discharge Rate & Range:	700 mL/min
Total Quantity of Water Discharged:	39.5
Disposition of Discharge Water:	gray-clear

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (mlpmin)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	ORP (mV)	Remarks (color, odor, sheen, sediment, etc.)
926	0	700	N/A	13.42	5.96	53	dark gray silty / no odor
929	0.75	700	N/A	14.18	6.2	24	gray / no odor
931	1.5	700	N/A	14.32	6.24	21	gray / no odor
935	2.25	700	N/A	14.52	6.39	-3	dark gray / no odor
939	3	700	N/A	14.51	6.43	-5	dark gray / no odor
942	3.75	700	N/A	14.78	6.44	-4	gray / no odor
946	4.5	700	N/A	14.64	6.5	-13	gray / no odor
949	5.75	700	N/A	15.16	6.52	-15	dark gray / no odor
953	6.5	700	N/A	15.33	6.48	-2	gray / no odor
958	7.5	700	N/A	15.31	6.1	-2	gray / no odor
1004	9.5	700	N/A	15.13	6.53	-9	gray / no odor
1007	10.25	700	N/A	15.58	6.41	-4	gray / no odor
1012	11.5	700	N/A	15.36	6.49	0	gray / no odor
1018	13	700	N/A	15.1	6.44	1	gray / no odor
1024	15	700	N/A	15.27	6.47	1	gray / no odor

Comments: using a grundfos pump to purge and surge set at 82 Hz

PROJECT NUMBER	WELL NUMBER	
405368.04.S1	MW-28	SHEET 2 OF 2

WELL DEVELOPMENT LOG

PROJECT : Former Hampshire Corp - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

Development Contractor:

START Time: 12/10/2010 9:26 END Time : 1138 LOGGER : James Balas

Diameter of Well (inches) & Type:	2"
Depth of Well (feet):	15.91
Depth to Water (ft) at START:	11.42
Water Column Height (feet):	4.49
Gallons per Foot:	0.163
One Well Volume (gallons):	0.732
Ten Well Volumes (gallons):	7.32

Development Method:	10 well volume/surge
Surge Block Used:	No
Screen Interval Surged:	Yes

Water Quality Meter (Manufacturer/Model/Serial #):
Horiba U52

Maximum Drawdown During Pumping:	1.18'
Average Discharge Rate & Range:	700 mL/min
Total Quantity of Water Discharged:	39.5
Disposition of Discharge Water:	gray-clear

Dia. (in)	Gal./Ft.	Dia. (in)	Gal./Ft.
1"	0.041	5"	1.02
2"	0.163	6"	1.469
3"	0.367	8"	2.611
4"	0.653	10"	4.08

Time	Water Volume Discharged (gal)	Discharge Rate (mlpm)	Turbidity (NTU)	Temperature (°C)	pH (Std. Units)	Conductivity (ms/cm)	Remarks (color, odor, sheen, sediment, etc.)
1037	18.5	700	NA	14.89	6.51	8	gray / no odor
1041	20	700	NA	15.05	6.47	8	gray / no odor
1051	23.25	700	NA	15.57	6.49	3	still silt at bottom of well
1109	30	700	NA	15.37	6.49	1	still silt at bottom of well
1125	35	700	NA	15.6	6.45	5	still silt at bottom of well
1132	38	700	110	14.87	6.44	10	clear / no odor
1135	38.75	700	19	14.99	6.35	16	clear / no odor
1138	39.5	700	4	15.12	6.45	12	clear / no odor
End Development							

Comments:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-14 | **Site:** Former Hampshire Corp - Additional RCRA Investigation

Field Crew: B. Moore | **Date: 12/14/10** | **Project #:** 405368.04.S1

			Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
Well Depth (ft.)	14.9						
DTW (ft.):	11.18		Low Flow Purge with	2"	.163	5"	1.020
Water Column	3.2		grundfos pump and	3"	.367	6"	1.469
Well Diameter (	2"		tephlon lined tubing	4"	.653	8"	2.611
Gal. per ft.:	0.163		Water Quality Meter:				
Well Volume (g	0.521		Horiba, U22				
Depth of Scree	4.9-14.9		LaMotte 2020				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1505	11.83	300	—	6.59	9.97	0.736	127	7.62	170	slightly cloudy
1 VOL.	1510	12.05	250	—	6.99	9.13	0.764	119	6.95	130	slightly cloudy
2 VOL.	1515	12.45	200	—	7.08	9.50	0.812	107	4.56	66	clear
3 VOL.	1520	12.67	200	—	7.07	10.90	0.779	108	4.74	9.3	clear
4 VOL.	1525	12.8	200	—	7.12	9.14	0.778	109	4.21	8	clear
5 VOL.	1530	13.1	200	—	7.13	9.00	0.779	111	4.24	8.5	clear
6 VOL.	1535	13.2	200	—	7.16	9.03	0.777	113	4.24	7.15	clear
7 VOL.	1540	Collect Sample									
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge	1555	13.3	—	—	7.04	11.4	0.701	143	2.01	11.1	

Remarks: Pump Intake Depth: 14 ft | Control Box Setting (Hz): | Development: 78 | Sampling:

purged less than 300 ml/min due to low water recharge

SAMPLING

Depth to Water Before Sampling:	13.2
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-14-12142010 — QC Sample: None
Sample Date/Time:	12/14/2010 15:40
Sampler / Signature:	Wiliiam Moore
Filtered Metals Collected:	N
Sample Observations:	clear
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-16S**	**Site:**	Former Hampshire Corp - Additional RCRA Investigation
Field Crew:	**J. Balas**	**Date:**	**12/15/10** **Project #:** 405368.04.S1

Well Depth (ft.)	33.99	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.):	23.25	Low Flow Purge with	2"	.163	5"	1.020
Water Column	10.74	grundfos pump and	3"	.367	6"	1.469
Well Diameter (	2"	tephlon lined tubing	4"	.653	8"	2.611
Gal. per ft.:	0.163	Water Quality Meter:				
Well Volume (g	1.75	Horiba, U52				
Depth of Screen (ft.):	23.99-33.99					

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1357	27.1	750	1	7.15	13.63	1.06	-95	1.36	60.5	grey/none
1 VOL.	1402	27.1	375	2.25	7.24	14.25	1.09	-105	0.63	34	clear/none
2 VOL.	1407	27.1	300	2.6	7.29	14.03	1.11	-110	0.57	18.7	clear/none
3 VOL.	1412	27.1	300	3.1	7.32	14.77	1.12	-114	0.55	11	clear/none
4 VOL.	1417	27.1	300	3.6	7.32	14.82	1.12	-115	0.53	9.9	clear/none
5 VOL.	1422	27.1	300	4.1	7.3	14.93	1.12	-116	0.49	6.8	clear/none
6 VOL.	1427	27.1	300	4.6	7.29	14.92	1.12	-116	0.48	5.1	clear/none
7 VOL.	1430	Collect Sample									
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 31.0 ft

Control Box Setting (Hz): Development: 104 Sampling: 102.6

no LaMotte available

SAMPLING

Depth to Water Before Sampling:	27.1
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-16S-12152010 QC Sample: Duplicate @ 15:00
Sample Date/Time:	12/15/2010 14:30
Sampler / Signature:	James Balas
Filtered Metals Collected:	N
Sample Observations:	grey at start then cleared up
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-16I**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**J. Balas**	**Date: 12/15/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	32.56	Purge Methodology:	
DTW (ft.):	23.05	Low Flow Purge with	
Water Column	9.51	grundfos pump and	
Well Diameter (	2"	tephlon lined tubing	
Gal. per ft.:	0.163	Water Quality Meter:	
Well Volume (g	1.55	Horiba, U52	
Depth of Screen (ft.):	22.56-32.56		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1230	N/A	400	—	6.75	12.46	1.18	-47	8.52	137	tan / slight odor
1 VOL.	1235	N/A	375	1	6.91	12.71	1.16	-65	7.51	74.7	tan / slight odor
2 VOL.	1240	N/A	375	1.5	7.17	13.04	1.15	-84	6.76	37.8	clear/none
3 VOL.	1245	N/A	375	2	7.23	13.41	1.15	-89	6.11	22.6	clear/none
4 VOL.	1250	N/A	375	2.4	7.19	13.72	1.15	-88	5.65	17.9	clear/none
5 VOL.	1255	N/A	375	2.8	7.09	14.09	1.15	-83	5.17	20.7	clear/none
6 VOL.	1300	N/A	375	3.5	7.05	13.83	1.14	-81	4.93	21.5	clear/none
7 VOL.	1305	N/A	375	3.9	7.00	13.61	1.14	-78	4.79	20	clear/none
8 VOL.	1310	Sample Collected									
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 31.5 Control Box Setting (Hz): Development: 101.4 Sampling:

SAMPLING

Depth to Water Before Sampling:	N/A
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-16I-12152010 QC Sample: none
Sample Date/Time:	12/15/2010 13:10
Sampler / Signature:	James Balas
Filtered Metals Collected:	N
Sample Observations:	tan at first and then cleared up
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-17**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**J. Balas**	**Date: 12/16/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	14.71	Purge Methodology:	
DTW (ft.):	11.7	Low Flow Purge with	
Water Column	3.01	grundfos pump and	
Well Diameter (	2"	tephlon lined tubing	
Gal. per ft.:	0.163	Water Quality Meter:	
Well Volume (g	0.5	Horiba, U52	
Depth of Screen (ft.):	4.71-14.71		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1220	13.1	500	1.5	7.14	13.02	1.65	-77	0.5	16.5	clear/none
1 VOL.	1225	13.1	325	2.3	7.15	13.84	1.51	-80	0	11.2	clear/none
2 VOL.	1230	13.1	325	2.6	7.15	13.89	1.48	-80	0	10.6	clear/none
3 VOL.	1235	13.1	325	3	7.15	14.04	1.45	-79	0	7.6	clear/none
4 VOL.	1240	13.1	325	3.5	7.14	14.03	1.45	-78	0	2.9	clear/none
5 VOL.	1245	13.1	325	4	7.14	14.03	1.43	-77	0	0.8	clear/none
6 VOL.	1250	Collect sample									
7 VOL.											
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 13.7 Control Box Setting (Hz): Development: 83 Sampling:

no LaMotte working

SAMPLING

Depth to Water Before Sampling:	13.1
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-17-12162010 QC Sample: none
Sample Date/Time:	12/16/2010 12:50
Sampler / Signature:	James Balas
Filtered Metals Collected:	N
Sample Observations:	clear
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-18**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**J. Balas**	**Date: 12/16/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	13.01	Purge Methodology:	
DTW (ft.):	11.45	Low Flow Purge with	
Water Column	1.56	peristaltic pump and	
Well Diameter (	2"	tephlon lined tubing	
Gal. per ft.:	0.163	Water Quality Meter:	
Well Volume (g	0.25	Horiba, U52	
Depth of Screen (ft.):	3.01-13.01		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1119	11.02	300	—	7.03	12.09	1.61	-35	1.63	—	brown/none
1 VOL.	1124	11.22	300	0.6	7.25	12.90	1.60	-81	0.99	48.3	clear/none
2 VOL.	1129	11.39	300	0.9	7.31	12.90	1.61	-94	0.0	31.5	clear/none
3 VOL.	1134	11.39	300	1.25	7.3	13.12	1.60	-101	0.0	9.9	clear/none
4 VOL.	1139	11.39	300	1.6	7.31	13.17	1.60	-104	0.0	6.5	clear/none
5 VOL.	1144	11.39	300	2	7.31	13.09	1.60	-105	0.0	3.1	clear/none
6 VOL.	1150	Collect Sample									
7 VOL.											
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 12.5 Control Box Setting (Hz): Peristaltic

SAMPLING

Depth to Water Before Sampling:	11.39
Sample Methodology:	Peristaltic pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-18-12162010 QC Sample: none
Sample Date/Time:	12/16/2010 11:50
Sampler / Signature:	James Balas
Filtered Metals Collected:	N
Sample Observations:	brown-cleared quickly
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-26**				**Site:** Former Hampshire Corp - Additional RCRA Investigation					
Field Crew:	**Bill Moore**				**Date:** **12/15/2010**		**Project #:** 405368.04.S1			
Well Depth (ft.)	16.21		Purge Methodology:		Diameter	Gal. Per Foot		Diameter	Gal. Per Foot	
DTW (ft.):	11		Low Flow Purge with		2"	.163		5"	1.020	
Water Column	5.21		grundfos pump and		3"	.367		6"	1.469	
Well Diameter (	2"		tephlon lined tubing		4"	.653		8"	2.611	
Gal. per ft.:	0.163		Water Quality Meter:							
Well Volume (g	0.85		Horiba, U22							
Depth of Screen (ft.):		6.21-16.21	LaMotte 2020							

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1310	11.01	300	—	7.51	10.17	0.894	-38	3.25	429	cloudy
1 VOL.	1315	11.01	300	—	7.34	10.90	0.956	-48	0.40	322	cloudy
2 VOL.	1320	11.01	300	—	7.28	12.23	0.908	-46	0.00	29.5	clear
3 VOL.	1325	11.03	300	—	7.28	12.34	0.906	-46	0.00	13.9	clear
4 VOL.	1330	11.03	300	—	7.27	12.11	0.906	-46	0.00	8.15	clear
5 VOL.	1335	11.03	300	—	7.26	12.31	0.903	-44	0.00	8.01	clear
6 VOL.	1340	11.03	300	—	7.25	12.59	0.899	-43	0.00	7.69	clear
7 VOL.	1345	Collect Sample									
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge	1600	11.03	300	—	7.26	12.61	0.879	-32	0.02	5.21	

Remarks: Pump Intake Depth: 14 ft | Control Box Setting (Hz): | Development: 72 | Sampling:

SAMPLING

Depth to Water Before Sampling:	11.03
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-26-12152010 QC Sample: none
Sample Date/Time:	12/15/201013:45
Sampler / Signature:	Bill Moore
Filtered Metals Collected:	N
Sample Observations:	cloudy to clear
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-27**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**Bill Moore**	**Date:** **12/15/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	12.75	Purge Methodology:	
DTW (ft.):	10.14	Low Flow Purge with	
Water Column	2.61	grundfos pump and	
Well Diameter (	2"	tephlon lined tubing	
Gal. per ft.:	0.163	Water Quality Meter:	
Well Volume (g	0.43	Horiba, U52	
Depth of Screen (ft.):	2.75-12.75		

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1100	11.41	250	—	6.45	9.32	2.14	14	4.84	17	clear/no odor
1 VOL.	1105	12.1	200	—	6.47	9.36	2.08	52	2.9	8.91	clear/no odor
2 VOL.	1110	12.28	175	—	6.57	7.08	2.13	38	4.54	11.3	clear/no odor
3 VOL.	1115	12.6	175	—	6.55	7.46	2.17	21	4.21	14.7	clear/no odor
4 VOL.	1120	12.7	175	—	6.49	7.31	2.26	-9	3.02	13	clear/no odor
5 VOL.	1125	12.7	175	—	6.51	5.97	2.28	-33	2.16	380	cloudy well dry
6 VOL.	well dry allow for recharge then will sample										
7 VOL.	1145	12.75	125	—	6.42	3.91	2.27	-23	1.48	385	cloudy well dry
8 VOL.	collect sample on 12/16/2010										
9 VOL.	900	collected sample		—	—	—	—	—	—	—	
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 12 ft

Control Box Setting (Hz): Peristaltic pump

lower purge rate due to low recharge

collected sample w/out stabilization due to drawdown/well going dry

SAMPLING

Depth to Water Before Sampling:	12.95
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-27-12162010 QC Sample: none
Sample Date/Time:	12/16/2010 0900
Sampler / Signature:	James Balas
Filtered Metals Collected:	Y Filter Size: 0.040 micron
Sample Observations:	turbid water
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**MW-28**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**J. Balas**	**Date: 12/15/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	15.9	Purge Methodology:	
DTW (ft.):	10.97	Low Flow Purge with	
Water Column	4.93	grundfos pump and	
Well Diameter (	2"	tephlon lined tubing	
Gal. per ft.:	0.163	Water Quality Meter:	
Well Volume (g	0.8	Horiba, U52	
Depth of Screen (ft.):	5.9-15.9	LaMotte 2020	

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	848	11.04	600	—	6.34	13.81	1.12	51	1.8	N/A	grey/none
1 VOL.	853	11.02	350	1.2	6.37	14.77	1.16	26	0.64	105	grey/none
2 VOL.	858	11.02	350	1.75	6.40	15.08	1.15	22	0.59	345	clear/none
3 VOL.	903	11.02	350	2.25	6.40	15.24	1.14	19	0.53	7.48	clear/none
4 VOL.	908	11.02	350	2.8	6.41	15.37	1.14	16	0.5	3.47	clear/none
5 VOL.	913	11.02	350	3.4	6.42	15.34	1.13	13	0.49	2.61	clear/none
6 VOL.	920	Collect Sample									
7 VOL.											
8 VOL.											
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 13.5' Control Box Setting (Hz): Development: 80 Sampling: 78.8

SAMPLING

Depth to Water Before Sampling:	11.02
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	MW-28-12152010 QC Sample: ms/msd
Sample Date/Time:	12/15/2010 9:20
Sampler / Signature:	James Balas
Filtered Metals Collected:	N
Sample Observations:	dark grey to clear and no odor
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**BLDG4-PW**	**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**Bill Moore/James Balas**	**Date: 12/16/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	89.08 BTOC	Purge Methodology:	
DTW (ft.):	5.64 BTOC	Low Flow Purge with	
Water Column	83.44	grundfos pump and	
Well Diameter (	6"	tephlon lined tubing	
Gal. per ft.:	1.469	Water Quality Meter:	
Well Volume (g	122	Horiba, U52	
Depth of Screen (ft.):	U/K	LaMotte 2020	

Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
2"	.163	5"	1.020
3"	.367	6"	1.469
4"	.653	8"	2.611

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	< 10 NTU	
Initial	1530	5.58	500	—	6.86	10.07	0.719	-63	6.65	56.6	clear / no odor / no sheen
1 VOL.	1535	5.58	400	—	7.77	9.65	0.718	-77	12.07	9.3	clear / no odor / no sheen
2 VOL.	1540	5.58	400	—	7.87	9.60	0.722	-77	12.12	5.35	clear / no odor / no sheen
3 VOL.	1545	5.58	400	—	7.93	9.88	0.715	-76	12.27	12.4	clear / no odor / no sheen
4 VOL.	1550	5.58	400	—	7.91	9.21	0.718	-73	12.24	12.2	clear / no odor / no sheen
5 VOL.	1555	5.58	400	—	7.90	10.30	0.719	-72	12.2	7.41	clear / no odor / no sheen
6 VOL.	1600	5.58	400	—	7.89	9.88	0.718	-70	12.26	4.86	clear / no odor / no sheen
7 VOL.	1605	5.58	400	—	7.88	9.86	0.717	-69	12.27	2.39	clear / no odor / no sheen
8 VOL.	1610	Collect Sample									
9 VOL.											
10 VOL.											
Post-Purge											

Remarks: Pump Intake Depth: 80 | Control Box Setting (Hz): | Development: 64 | Sampling:

Ambient Air Readings @ 15:40

PID: 0.4 ppm

CO: 0 H2S: 0

LEL: 6 O2: 21.0

SAMPLING

Depth to Water Before Sampling:	5.58
Sample Methodology:	Grunfos 2" RediFlow 2 Submersible Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	BLDG4-PW-12162010 QC Sample: No
Sample Date/Time:	12/16/2010 16:10
Sampler / Signature:	Bill Moore
Filtered Metals Collected:	N
Sample Observations:	N/A
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**TW-01**		**Site:** Former Hampshire Corp - Additional RCRA Investigation	
Field Crew:	**Bill Moore**		**Date: 12/16/2010**	**Project #:** 405368.04.S1
Well Depth (ft.)	20.2	Purge Methodology:	Diameter / Gal. Per Foot	Diameter / Gal. Per Foot
DTW (ft.):	16.08	Low Flow Purge with	2" / .163	5" / 1.020
Water Column	4.12	peristaltic pump and	3" / .367	6" / 1.469
Well Diameter (	2"	tephlon lined tubing	4" / .653	8" / 2.611
Gal. per ft.:	0.163	Water Quality Meter:		
Well Volume (g	0.67	Horiba, U22		
Depth of Screen (ft.):	10.2-20.2	LaMotte 2020		

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1025	15.99	200	—	6.65	6.98	1.64	-90	4.33	114	slightly cloudy/no sheen/no odor
1 VOL.	1030	16.00	200	—	6.85	8.68	1.63	-102	3.23	77.1	slightly cloudy/no sheen/no odor
2 VOL.	1035	16.00	200	—	6.91	9.25	1.64	-107	2.83	72.4	slightly cloudy/no sheen/no odor
3 VOL.	1040	16.00	200	—	6.97	9.28	1.65	-115	2.63	45.8	slightly cloudy/no sheen/no odor
4 VOL.	1045	16.00	200	—	6.99	9.17	1.65	-117	3.11	28.3	clear
5 VOL.	1050	16.00	200	—	7.00	7.14	1.63	-113	2.73	18.4	clear
6 VOL.	1055	16.00	200	—	7.01	7.20	1.63	-115	2.95	15.5	clear
7 VOL.	1100	16.00	200	—	7.00	8.22	1.63	-120	2.43	10.9	clear
8 VOL.	1105	16.00	200	—	7.02	9.10	1.62	-121	2.41	8.9	clear
9 VOL.	1110	16.00	200	—	7.00	9.13	1.62	-123	2.39	9.1	clear
10 VOL.	1115	Collect Sample									
Post-Purge											

Remarks: Pump Intake Depth: 19 ft | Control Box Setting (Hz): | Development: peristaltic | Sampling:

SAMPLING

Depth to Water Before Sampling:	16
Sample Methodology:	Peristaltic Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	TW-01-12162010 — QC Sample: none
Sample Date/Time:	12/16/2010 11:15
Sampler / Signature:	Bill Moore
Filtered Metals Collected:	N
Sample Observations:	clear
Parameters:	VOC / SVOC + PAH / TAL Metals

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number:	**TW-02**		**Site:** Former Hampshire Corp - Additional RCRA Investigation		
Field Crew:	**James Balas/Bill Moore**		**Date: 12/14/2010**	**Project #:** 405368.04.S1	
Well Depth (ft.)	12.38	Purge Methodology:	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft.):	10.52	Low Flow Purge with	2"	.163	5"	1.020
Water Column	1.86	peristaltic pump and	3"	.367	6"	1.469
Well Diameter (	2"	tephlon lined tubing	4"	.653	8"	2.611
Gal. per ft.:	0.163	Water Quality Meter:				
Well Volume (g	0.303	Horiba, U22				
Depth of Screen (ft.):	2.38-12.38	LaMotte 2020				

Field Parameters

	Time	DTW (tic)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/l)	Turbidity (NTU)	Color/Odor
	Stabilization	< 0.3'	300 - 500		+/- 0.1		+/- 3 %	+/- 10 mV	+/- 10%	+/- 10%	
Initial	1540	11.92	400	0.75	6.7	10.13	1.56	-89	0.0	213	light brown / none
1 VOL.	1545	10.92	400	1.4	6.9	8.89	1.52	-105	0.0	228	clear / none
2 VOL.	1550	11.01	350	1.8	6.89	9.23	1.42	-106	0.0	—	clear / none
3 VOL.	1554	Peristaltic pump stopped working									
4 VOL.		Restarted on 12/16/2010 at 13:20									
5 VOL.	1325	10.84	300	—	6.82	6.82	2.53	-54	1.22	115	slightly cloudy
6 VOL.	1330	10.84	300	—	6.74	6.74	2.57	-65	0.41	59.8	slightly cloudy
7 VOL.	1335	10.84	300	—	6.75	6.75	2.48	-77	0.0	21.2	clear / none
8 VOL.	1340	10.85	300	—	6.78	6.78	2.34	-85	0.0	13.5	clear / none
9 VOL.	1345	10.85	300	—	6.81	6.81	2.32	-90	0.0	8.1	clear / none
10 VOL.	1330	10.85	300	—	6.82	6.82	2.3	-91	0.0	8.5	clear / none
Post-Purge	1355	10.85	300	—	6.83	6.83	2.29	-94	0.0	7.9	clear / none

Remarks: Pump Intake Depth: 12 ft Control Box Setting (Hz): Peristaltic pump

SAMPLING

Depth to Water Before Sampling:	10.85
Sample Methodology:	Peristaltic Pump with 1/2 inch I.D. Teflon Lined Polyethylene Tubing - Low Flow Rate
Sample Name:	TW-02-12162010 QC Sample: none
Sample Date/Time:	12/16/2010 14:00
Sampler / Signature:	Bill Moore
Filtered Metals Collected:	N
Sample Observations:	-------
Parameters:	VOC / SVOC + PAH / TAL Metals

Appendix C
Well Construction Diagrams

PROJECT NUMBER	BORING NUMBER	
405368	MW-26	SHEET 1 OF 1

Near pool of Dow house-western of two TW locations

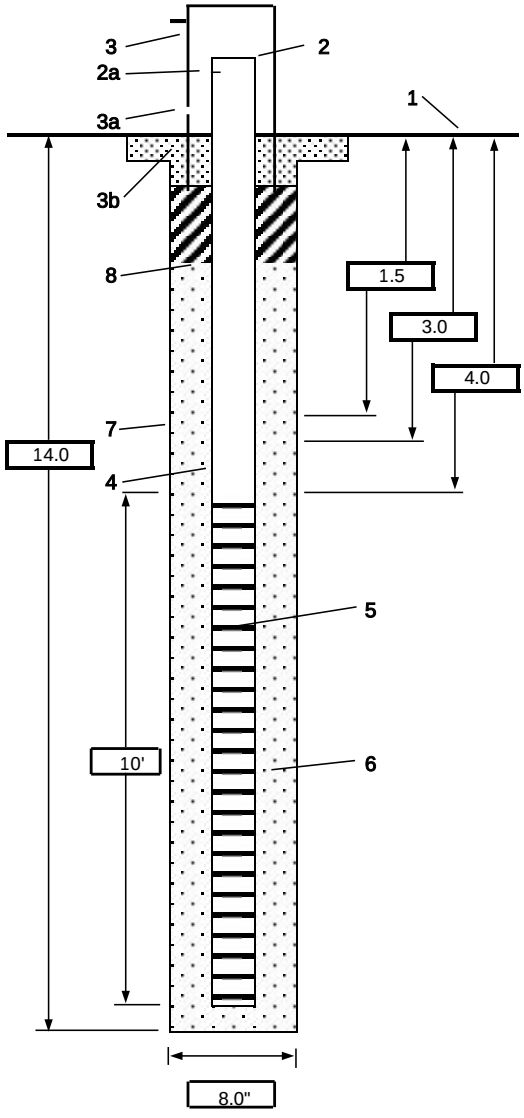
WELL COMPLETION DIAGRAM

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

ELEVATION : 437.95 ft amsl (ground) DRILLING CONTRACTOR : Parratt Wolf, Inc.

DRILLING METHOD AND EQUIPMENT USED : truck mounted HSA Rig: 4.25" ID HSAs

WATER LEVELS : 11 ft TIC Date: 12/9/2010 START : 10:30 END : 11:05 LOGGER : A. Harclerode



1- Ground elevation at well 437.95 ft amsl

2- Top of casing elevation 440.16 ft amsl
a) vent hole?

3- Wellhead protection cover type Stickup
a) weep hole? None
b) concrete pad dimensions 2 ft diameter

4- Diameter/type of well casing 2" Schedule 40 PVC

5- Type/slot size of screen 10 slot: 0.010 in

6- Type screen filter "# 0" QUARTZ/SILICA SAND - (4.5) 50 lb
a) Quantity used bags

7- Type of seal enviroplug medium bentonite chips
a) Quantity used (2) 50 lb bags

8- Grout
a) Grout mix used NA - bentonite to surface
b) Method of placement
c) Quantity of well casing grout

Development method surge/purge

Development time 25 minutes

Estimated purge volume 30 gallons

Comments

PROJECT NUMBER	BORING NUMBER		
405368	MW-27	SHEET 1	OF 1

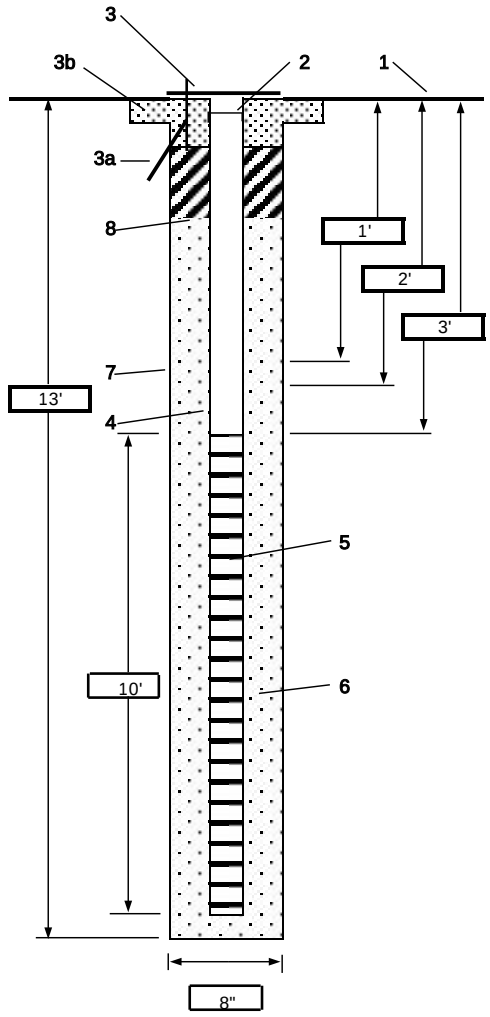
WELL COMPLETION DIAGRAM

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

ELEVATION : 444.44 ft amsl (ground) DRILLING CONTRACTOR : Parratt Wolf, Inc.

DRILLING METHOD AND EQUIPMENT USED : truck mounted HSA rig. 4.25" ID HSAs

WATER LEVELS : 10 ft TIC Date: 12/8/2010 START : 10:50 END : 11:30 LOGGER : A. Harclerode



1- Ground elevation at well 444.44 ft amsl

2- Top of casing elevation 444.09 ft amsl

3- Wellhead protection cover type Steel manhole
a) weep hole? Sand base "weep" area under box
b) concrete pad dimensions 2 ft diameter

4- Diameter/type of well casing 2-inch schedule 40 PVC

5- Type/slot size of screen 10 slot 0.010

6- Type screen filter
a) Quantity used "#0" sand

7- Type of seal enviroplug-medium bentonite chips
a) Quantity used UNK

8- Grout
a) Grout mix used sand base for road box b/c well screened shallow
b) Method of placement NA
c) Quantity of well casing grout NA

Development method surge and purge w/whale pump

Development time 0 (low recharge)

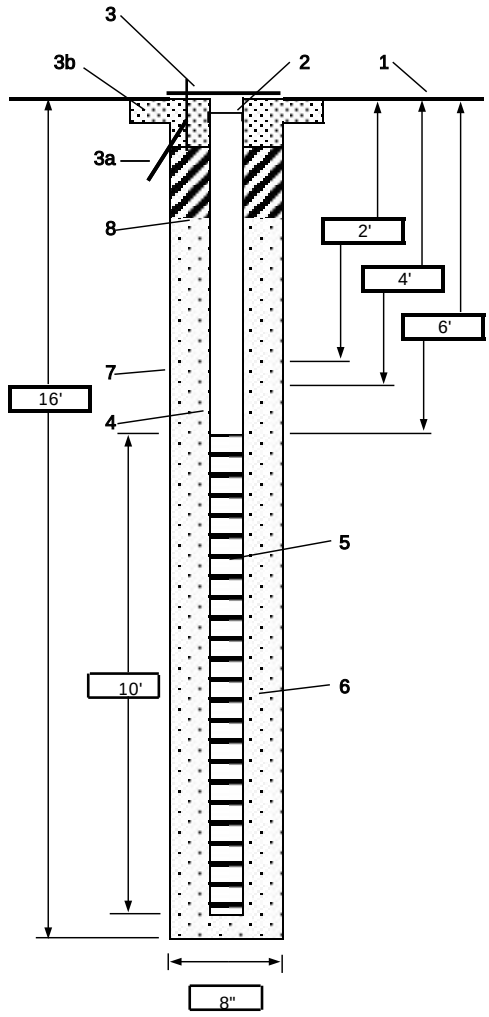
Estimated purge volume 1.5 gallons

Comments

PROJECT NUMBER	BORING NUMBER		
405368	MW-28	SHEET 1	OF 1

WELL COMPLETION DIAGRAM

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York
ELEVATION : 444.83 ft amsl (ground) DRILLING CONTRACTOR : Parratt Wolf, Inc.
DRILLING METHOD AND EQUIPMENT USED : truck mounted HSA rig. 4.25" ID HSAs
WATER LEVELS : 11 ft TIC Date: 12/7/2010 START : 14:45 END : 15:50 LOGGER : A. Harclerode



1- Ground elevation at well 444.83 ft amsl

2- Top of casing elevation 444.55 ft amsl

3- Wellhead protection cover type Steel manhole
a) weep hole? Sand base "weep" area under box
b) concrete pad dimensions 2 foot diameter

4- Diameter/type of well casing 2-inch schedule 40 PVC

5- Type/slot size of screen 10 slot 0.010

6- Type screen filter
a) Quantity used "#0" sand

7- Type of seal
a) Quantity used enviroplug-medium bentonite chips

8- Grout
a) Grout mix used NA (Sand)
b) Method of placement NA
c) Quantity of well casing grout NA

Development method surge and purge w/grundfos pump

Development time 2.2 hours

Estimated purge volume 39.5 gallons

Comments

PROJECT NUMBER	BORING NUMBER		
405368	TW-01	SHEET 1	OF 1

Near pool of Dow house-western of two TW locations

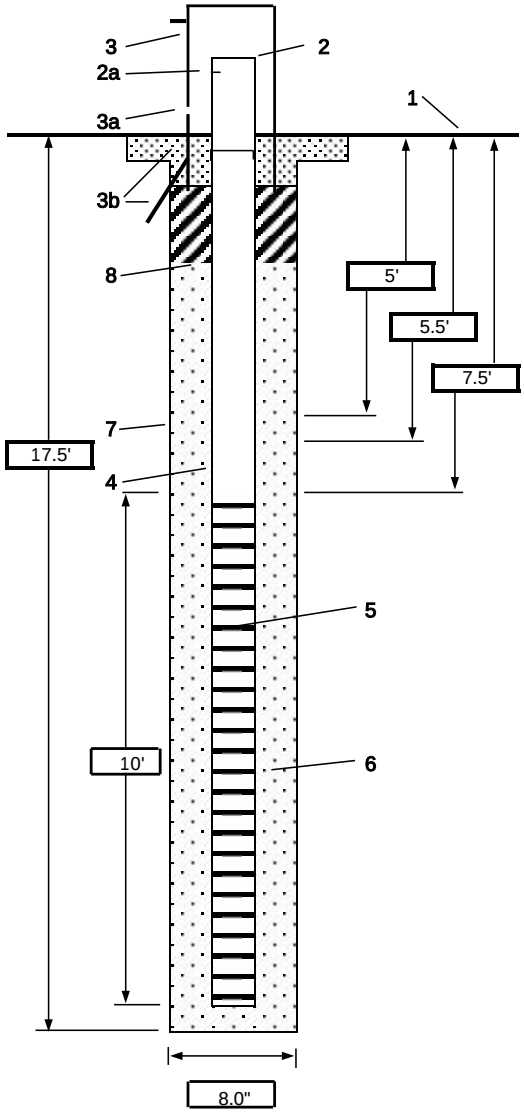
WELL COMPLETION DIAGRAM

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

ELEVATION : 444.21 ft (ground) DRILLING CONTRACTOR : Parratt Wolf, Inc.

DRILLING METHOD AND EQUIPMENT USED : track mounted HSA Rig: 4.25" ID HSAs

WATER LEVELS : 16 ft TIC Date: 12/9/2010 START : 15:40 END : 16:05 LOGGER : A. Harclerode



1- Ground elevation at well 444.21 ft amsl

2- Top of casing elevation 446.76 ft amsl
a) vent hole?

3- Wellhead protection cover type None
a) weep hole? NA
b) concrete pad dimensions None

4- Diameter/type of well casing 2 inchSchedule 40 PVC

5- Type/slot size of screen 10 slot: 0.010 in

6- Type screen filter "# 0" QUARTZ/SILICA SAND - (4.5) 50 lb
a) Quantity used bags

7- Type of seal enviroplug medium bentonite chips
a) Quantity used (2) 50 lb bags

8- Grout
a) Grout mix used NA - bentonite to surface
b) Method of placement
c) Quantity of well casing grout

Development method surge/purge

Development time 15 minutes

Estimated purge volume 5 gallons

Comments

PROJECT NUMBER	BORING NUMBER		
405368	TW-02	SHEET 1	OF 1

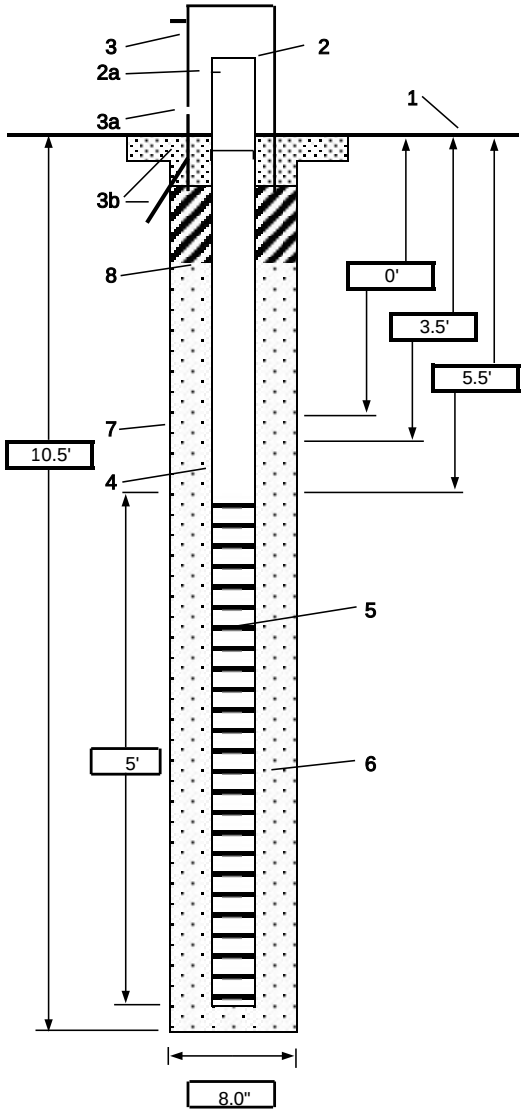
WELL COMPLETION DIAGRAM

PROJECT : The Dow Chemical Company - Additional RCRA Investigation LOCATION : 228 East Main Street, Waterloo, New York

ELEVATION : 437.84 ft amsl (ground) DRILLING CONTRACTOR : Parratt Wolf, Inc.

DRILLING METHOD AND EQUIPMENT USED : track mounted HSA Rig: 4.25" ID HSAs

WATER LEVELS : 11 ft TIC Date: 12/10/2010 START : 9:55 END : 10:25 LOGGER : A. Harclerode



1- Ground elevation at well 437.84 ft amsl

2- Top of casing elevation 440.06 ft amsl
a) vent hole?

3- Wellhead protection cover type None
a) weep hole? NA
b) concrete pad dimensions None

4- Diameter/type of well casing 2 inch Schedule 40 PVC

5- Type/slot size of screen 10 slot: 0.010 in

6- Type screen filter "# 0" QUARTZ/SILICA SAND - (5.0) 50 lb
a) Quantity used bags

7- Type of seal enviroplug medium bentonite chips
a) Quantity used (3) 50 lb bags

8- Grout
a) Grout mix used NA - bentonite to near surface
b) Method of placement
c) Quantity of well casing grout

Development method surge/purge

Development time 15 minutes

Estimated purge volume 5 gallons

Comments

Appendix D

Analytical Data

Additional Investigations Results Report
Former Hampshire Chemical Corp. Facility
Waterloo, NY

Prepared for
The Dow Chemical Company

CH2MHILL

Appendix D
Analytical Data

February 2012

Appendix E

Data Quality Review

Data Quality Evaluation for 2010 RCRA Investigation, Dow Waterloo

PREPARED BY: CH2M HILL

DATE: February, 2011

Introduction

The objective of this Data Quality Evaluation (DQE) report is to assess the data quality of analytical results for soil and groundwater samples collected from the Union Carbide Corporation (UCC) Dow Waterloo site in Waterloo, New York (UCC is a wholly owned subsidiary of The Dow Chemical Company). CH2M HILL collected samples December 7-16, 2010. Guidance for this DQE report came from the *Quality Assurance Project Plan, RCRA Facility Investigation, Former Hampshire Chemical Corporation Facility, Waterloo, New York* (Waterloo QAPP, June 2010); *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review, October 1999;* the *USEPA Contract Laboratory NFG for Inorganic Data Review, October 2004;* individual method requirements; and, historical laboratory quality control limits.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers 47 soil samples, 19 groundwater samples, 5 soil field duplicates (FD), 2 groundwater FDs, 7 equipment blanks (EB) and 4 trip blanks (TB). The samples were reported as six sample delivery groups listed in Table 1.

TABLE 1
Sample Delivery Groups
RCRA Investigation, Dow Waterloo

L10120368
L10120369
L10120550
L10120554
L10120582
L10120648

Samples were collected and delivered to Microbac Laboratory (MBLM) in Marietta, Ohio. The samples were analyzed by one or more of the methods listed in Table 2.

TABLE 2
Analytical Parameters
RCRA Investigation, Dow Waterloo

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	SW8260B	MBLM
Semivolatile Organic Compounds (SVOC)	SW8270C/SW8270SIM	MBLM
Polyaromatic Hydrocarbons (PAH)	SW8270 PAHL	MBLM
TAL Metals	SW6010B/SW6020/SW7470A	MBLM

The sample delivery groups were assessed by reviewing the following: (1) the chain-of-custody documentation; (2) holding-time compliance; (3) initial and continuing calibration criteria; (4) method blanks and field blanks; (5) laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries; (6) matrix spike/matrix spike duplicate (MS/MSD) recoveries; (7) surrogate spike recoveries; (8) internal standard recoveries; (9) FD precision; and (10) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the Waterloo QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the Waterloo QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections. Qualified data are presented in Table 3.

Holding Time and Preservation

All acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods. All acceptance criteria were met with the following exceptions:

The relative response factors (RRF) for 4-methyl-2-pentanone and acetone were less than method criteria in the initial calibrations associated with Method SW8260B, as well as multiple initial calibration verification standards (ICV) and continuing calibration standards (CCV), indicating a possible low bias. The data were qualified as estimated detected and non-detected results and flagged "J"and "UJ", respectively, in the associated samples.

The percent differences (%D) for 2-chloronaphthalene, benzoic acid and bis(2-chloroethoxy)methane were less than method criteria in the ICVs associated with Method SW8270C, indicating a possible low bias. In addition, the %D for benzoic acid was less than method criteria in several CCVs. The data were qualified as estimated non-detected results and flagged "UJ" in the associated samples.

The %Ds for several analytes were recovered greater than the method criteria in a few CCVs associated with Method SW8270C, indicating a possible high bias. The data were not qualified because the associated samples did not contain reportable levels of these analytes.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination with the following exception:

Cadmium was detected at a concentration less than the reporting limit (RL) in a few method blanks associated with Method SW6010B. The data were qualified as not detected at the concentration measured and flagged "U" when the associated sample concentrations were less than the client requested detection limit (CRDL).

Field Blanks

EB and TBs were collected, analyzed and were free of contamination with the following exceptions:

Calcium, iron and sodium were detected at concentrations less than the RL in one EB associated with Method SW6010B. The data were not qualified because the sample concentrations were greater than the CRDL.

Several analytes were detected at concentrations less than the RL in the EBs and/or TBs associated with the Method SW8260B. The data were qualified as not detected at the concentration measured and flagged "U" when the associated sample concentrations were less than five times (10 times for common lab contaminants) the concentrations detected in the blanks.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and met all accuracy and precision criteria with the following exceptions:

Cyclohexane was recovered greater than the upper control limits in one LCSD associated with Method SW8260B, indicating a possible high bias. The data were not qualified because the associated samples did not contain reportable levels of cyclohexane.

Benzo(g,h,i)perylene and dibenz(a,h)anthracene were recovered greater than the upper control limits in one LCS associated with Method SW8270C, indicating a possible high bias. The data were not qualified because the associated samples did not contain reportable levels of these analytes.

Matrix Spike

MS/MSDs were analyzed as required and all accuracy and precision criteria were met with the following exceptions:

Arsenic was recovered less than the lower control limits in a few MS/MSDs associated with Method SW6010B, indicating a possible low bias. In addition, arsenic and/or cadmium were recovered greater than the upper control limits in a few MS/MSDs, indicating a possible high bias. The aforementioned data were qualified as estimated detected results and flagged "J" in the associated parent samples.

Benzo(g,h,i)perylene and dibenz(a,h)anthracene were recovered greater than the upper control limits in the MS associated with Method SW8270C for sample MW-28-12152010, indicating a possible high bias. The data were not qualified because the parent sample did not contain reportable levels of these analytes.

The relative percent difference (RPD) exceeded method criteria for arsenic in the MS/MSD for sample DE-09E-12132010. The result was qualified as estimated and flagged "J" in the sample.

Post Digestion Spikes

All acceptance criteria were met.

Serial Dilutions

Serial dilutions were analyzed according to methods requiring their use and all acceptance criteria were met.

Internal Standards

All acceptance criteria were met.

Surrogates

Surrogates were added to all samples for the methods requiring their use and all acceptance criteria were met with the following exception:

Two surrogates associated with the base fraction of Method SW8270C were recovered less than the lower control limits in sample DUP-GW-12152010, indicating a possible low bias. The associated data were qualified as estimated non-detected results and flagged "UJ" in the sample.

Field Duplicates

FDs were collected and analyzed as required and all precision criteria were met with the following exceptions:

The RPDs for multiple analytes were greater than method criteria in several FD pairs associated with Methods SW6010B and SW6020. The data were qualified as estimated detected and non-detected results and flagged "J"and "UJ" in the respective FD pairs.

Interference Check Standards

Interference check standards were analyzed as required and all accuracy criteria were met.

Tentatively Identified Compounds

Tentatively Identified Compounds were reported in the VOC and SVOC analyses to determine the presence/absence of the following analytes in the samples: epichlorohydrin, thioglycolic acid, dithiodiglycolic acid, mercaptopropionic acid, thiodipropionic acid, and dithiodipropionic acid. The library search did not identify these analytes in the samples.

Chain of Custody

Required procedures were followed and were free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision making process. The following summary highlights the PARCC findings for the above-defined events:

Precision of the data was verified through the review of the field and laboratory data quality indicators that include FD, LCS/LCSD, MS/MSD, and serial dilution RPDs. Precision met the QAPP requirements with the exception of several analytes which were qualified as estimated in multiple samples due to FD and/or MS/MSD RPD issues. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.

Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, post digestion spike, interference check standard, internal standard and surrogate recoveries, as well as the evaluation of method/field blank data. Accuracy was generally acceptable with a few compounds being qualified as estimated detected and non-detected results due to calibration, MS/MSD, and/or surrogate issues. Several analytes were qualified as not detected at the concentration measured due to contamination in the method and/or field blanks.

Representativeness of the data was verified through the sample's collection, storage and preservation procedures and the verification of holding-time compliance. The laboratory did not note any discrepancies with sample collection, storage or preservation procedures. All data were reported from analyses within the USEPA-recommended holding time.

Comparability of the data was ensured through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid. The completeness goal of 95 percent was met for all analyte/method combinations.

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
BLDG 4-PW	SW8270C	2-Chloronaphthalene	ug/L	2.55	UJ	ICVS<LCL
BLDG 4-PW	SW8270C	Benzoic acid	ug/L	10.2	UJ	ICVS<LCL, CCV<LCL
BLDG 4-PW	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.55	UJ	ICVS<LCL
BLDG 4-PW	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, CCVRRF
DE-09C-12132010	SW6010B	Arsenic	mg/kg	45.4	J	FD>RPD
DE-09C-12132010	SW6010B	Cadmium	mg/kg	2.5	J	FD>RPD
DE-09E-12132010	SW6010B	Arsenic	mg/kg	5.65	J	MS>UCL, SD>UCL, MSRPD
DE-09F-12132010	SW6010B	Arsenic	mg/kg	7.07	J	MS<LCL, SD<LCL
DE-09G-12132010	SW6010B	Arsenic	mg/kg	5.04	J	FD>RPD
DE-09G-12132010	SW6010B	Cadmium	mg/kg	99.2	J	FD>RPD
DE-10D-12092010	SW6010B	Arsenic	mg/kg	11.4	J	MS>UCL, SD>UCL
DE-10D-12092010	SW6010B	Cadmium	mg/kg	1.19	J	MS>UCL, SD>UCL
DE-10G-12092010	SW6010B	Arsenic	mg/kg	37.2	J	FD>RPD
DE-11G-12092010	SW6010B	Arsenic	mg/kg	33.7	J	FD>RPD
DE-12E-12092010	SW6010B	Arsenic	mg/kg	13.2	J	SD<LCL
DUP-GW-12072010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
DUP-GW-12072010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
DUP-GW-12072010	SW8260B	Methylene chloride	ug/L	0.394	U	TB<RL
DUP-GW-12152010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
DUP-GW-12152010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
DUP-GW-12152010	SW8260B	Methylene chloride	ug/L	0.33	U	EB<RL
DUP-GW-12152010	SW6020	Lead	mg/L	0.00153	J	FD>RPD
DUP-GW-12152010	SW8270C	1,3,5-Trinitrobenzene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	1,3-Dinitrobenzene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	1,4-Dioxane	ug/L	5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	2,4-Dinitrotoluene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	2,6-Dinitrotoluene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	2-Chloronaphthalene	ug/L	2.5	UJ	Sur<LCL, ICVS<LCL
DUP-GW-12152010	SW8270C	2-Methylnaphthalene	ug/L	2.5	UJ	Sur<LCL

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
DUP-GW-12152010	SW8270C	2-Nitroaniline	ug/L	12.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	3,3'-Dichlorobenzidine	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	3-Nitroaniline	ug/L	12.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	4-Bromophenyl phenyl ether	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	4-Chloroaniline	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Acenaphthene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Acenaphthylene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Anthracene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzo (a) anthracene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzo (a) pyrene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzo (b) fluoranthene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzo (g,h,i) perylene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzo(k)fluoranthene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Benzoic acid	ug/L	10	UJ	ICVS<LCL, CCV<LCL
DUP-GW-12152010	SW8270C	Benzyl alcohol	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Biphenyl	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.5	UJ	Sur<LCL, ICVS<LCL
DUP-GW-12152010	SW8270C	Bis (2-chloroethyl) ether	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Bis (2-ethylhexyl) phthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Butyl benzylphthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Carbazole	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Chrysene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Dibenzo (a,h) anthracene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Dibenzofuran	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Diethyl phthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Dimethyl phthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Di-n-butylphthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Di-n-octylphthalate	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Fluoranthene	ug/L	2.5	UJ	Sur<LCL

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
DUP-GW-12152010	SW8270C	Fluorene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Hexachlorobenzene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Hexachlorobutadiene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Hexachloroethane	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Indeno (1,2,3-c,d) pyrene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Isophorone	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Naphthalene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Nitrobenzene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	n-Nitrosodiphenylamine	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Phenanthrene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW8270C	Pyrene	ug/L	2.5	UJ	Sur<LCL
DUP-GW-12152010	SW6010B	Cadmium	mg/L	0.00026	U	LB<RL
DUP-GW-12152010	SW6010B	Chromium	mg/L	0.0025	UJ	FD>RPD
DUP-GW-12152010	SW6010B	Iron	mg/L	13	J	FD>RPD
DUP-GW-12152010	SW6010B	Zinc	mg/L	0.0192	J	FD>RPD
DUP-SOIL-12092010-01	SW6010B	Arsenic	mg/kg	145	J	FD>RPD
DUP-SOIL-12092010-02	SW6010B	Arsenic	mg/kg	5.34	J	FD>RPD
DUP-SOIL-12132010-01	SW6010B	Arsenic	mg/kg	31.1	J	FD>RPD
DUP-SOIL-12132010-01	SW6010B	Cadmium	mg/kg	55.4	J	FD>RPD
DUP-SOIL-12132010-02	SW6010B	Arsenic	mg/kg	139	J	FD>RPD
DUP-SOIL-12132010-02	SW6010B	Cadmium	mg/kg	4.77	J	FD>RPD
MW-14-12142010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF
MW-14-12142010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-14-12142010	SW8270C	2-Chloronaphthalene	ug/L	2.84	UJ	ICVS<LCL
MW-14-12142010	SW8270C	Benzoic acid	ug/L	11.4	UJ	ICVS<LCL, CCV<LCL
MW-14-12142010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.84	UJ	ICVS<LCL
MW-16I-12152010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-16I-12152010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-16I-12152010	SW8260B	Methylene chloride	ug/L	0.616	U	EB<RL

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
MW-16I-12152010	SW8270C	2-Chloronaphthalene	ug/L	2.5	UJ	ICVS<LCL
MW-16I-12152010	SW8270C	Benzoic acid	ug/L	10	UJ	ICVS<LCL, CCV<LCL
MW-16I-12152010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.5	UJ	ICVS<LCL
MW-16S-12152010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-16S-12152010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-16S-12152010	SW8260B	Methylene chloride	ug/L	0.502	U	EB<RL
MW-16S-12152010	SW6020	Lead	mg/L	0.00888	J	FD>RPD
MW-16S-12152010	SW6010B	Chromium	mg/L	0.0155	J	FD>RPD
MW-16S-12152010	SW6010B	Iron	mg/L	22.1	J	FD>RPD
MW-16S-12152010	SW6010B	Zinc	mg/L	0.0697	J	FD>RPD
MW-16S-12152010	SW8270C	2-Chloronaphthalene	ug/L	2.5	UJ	ICVS<LCL
MW-16S-12152010	SW8270C	Benzoic acid	ug/L	10	UJ	ICVS<LCL, CCV<LCL
MW-16S-12152010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.5	UJ	ICVS<LCL
MW-17-12162010	SW8270C	2-Chloronaphthalene	ug/L	2.5	UJ	ICVS<LCL
MW-17-12162010	SW8270C	Benzoic acid	ug/L	10	UJ	ICVS<LCL, CCV<LCL
MW-17-12162010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.5	UJ	ICVS<LCL
MW-17-12162010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, CCVRRF
MW-18-12162010	SW8270C	2-Chloronaphthalene	ug/L	2.72	UJ	ICVS<LCL
MW-18-12162010	SW8270C	Benzoic acid	ug/L	10.9	UJ	ICVS<LCL, CCV<LCL
MW-18-12162010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.72	UJ	ICVS<LCL
MW-18-12162010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, CCVRRF
MW-26-12152010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-26-12152010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-26-12152010	SW8260B	Methylene chloride	ug/L	0.555	U	EB<RL
MW-26-12152010	SW8270C	2-Chloronaphthalene	ug/L	2.78	UJ	ICVS<LCL
MW-26-12152010	SW8270C	Benzoic acid	ug/L	11.1	UJ	ICVS<LCL, CCV<LCL
MW-26-12152010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.78	UJ	ICVS<LCL
MW-27-12162010	SW8270C	2-Chloronaphthalene	ug/L	2.81	UJ	ICVS<LCL
MW-27-12162010	SW8270C	Benzoic acid	ug/L	11.2	UJ	ICVS<LCL, CCV<LCL

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
MW-27-12162010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.81	UJ	ICVS<LCL
MW-27-12162010	SW8260B	Acetone	ug/L	4.04	J	IC RRF, CCVRRF
MW-28-12152010	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-28-12152010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
MW-28-12152010	SW8260B	Methylene chloride	ug/L	0.327	U	EB<RL
MW-28-12152010	SW8270C	2-Chloronaphthalene	ug/L	2.5	UJ	ICVS<LCL
MW-28-12152010	SW8270C	Benzoic acid	ug/L	10	UJ	ICVS<LCL, CCV<LCL
MW-28-12152010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.5	UJ	ICVS<LCL
MW-28-12152010	SW6010B	Cadmium	mg/L	0.000331	U	LB<RL
TW-01-12162010	SW8270C	2-Chloronaphthalene	ug/L	2.84	UJ	ICVS<LCL
TW-01-12162010	SW8270C	Benzoic acid	ug/L	11.4	UJ	ICVS<LCL, CCV<LCL
TW-01-12162010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	2.84	UJ	ICVS<LCL
TW-01-12162010	SW8260B	Acetone	ug/L	6.04	J	IC RRF, CCVRRF
TW-02-12162010	SW8270C	2-Chloronaphthalene	ug/L	3.16	UJ	ICVS<LCL
TW-02-12162010	SW8270C	Benzoic acid	ug/L	12.7	UJ	ICVS<LCL, CCV<LCL
TW-02-12162010	SW8270C	Bis (2-chloroethoxy) methane	ug/L	3.16	UJ	ICVS<LCL
TW-02-12162010	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, CCVRRF
UG01-12072010(10-13)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG01-12072010(10-13)	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG01-12072010(10-13)	SW8260B	Methylene chloride	ug/L	0.656	U	TB<RL
UG01-12072010(19-22)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG01-12072010(19-22)	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG01-12072010(19-22)	SW8260B	Methylene chloride	ug/L	0.473	U	TB<RL
UG02-12082010(10-13)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG02-12082010(10-13)	SW8260B	Acetone	ug/L	5.99	U	EB<RL, IC RRF (J), ICVSRRF (J), CCVRRF (J)
UG02-12082010(10-13)	SW8260B	Methylene chloride	ug/L	0.697	U	TB<RL
UG02-12082010(22-25)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG02-12082010(22-25)	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF

Table 3
Qualified Data
2010 RCRA Investigation, Dow Waterloo

Sample ID	Method	Analyte	Units	Final Result	Final Flag	Reason
UG02-12082010(22-25)	SW8260B	Methylene chloride	ug/L	0.663	U	TB<RL
UG03-12092010(10-13)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG03-12092010(10-13)	SW8260B	Acetone	ug/L	5.95	U	EB<RL, IC RRF (J), ICVSRRF (J), CCVRRF (J)
UG03-12092010(21-24)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG03-12092010(21-24)	SW8260B	Acetone	ug/L	5.4	U	EB<RL, IC RRF (J), ICVSRRF (J), CCVRRF (J)
UG04-12082010(10-13)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG04-12082010(10-13)	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG04-12082010(10-13)	SW8260B	Methylene chloride	ug/L	0.612	U	TB<RL
UG04-12082010(29-32)	SW8260B	4-Methyl-2-Pentanone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG04-12082010(29-32)	SW8260B	Acetone	ug/L	2.5	UJ	IC RRF, ICVSRRF, CCVRRF
UG04-12082010(29-32)	SW8260B	Methylene chloride	ug/L	0.472	U	TB<RL

Validation Reasons:

CCV<LCL	Continuing calibration verification recovered less than method criteria.
CCVRRF	The continuing calibration verification relative response factor was less than method criteria.
EB<RL	The analyte was detected in the equipment blank at a concentration less than the reporting limit.
FD>RPD	The relative percent difference exceeded control limits in the FD pair.
IC RRF	The initial calibration relative response factor was less than method criteria.
ICVSRRF	The initial calibration verification relative response factor was less than method criteria.
ICVS<LCL	Initial calibration verification recovered less than method criteria.
LB<RL	The analyte was detected in the method blank at a concentration less than the reporting limit.
MS<LCL	Matrix spike recovered less than the lower control limit.
MS>UCL	Matrix spike recovered greater than the upper control limit.
MSRPD	The RPD exceeded criteria in the MS/MSD.
SD<LCL	Matrix spike duplicate recovered less than the lower control limit.
SD>UCL	Matrix spike duplicate recovered greater than the upper control limit.
Sur<LCL	Surrogate recovered less than the lower control limit.
TB<RL	The analyte was detected in the trip blank at a concentration less than the reporting limit.