AECOM Environment

Prepared for:
NYSDEC
Albany, NY

Prepared by:
AECOM
Chestnut Ridge, NY
60269807
December 2013

Periodic Review Report
Review Period November 27, 2012 to December 14, 2013
Utility Manufacturing/Wonder King (Site No. 130043H)
December 30, 2013

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Engineering Certification

I, Scott A. Underhill, certify that I am currently a NYS registered professional engineer and that this Periodic Review Report for the Utility Manufacturing/Wonder King (Site No. 130043H) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved Site Management Plan and any DER-approved modifications.

Respectfully submitted,

AECOM Technical Services Northeast, Inc.

STATE OF NEW YORK
SCOTT ANDREW UNDERHILL
075332
LICENSED PROFESSIONAL ENGINEER

Scott A. Underhill 12-31-13

Scott Underhill Date
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Executive Summary

Site Summary

The Utility Manufacturing facility (Site) is located in the Town of North Hempstead, the County of Nassau, New York and is identified as Section 11, Block 328 and Lot 176 in New Cassel. The Site is an approximately one-acre area bounded by Main Street to the north, between Bond Street to the west and Frost Street to the east, and approximately 500 feet (ft) north of Old Country Road (see Figure 1). The facility was identified as operable unit (OU) 1. An OU represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The study area for OU2 is located within the New Cassel Industrial Area (NCIA) (Figure 1), which is a 170-acre industrial and commercial area on the north side of Old Country Road. The NCIA is bounded on the north by the Long Island Railroad, on the east by the Wantagh Parkway, on the south by Old Country Road, and on the west by Grand Boulevard. The study area for OU3 is located south of Old Country Road.

OU1 addresses on-Site groundwater and soil impacts of chlorinated and aromatic volatile organic compounds (VOCs) including tetrachloroethene (PCE) and trichloroethene (TCE) from the Utility Manufacturing facility. As documented in the OU2 record of decision (ROD), the OU1 remedy is successful and remediation of OU1 is complete.

OU2 addresses off-Site groundwater and indoor air impacts from the Utility Manufacturing facility north of Old Country Road. The remedy included monitored natural attenuation of groundwater, soil vapor intrusion sampling at several nearby structures and installation of Engineering Controls (ECs) in the form of sub-slab depressurization (SSD) systems at three structures. The owners at two of the structures declined to have the SSD systems installed. No Institutional Controls (ICs) are required for OU2.

OU3 addresses off-Site groundwater and indoor air impacts related to the overall groundwater contamination downgradient of the NCIA sites south of Old Country Road. OU3 has not been implemented to date.

Effectiveness of the Remedial Program

The groundwater concentrations generally appear to be stabilizing over time. With the exception of PCE in MW11D and the concentrations of PCE, TCE, cis-1,2-dichloroethene, and 1,1-dichloroethane in MW13S, VOC concentrations are within 5 µg/L of the 2012 levels or have declined by more than 5 µg/L. There were no detections in NC-12. This well may be located outside of the Utility Manufacturing plume. From 2012 to 2013, the VOC concentrations in MW1S and MW1D were stable, but the concentrations in MW12S and MW12D have declined over time. The VOC concentrations in MW13S and MW13D which are located farther to the west are still elevated and increasing in the shallow well. The concentrations in MW13S and MW13D may originate from another plume unrelated to the Utility Manufacturing contamination.

From the evaluation of MNA analyses and water quality parameters in this section, there is no evidence suggesting that biological reductive dechlorination is occurring in Site groundwater for the majority of the monitoring wells. Monitoring well MW-11D is the only well that indicates a more

favorable environment for microbial reductive dechlorination to occur based on biogeochemical parameters. However, increasing degradation of PCE in this well may be inhibited due to a prevailing aerobic and acidic environment. The overall biogeochemical environment in all other wells tends to favor aerobic bacteria. Reductions in concentrations of VOCs are mostly likely the result of dilution and dispersion and to a lesser extent sorption and volatilization. For bioremediation of Site VOCs to occur, the pH would need to be raised to circumneutral levels and groundwater would need to become more reducing.

Compliance

No areas of non-compliance regarding the major elements of the Site Management Plan (IC/EC Plan, Monitoring Plan, and Operation & Maintenance [O&M] Plan) were identified.

Costs

The costs associated with operation, maintenance and monitoring (OM&M) at the Site were approximately $32,000 for the reporting period.

Recommendations

No changes to the Site Management Plan are recommended, The monitoring schedule should be maintained with annual Site-wide inspections (by others), annual inspections of the SSD system, annual groundwater sampling (next event scheduled for June 2014) and soil vapor intrusion monitoring every five years (next event scheduled for January 2017).

The periodic review frequency of once every five years should be continued. The next periodic review report (PRR) is due in January 2019.

1.0 Site Overview

AECOM Technical Services Northeast, Inc. (AECOM) has prepared this periodic review report (PRR) for the Utility Manufacturing/Wonder King (Utility Manufacturing). This PRR covers the period of November 27, 2012 through December 14, 2013. This work was performed for the New York State Department of Environmental Conservation (NYSDEC) under Work Assignment D007626-16 of AECOM's Superfund Standby Contract. Utility Manufacturing is a Class 4 site. A Class 4 site has been properly closed, but requires continued management.

1.1 Site Description

The Site is located at 700-712 Main Street in the Township of North Hempstead, County of Nassau, New York and is identified as Section 11, Block 328 and Lot 176 on the New Cassel Tax Map. The Site is an approximately one-acre area bounded by Main Street to the north, between Bond Street to the west and Frost Street to the east, and approximately 500 feet (ft) north of Old Country Road (see Figure 1). The Site and study area for OU2 are located within the NCIA (Figure 1), which is a 170-acre industrial and commercial area on the north side of Old Country Road.

OU1 addresses on-Site groundwater and soil impacts of chlorinated and aromatic VOCs including PCE and TCE from the Utility Manufacturing facility. As documented in the OU2 ROD, the OU1 remedy was successful completed. An interim remedial measure (IRM) consisting of an air sparging (AS)/soil vapor extraction (SVE) system was installed to remediate on-Site soil and groundwater contamination. The AS/SVE system operated from December 2001 to December 2002. By December 2002, the system had reduced total VOC levels in groundwater to 13 µg/L and the contaminant levels had stabilized. The AS/SVE system was chosen as the final remedy for on-Site contamination in the OU1 ROD. Utility Manufacturing obtained groundwater samples annually from 2003 to 2007 to detect any rebound in groundwater contaminant concentrations. As no rebound occurred during that period, on-Site (OU1) remediation is complete.

OU2 addresses off-Site groundwater and indoor air impacts from the Utility Manufacturing facility north of Old Country Road. The remedy included monitored natural attenuation of groundwater, soil vapor intrusion sampling at several nearby structures, and installation of ECs in the form of SSD systems at three structures. The owners at two of the structures declined to have the SSD systems installed. No ICs are required for OU2.

OU3 addresses off-Site groundwater and indoor air impacts related to the overall groundwater contamination downgradient of the NCIA sites south of Old Country Road. Two public water supply wells, Bowling Green Wells 1 and 2, are located south of Old Country Road. The remedy for OU3 includes in-well vapor stripping at eleven locations in the aquifer, as well as continued operation of granular activated carbon filtration and/or packed tower aeration at the public water supply wells. OU3 has not been implemented to date.

Since the remediation is complete for OU1, and OU3 will be addressed on a broader scale under a program for the entire NCIA, this document is primarily concerned with activities associated with OU2. OU2 contains contamination left after completion of the remedial action. ECs have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment.

1.2 Remedial Program

1.2.1 Chronology of the Main Features of the Remedial Program

This section provides a description of the remedial actions performed for OU2. Information on OU1 remedial actions is documented in CA Rich Consultants, Inc. (2001), NYSDEC (2003a) and CA Rich Consultants, Inc. (2005). Remedial activities for OU3 will be documented as part of the remedial activities for the NCIA Sites and are not covered under this report.

1.2.1.1 Soil Vapor Intrusion Sampling

Soil vapor intrusion sampling was conducted by AECOM in accordance with the ROD at the following structures:

- Structure 1: 1/27/2010
- Structure 7: 1/28/2010
- Structure 13: 1/27/2010

Soil vapor intrusion sampling was conducted at Structure 6 on 11/17/2011 after the property owners declined installation of a SSD system. Based on these results, NYSDEC and New York State Department of Health (NYSDOH) determined that no further sampling is required at these structures.

1.2.1.2 SSD System Installation

Pre-design sub-slab communication testing was conducted on the following dates by AECOM and their subcontractor Alliance:

- Structure 2: 12/2/2009
- Structure 6: 2/4/2010
- Structure 9: 11/30/2009 through 12/3/2009

Confirmatory sub-slab communication testing was conducted by GES with oversight by AECOM between December 2010 and January 2011.

The SSD system was installed at Structure 2 from January 16, 2012 through January 20, 2012 by Alpine Environmental Services, Inc. with oversight by GES and AECOM.

1.2.1.3 Groundwater Monitoring

Groundwater monitoring was conducted annually from 2010 through 2013 at four wells couplets: MW-1S/D, MW-11S/D, MW-12S/D, and MW-13S/D. The 2010 sampling was conducted in May. The 2011 sampling was conducted in August, but heavy rains caused the driveway near two of the wells to partially collapse. AECOM returned in October 2011 to sample the remaining two wells. Sampling was conducted in April 2012 and June 2013.

1.2.2 Components of the Selected Remedy

1.2.2.1 OU1 Selected Remedy

The March 2003 ROD provides the following description of the OU1 selected remedy:

1. Continued operation and maintenance of four existing SVE wells and two existing AS wells.

2. Continued operation and maintenance of the existing physical plant for the AS/SVE system.

3. Quarterly monitoring of eight on-Site monitoring wells (MW-2 through the MW-7 triplet) and one upgradient monitoring well (MW-1).

4. ICs in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Nassau County Department of Health.

5. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the NYSDEC determines that the continued operation is technically impracticable or not feasible.

As documented in the OU2 ROD, the OU1 remedy is successful and remediation of OU1 is complete. An IRM consisting of an AS/SVE system was installed to remediate on-Site soil and groundwater contamination. The AS/SVE system operated from December 2001 to December 2002. By December 2002, the system had reduced total VOC levels in groundwater to 13 µg/L and the contaminant levels stabilized. The AS/SVE system was chosen as the final remedy for on-Site contamination in the OU1 ROD. Utility Manufacturing obtained groundwater samples annually from 2003 to 2007 to detect any rebound in groundwater contaminant concentrations. As no rebound occurred during that period, on-Site (OU1) remediation is complete.

1.2.2.2 OU2 Selected Remedy

The March 2008 ROD provides the following description of the OU2 selected remedy:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. SSD systems will be installed in three off-Site buildings that have vapor intrusion impacts.

3. Periodic vapor sub-slab vapor, indoor air and outdoor air samples will be obtained at three properties where the potential for vapor intrusion exists. Periodic sampling will continue until sampling results indicate that continued sampling is no longer required.

4. Groundwater contamination within the study area will be allowed to naturally attenuate.

5. Imposition of an IC in the form of an environmental easement on the Site that will require: (a) compliance with the approved site management plan; and (b) the property owner to complete and submit to the Department a periodic certification of ICs and ECs.

6. Development of a site management plan which will include the following ICs and ECs: (a) monitoring of groundwater, sub-slab vapor, indoor air and outdoor air; and (b) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The property owner will provide a periodic certification of ICs and ECs, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the ICs and ECs put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the Site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

8. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

9. Since the remedy results in untreated hazardous waste remaining at the Site, a long term monitoring program will be instituted. Up to nine monitoring wells will be sampled periodically for VOCs to track the progress of the natural attenuation. In addition, sub-slab vapor, indoor air and outdoor air samples will be obtained and analyzed for VOCs at three buildings with potential vapor intrusion impacts. This program will allow the effectiveness of the natural attenuation and soil vapor intrusion mitigation measures to be monitored and will be a component of the operation, maintenance, and monitoring for the Site.

1.2.2.3 OU3 Selected Remedy

The October 2003 ROD provides the following description of the OU3 selected remedy:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation, and maintenance and monitoring of the remedial program. Any uncertainties identified during the RI/FS process will be resolved.

2. Installation of one 225-ft vapor stripping well with ancillary systems, for the purpose of a pilot study to determine the radius of influence, and the number of additional stripping wells needed.

3. Based on the pilot test data, the effectiveness of the in-well vapor stripping system will be evaluated. If, for engineering or economic reasons, in-situ treatment should prove to be less practical, ex-situ extraction and treatment (treatment at the surface, possibly at a centralized location) will be substituted without impairing the overall effectiveness of the treatment system.

4. Based on the results of the pilot test, design and installation of three additional 225-ft vapor stripping wells, four 200-ft vapor stripping wells, and three 140-ft vapor stripping wells, plus their ancillary systems. Actual number and locations of these wells will be determined by the pilot test results.

5. Operation and maintenance of the treatment system until the remediation goals are achieved or the NYSDEC and NYSDOH determine that further operation of the treatment system is not necessary.

6. Continued monitoring of two existing Bowling Green Water District (BGWD) supply wells, located directly downgradient of the NCIA.

7. Installation of nine new monitoring wells at locations downgradient of Old Country Road.

8. Implementation of a long term groundwater monitoring program requiring quarterly sampling of nine new and thirteen existing groundwater monitoring wells for the first two years and periodically thereafter.

9. ICs in the form of existing use restrictions limiting the use of groundwater as potable or process water without necessary water quality treatment as determined by the Nassau County Department of Health from the affected areas.

The selected remedy for OU3 has not been implemented to date.

1.3 Cleanup Goals

To determine whether the groundwater, sub-slab vapor and/or indoor air contain contamination at levels of concern, data for this Site are compared to the following standards, criteria, and guidance (SCGs):

- Groundwater, drinking water, and surface water SCGs are based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

Concentrations of VOCs in air are evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. PCE and 1,1,1-trichloroethane (TCA) concentrations are compared to values in Matrix 2 in the guidance. TCE levels are compared to values in Matrix 1 in the guidance. Concentrations of other VOCs in air are compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in NYSDOH (2006). The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

1.4 Changes to the Remedy Since the ROD

Item 2 of Section 1.2.2.2: Installation of SSD systems is required in the ROD for three structures (2, 6, and 9). The owners of Structures 6 and 9 declined to have the SSD systems installed. NYSDEC offered to conduct a round of air sampling in these structures instead. Indoor air sampling was conducted at Structure 6 in November 2011. The property manager for Structure 9 declined to have indoor air sampling conducted. A letter from NYSDEC was sent to both facilities in June 2011 acknowledging their declination of both mitigation and/or monitoring in the future.

Items 3, 6, and 9 of Section 1.2.2.2: Following the first round of soil vapor intrusion sampling at Structures 1, 7, and 13, NYSDEC determined that no further monitoring was required. The site management plan only addresses continued groundwater monitoring. If future groundwater sampling

determines that concentrations of volatile organic compounds increase around Structures 1, 7 and 13, additional soil vapor intrusion monitoring may be required at that time according to the recommendation of NYSDOH and NYSDEC.

Item 5 of Section 1.2.2.2: NYSDEC has determined that no environmental easement is required for OU2. This decision is documented in NYSDEC (2012) and included in Appendix A.

2.0 IC/EC Plan Compliance Report

The EC Plan compliance report is provided below. No ICs are required for this Site.

2.1 EC Plan Requirements and Compliance

2.1.1 Control Description

A SSD system was installed in Structure 2. The objective of the system is to limit the exposure of the building occupants to contaminated soil vapor. The performance of the control is evaluated by inspection of pressure gauges of the SSD system to verify that the system is operating properly. As-built drawings are provided in Appendix B.

The mitigation system is comprised of three separate lines (L-1, L-2 and L-3) each with a system fan (RadonAway HS 5000) and distinct exhaust stack. System L-1 was the first line installed. It connects four extraction points (SVE-3, SVE-4, SVE-5 and SVE-6) in addition to a drainage point (DP-1). The extraction points are located in the warehouse receiving office and along the center of the warehouse. It is the northernmost system. The piping for L-1 runs along the ceiling of the warehouse and was installed using scissor lifts. The fan for L-1 is located along the western exterior wall of the building. The fan can be accessed with a ladder after passing through a gate to the west of the building.

The second line installed was system L-2. System L-2 connects three suction points (SVE-7, SVE-8 and SVE-9). SVE-7 and SVE-8 are located along the southern wall of the warehouse/equipment area and SVE-9 is located in the common area near the restrooms and supply window. The piping for L-2 is mostly located in the mezzanine area accessible from the warehouse. The fan for system L-2 is located along the southern exterior wall of the original building. This fan can be accessed through a trap door in the mezzanine area that leads to the roof of the original building, then by using a small ladder to descend to the roof over the addition. Since the roof of the original building is approximately 5 feet higher than the roof over the addition the fan can be serviced from the roof above the addition without a ladder.

The third system L-3 connects three suction points (SVE-10, SVE-11 and SVE-12) located in the addition. The vertical piping for these suction points extends through the drop ceilings. The piping is concealed by the drop ceilings until it enters the mezzanine area accessible from the warehouse. The fan for L-3 is located along the same exterior wall as the fan for L-2 and is accessible in the same manner described above.

The Radonaway HS 5000 fans have a 3-inch intake pipe. Schedule 40, 3-inch PVC pipe and fittings are used at all interior and exterior locations. The fans have 2-inch exhaust stacks. All exhaust pipes are installed to a termination point no less than 12 inches above the roofline and are fitted with a protective screen. The exhaust termination points are a minimum of 10 feet above grade and away from any intakes or openings into conditioned or other occupiable spaces.

All horizontal pipe runs between the fan and the suction holes or drainage points are sloped to ensure that water from rain or condensation flows downward into the ground beneath the slab so as not to create a possible water trap. Horizontal piping inside the office areas are concealed above drop ceilings. System piping does not block windows and doors or access to installed equipment.

2.1.2 Status of Each Goal

The SDS system is in place and operating according to design.

2.1.3 Corrective Measures

No deficiencies in the operation of the SSD system were identified during the site inspection in December 2013. The site inspection form and photo log are provided in Appendix C. No corrective measures are required at this time.

2.1.4 Conclusions and Recommendations for Changes

The SSD system is operating as designed/expected. There are no recommendations for changes at this time.

2.2 EC Certification

The completed IC/EC certification form is provided in Appendix D.

3.0 Monitoring Plan Compliance Report

3.1 Monitoring Plan Components

3.1.1 Groundwater Monitoring

Groundwater monitoring is performed on an annual basis to assess the performance of the remedy. The well locations are shown on Figure 2. The Annual Long Term Monitoring Report for 2013 is provided in Appendix E.

Annual groundwater sampling is conducted at nine wells (including four well couplets): NC-12, MW-1S/D, MW-11S/D, MW-12S/D, and MW-13S/D. The wells are sampled for VOCs (EPA SW-846 Method 8260), dissolved iron (EPA SW-846 Method 6010B), sulfates (EPA 300.0), nitrates (EPA 300.0), carbon dioxide (EPA 3C), and methane (EPA RSK-175).

3.1.2 Soil Vapor Intrusion Monitoring

Soil vapor intrusion monitoring is conducted at Structure 2 once every five years following the installation of the SSD system in January 2012 to determine whether continued operation of the SSD system is required. Soil vapor intrusion sampling at Structure 2 consists of an outdoor air sample, two indoor air, and two sub-slab samples. The samples will be analyzed for VOCs (TO-15). The first soil vapor monitoring event will be in January 2017.

3.2 Summary of Monitoring Completed During Reporting Period

One round of groundwater sampling was conducted during this reporting period. Sampling occurred in June 2013. Data from the sampling event are shown in Table 1 for VOCs and Table 2 for MNA parameters. The VOC data for select compounds are shown in Figure 3.

Activity	Required Frequency (X)			Compliance Dates
	Monthly	Annual	Other	
Groundwater Monitoring		X		2005-2013
Soil Vapor Monitoring			Every 5 Years	First event 2017

3.3 Comparison with Remedial Objectives

Groundwater samples were collected from nine wells and submitted for the following analyses: VOCs, dissolved iron, sulfates, nitrates, carbon dioxide, dissolved oxygen, and methane. The VOC groundwater results are compared to the NYS Class GA groundwater criteria and presented in Table 1. VOC detections are summarized on Figure 3. A summary of concentrations exceeding the NYS Class GA groundwater criteria are provided below:

- PCE was detected in all wells except NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in four of the eight wells with concentrations ranging from 7 µg/L (MW13D) to 26 µg/L (MW1D).
- TCE was detected in all wells except MW11S and NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (22 µg/L), MW13D (65 µg/L), and MW1D (110 µg/L).
- Cis-1,2-dichloroethene (cis-1,2-DCE) was detected in all wells except MW12S, MW12D, and NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (24 µg/L), MW13D (8 µg/L), and MW1D (7 µg/L). Trans-1,2-dichloroethene was not detected in any of the wells.
- 1,1-Dichloroethene (1,1-DCE) was detected in MW11D, MW12D, MW13S, MW13D, and MW1D. The concentration exceeds the NYS Class GA criterion of 5 µg/L in MW1D (28 µg/L).
- 1,1,1-TCA was detected in five of the wells. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (6 µg/L) and MW1D (9 µg/L).
- 1,1-Dichloroethane (1,1-DCA) was detected in three of the wells. The concentration exceeds the NYS Class GA criterion of 5 µg/L in MW13S (15 µg/L).

3.4 Remedy Performance, Effectiveness, and Protectiveness Evaluation

3.4.1 VOC Data

The VOC concentrations for parameters with exceedances of the NY Class GA criteria are presented over time in Figure 4. Groundwater samples collected from monitoring wells MW1S and MW1D in 2005 for the remedial investigation (ERM, 2005) are also included. The concentrations were compared as follows:

- Shallow well concentration differs from the deeper well concentration by more than 5 µg/L;
- The concentration differs from the previous year by more than 5 µg/L; and,
- The concentration in the well is greater than the NY Class GA criterion (5 µg/L for each parameter) or greater than twice the NY Class GA criterion.

A description of the data collected in 2013 compared to data collected in 2012 is provided below.

For wells MW11S and MW11D, the current PCE concentration in the deep well is more than 5 µg/L higher that in the shallow well. The PCE concentration in MW11D is greater than the NY Class GA criterion of 5 µg/L (14 µg/L). No other parameters have exceedances in these wells. The PCE concentration in MW11D increased in 2013 compared to the concentration in 2012. The 2013 VOC levels in these wells for compounds other than PCE are within 5 µg/L of the 2012 VOC levels.

For wells MW12S and MW12D, all current levels are below the NY Class GA criterion. The 2013 PCE concentration declined by more than 5 µg/L from the 2012 levels.

For wells MW13S and MW13D, the TCE concentration in the deep well is more than 5 µg/L higher than in the shallow well, and the TCE concentrations in both wells are greater than twice the NY Class GA criterion. The TCE concentration in the shallow well increased more than 5 µg/L over the 2012 level. The PCE, cis-1,2-DCE and 1,1-DCA concentrations in the shallow well are more than 5 µg/L higher than in the shallow well, are greater than twice the NY Class GA criteria, and have increased more than 5 µg/L over the 2012 levels. The concentrations in the deep well have not changed by more than 5 µg/L over the 2012 levels.

For wells MW1S and MW1D, the concentrations are lower in the shallow well than in the deeper well by more than 5 µg/L for PCE, TCE, and 1,1-DCE. Concentrations are greater than twice the NY Class GA criterion of 5 µg/L for PCE, TCE, and cis-1,2-DCE in MW1D. Concentrations are below the NY Class GA criterion of 5 µg/L in MW1S; and 1,1,1-TCA in MW1D. The concentration of cis-1,2-DCE declined between 2012 and 2013 in well MW1S by more than 5 µg/L. The 2013 VOC levels in these wells for the other compounds are within 5 µg/L of the 2012 VOC levels.

The groundwater concentrations generally appear to be stabilizing over time. With the exception of PCE in MW11D and the concentrations of PCE, TCE, cis-1,2-DCE, and 1,1-DCA in MW13S, VOC concentrations are within 5 µg/L of the 2012 levels or have declined by more than 5 µg/L. There were no detections in NC-12. From 2012 to 2013, the VOC concentrations in MW1S and MW1D were stable, but the concentrations in MW12S and MW12D have declined over time. The VOC concentrations in MW13S and MW13D which are located farther to the west are still elevated and increasing in the shallow well. The concentrations in MW13S and MW13D may originate from another plume unrelated to the Utility Manufacturing contamination.

3.4.2 MNA Data

The results for laboratory MNA parameters are provided in Table 2. The final field measurements of temperature and dissolved oxygen are also listed. The data were evaluated to determine whether reductive dechlorination is occurring.

Biologically-mediated reductive dechlorination of chlorinated VOCs occurs through a series of progressive biochemical reactions where chloride atoms are replaced by hydrogen atoms.

PCE → TCE → DCE → vinyl chloride → ethene

1,1,1-TCA → 1,1-DCA → chloroethane → ethane

Naturally occurring bacteria create hydrogen under reducing conditions that replaces chlorine to sequentially dechlorinate the chlorinated ethenes. These biologically-mediated reactions occur favorably in anaerobic (negligible dissolved oxygen), reducing (oxidation reduction potential or ORP is less than -75 mV), and circumneutral (pH between 6.0 and 8.5) groundwater.

For microbial-mediated reactions, aerobic reactions are the most energetically favorable. As dissolved oxygen is consumed, microbes use electron acceptors in the order of reducing energy efficiencies (denitrification of nitrate, manganese reduction, ferric iron reduction, sulfate reduction, carbon dioxide in methanogenesis). Biotic reductive dechlorination typically occurs most favorably in the ORP range needed for sulfate reduction or methanogenesis (i.e., below -100 mV).

- pH: Water quality measurements indicate that the groundwater is slightly acidic (pH 4.24 to 6.14), and eight of the nine wells sampled have pH values less than pH 6.0. The low pH values observed are below the range indicated above and would limit biological natural attenuation processes.
- ORP and Dissolved Oxygen: Water quality measurements collected in real time during the field sampling indicate that the groundwater is aerobic (ORP 213 to 293 mV and dissolved oxygen between 3.29 and 8.27 mg/L) in seven out of nine wells. Biotic reductive dechlorination does not occur favorably under these observed aerobic conditions. The deep groundwater monitoring wells are slightly less aerobic, with the lower dissolved oxygen values recorded in the deeper intervals. Monitoring wells MW-1D and MW-11D had DO concentrations suggestive of an anaerobic environment at 1.1 mg/L and 0.68 mg/L.

- Nitrate was detected in all nine wells sampled (0.77 mg/L to 6.53 mg/L). Under the anaerobic conditions required for reductive dechlorination, nitrate would not be expected to be present due to conversion to ammonia through denitrification. Nitrate concentrations have been relatively stable from 2010 to 2013.
- Dissolved Iron: An increase in dissolved ferrous iron (Fe II) may indicate reducing conditions and the reduction of insoluble ferric iron (Fe III) by serving as an electron acceptor. Total dissolved iron was detected at very low concentrations (<1 mg/L) in all of the nine monitoring wells.
- Sulfate was detected in all nine wells sampled (9.94 mg/L to 134 mg/L). Under the anaerobic conditions required for reductive dechlorination, sulfate reducing bacteria would convert sulfate to sulfide. Sulfate concentrations have been relatively stable from 2010 to 2013.
- Methane is a byproduct of microbial degradation using carbon dioxide as an electron acceptor, and the presence of methane is an indicator of reducing conditions in groundwater. Methane was not detected in any of the nine monitoring wells sampling in June 2013.
- Carbon dioxide: An increase in carbon dioxide may provide an indication of microbial processes. Carbon dioxide was detected in all wells with concentrations ranging from 8,800 µg/L to 35,200 µg/L. However, aerobic conditions suggest that aerobic bacteria are generating this carbon dioxide.
- Daugher products are another indicator of reductive dechlorination processes, and increases in daughter products accompany decreases in parent VOCs as shown in the reactions above (i.e., increase in cis-1,2-DCE as TCE decreases). In addition, 1,1-DCA is an abiotic breakdown product of 1,1,1-TCA. Concentrations of TCE and 1,2-DCE were detected in five of the nine monitoring wells. Concentrations of 1,1-DCA were detected in three of the nine monitoring wells. There has been no indication of inverse trends in chlorinated VOC mass. Daughter products of both PCE and 1,1,1-TCA have been relatively stable over time. In addition, chloroethane and vinyl chloride were not detected.

The concentrations for 2010 through 2013 are shown over time for VOCs exceeding the NYS Class GA Groundwater Criteria in Figure 4 and for methane, carbon dioxide, sulfate, nitrate, dissolved oxygen in Figure 5. From the evaluation of MNA analyses and water quality parameters in this section, there is no evidence suggesting that biological reductive dechlorination is occurring in Site groundwater for the majority of the monitoring wells. Monitoring well MW-11D is the only well that indicates a more favorable environment for microbial reductive dechlorination to occur based on biogeochemical parameters (dissolved oxygen, pH). However, increasing degradation of PCE in this well may be inhibited due to a prevailing aerobic and acidic environment. The overall biogeochemical environment in all other wells tends to favor aerobic bacteria. Reductions in concentrations of VOCs are mostly likely the result of dilution and dispersion and to a lesser extent sorption and volatilization. For bioremediation of Site VOCs to occur, the pH would need to be raised to circumneutral levels and groundwater would need to become more reducing.

3.5 Monitoring Deficiencies

No monitoring deficiencies were identified.

3.6 Conclusions and Recommendations for Changes

Groundwater sampling was performed at the Utility Manufacturing Site in Westbury, NY in June 2013. Conclusions and recommendation are provided below:

- Groundwater VOC concentrations in samples from one or more monitoring wells exceed the NYS Class GA criteria for PCE, TCE, cis-1,2-DCE, 1,1,1-TCA, 1,1-DCA, and 1,1-DCE. The VOC concentrations in 2013 are either stable with concentrations that have changed less

than 5 µg/L compared to 2012 or have declined by more than 5 µg/L since 2012, with the exception of PCE in MW11D and PCE, TCE, cis-1,2-DCE, and 1,1-DCA in MW13S.

- Review of the MNA and VOC data indicate that natural attenuation is occurring primarily through dilution and dispersion and to a lesser extent sorption and volatilization.
- Collect one more sample from NC-12 in 2014 is recommended. If there are no exceedances of the NYS Class GA criteria, no further sampling should be performed.
- Several monitoring wells have been consistently below the NYS Class GA groundwater criteria. One additional round of samples should be collected from MW-1S, MW11D, MW12S, MW12D, and MW1S in 2014. If VOC levels are below criteria, no further sampling of these wells would be necessary.
- Limiting MNA parameters to sulfate and iron is recommended. In addition to measurement of dissolved oxygen in the field with a Horiba, a field instrument specifically for dissolved oxygen measurement is recommended to improve the quality of the reading.
- Reports from the individual sites in the NCIA should be reviewed to determine if the contamination in MW13S and MW13D originates from another site.

4.0 Operation & Maintenance Plan Compliance Report

4.1 Components of the Operation & Maintenance Plan

The requirements of the O&M plan are described below.

4.1.1 Engineering Control System Performance Monitoring

The pressure gauges of the SSD system should be used to verify that the system is operating properly. A pressure gauge reading of zero indicates system failure, and a pressure gauge reading significantly less than the original reading noted on the label (Original Static Pressure: L-1 = 6.0" WC, L-2 = 16.0" WC, and L-3 = 8.0" WC) indicates degradation of the system. If either of these two situations has or does occur service is required. The NYSDEC project manager Mr. Jeffrey Dyber should be contacted at 518-402-9621 to arrange for a service visit.

4.1.2 EC Compliance Report

Activity	Required Frequency (X)			Compliance Dates
	Monthly	Annual	Other	
SSD System Audits		X		2013
SSD System Maintenance	As Necessary			2013

4.1.3 Maintenance and Inspection of the System

The SSD system requires minimal maintenance so the NYSDEC will respond to requests for service during which time the system will be audited. The primary method of evaluating the systems operation is by the property occupant. Periodic (e.g., every 3 months) assessments are suggested to verify that the system is operating properly based on the information provided in Section 4.0. If a problem is identified, the NYSDEC project manager Mr. Jeffrey Dyber should be contacted at 518-402-9621 to arrange for a service visit.

Annual audits are performed by NYSDEC to evaluate performance of the system. Audits include:

- Inspection of the manometer to see if there is a failure or degradation of the system.
- Inspection of the extraction point to see that it has remained sealed.
- Inspection of piping and vent stacks for cracks or leaks on interior and exterior of the building.
- Inspection of fan and rubber mounts for leaks.
- Inspection of electrical connection and test of cut off switch by turning the switch on and off.
- Collection of air samples (once every five years).

4.2 Summary of Operation & Maintenance Completed During Reporting Period

During this PRR reporting period, the SSD system at Structure 2 was inspected on December 3, 2013. No degradation of system performance was observed.

4.3 Evaluation of the Remedial System

Based upon the results of the O&M site inspection, The SSD system continues to perform as designed/expected.

4.4 Operation & Maintenance Deficiencies

No deficiencies in complying with the O&M plan during this PRR reporting period were identified.

4.5 Conclusions and Recommendations for Improvements

The O&M requirements for the SSD system are appropriate. No improvements requiring changes in the O&M Plan are recommended.

5.0 Costs

Total costs for completing the required activities associated with OM&M at the Site in 2013 are approximately $32,000 which includes annual groundwater monitoring and the submittal of the PRR.

6.0 Conclusions and Recommendations

6.1 Compliance with Site Management Plan

6.1.1 EC Plan

The SDS system is in place and operating according to design. All requirements of the EC plan were met during this reporting period.

6.1.2 Monitoring Plan

Annual groundwater was conducted in June 2013 in compliance with the SMP. All requirements of the monitoring plan were met during this reporting period. The next scheduled groundwater sampling event is scheduled for June 2014.

6.1.3 O&M

An inspection of the system was conducted in December 2013 to satisfy the requirements of this PRR. No maintenance of the SSD system was required during the reporting period. All requirements of the O&M Plan were met during this reporting period. The next inspection of the system is scheduled for December 2014 (by others).

6.2 Performance and Effectiveness of the Remedy

6.2.1 SSD System at Structure 2

Because the SDS system continues to perform as designed, the remedy is effective in limiting exposure of soil vapor to occupants of Structure 2.

6.2.2 Monitored Natural Attenuation

The groundwater concentrations generally appear to be stabilizing over time. With the exception of PCE in MW11D and the concentrations of PCE, TCE, cis-1,2-DCE, and 1,1-DCA in MW13S, VOC concentrations are within 5 µg/L of the 2012 levels or have declined by more than 5 µg/L. There were no detections in NC-12. This well may be located outside of the Utility Manufacturing plume. The VOC concentrations in MW1S and MW1D are stable, but the concentrations in MW12S and MW12D have declined over time. The VOC concentrations in MW13S and MW13D which are located farther to the west are still elevated and increasing in the shallow well. The concentrations in MW13S and MW13D may originate from another plume unrelated to the Utility Manufacturing contamination.

From the evaluation of MNA analyses and water quality parameters in this section, there is no evidence suggesting that biological reductive dechlorination is occurring in Site groundwater for the majority of the monitoring wells. Monitoring well MW-11D is the only well that indicates a more favorable environment for microbial reductive dechlorination to occur based on biogeochemical parameters. However, increasing degradation of PCE in this well may be inhibited due to a prevailing aerobic and acidic environment. The overall biogeochemical environment in all other wells tends to favor aerobic bacteria. Reductions in concentrations of VOCs are mostly likely the result of dilution and dispersion and to a lesser extent sorption and volatilization. For bioremediation of Site VOCs to

occur, the pH would need to be raised to circumneutral levels and groundwater would need to become more reducing.

6.3 Future Periodic Review Report Submittals

No change in reporting frequency is recommended at this time, the next five-year PRR will be due in January 2019.

7.0 References

AECOM, 2012a. Site Management Plan, Utility Manufacturing/Wonder King (Site No. 130043H). August.

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AECOM, 2012c. Operation and Maintenance Plan, Sub-Slab Depressurization System for Structure 2, Utility Manufacturing/Wonder King (Site No. 130043H). June.

CA Rich Consultants, Inc., 2001. Interim Remedial Measures Work Plan, Utility Manufacturing Company, 700 Main Street, Westbury, New York. August.

CA Rich Consultants, Inc., 2005. Post Remediation Groundwater Monitoring Report, Operable Unit – 1 (OU-1), Utility Manufacturing Company, 700 Main Street, Westbury, New York. July.

Environmental Resources Management (ERM), 2005. Off-Site Remedial Investigation Report, Utility Manufacturing, Town of North Hempstead, New York. December.

NYSDOH, 2006. Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October.

NYSDEC, 2010. NYSDEC Division of Environmental Remediation DER-10 Technical Guidance for Site Investigation and Remediation. May.

NYSDEC, 2012. Memo Modification to the Record of Decision, Utility Manufacturing/Wonder King Site Operable Unit No. 2 Town of North Hempstead, Nassau County, New York. Site Number 130043H. April.

Table 1
VOCs in Groundwater

	NYS	MW11S				(dup)	MW11D			(dup)	MW11D	MW12S	(dup)
Units: µg/L	Class GA	5/12/2010	10/3/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	10/3/2011	4/24/2012	4/24/2012	6/20/2013	5/11/2010	5/11/2010
1,1,1-Trichloroethane	5	1 U	**0.78** J	1 UJ	5 U	5 U	**1.8**	**2.1**	**0.82** J	**1**	**1** J	1 U	1 U
1,1,2,2-Tetrachloroethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,1,2-Trichlorotrifluoroethane	5	1 U	1 U	1 U	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
1,1-Dichloroethane	5	1 U	1 U	1 U	5 U	5 U	**2.5**	**3**	**1.6**	**2**	**2** J	1 U	1 U
1,1-Dichloroethene	5	1 U	1 U	1 U	5 U	5 U	**4**	**5.2**	**2**	**2.5**	**3** J	1 U	1 U
1,2,4-Trichlorobenzene	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 UJ	5 UJ	1 U	1 U
1,2-Dibromo-3-chloropropane	0.04	1 U	1 UJ	1 U	5 UJ	5 UJ	1 U	1 UJ	1 U	1 U	5 UJ	1 UJ	1 U
1,2-Dibromoethane (EDB)	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichlorobenzene	3	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichloroethane	0.6	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichloroethene, Total	5	2 U	1 U	NA	**3**	**3**	**1.2** J	**1.9**	NA	NA	**1**	**15**	**15**
1,2-Dichloropropane	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,3-Dichlorobenzene	3	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,4-Dichlorobenzene	3	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U
2-Butanone (MEK)	5	5 U	R	5 U	5 UJ	5 UJ	5 UJ	R	5 U	5 R	5 UJ	5 U	5 U
2-Hexanone	5	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetone	5	5 U	R	R	5 UJ	5 UJ	**4.8** J	R	R	R	5 UJ	5 U	5 U
Benzene	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Bromodichloromethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Bromoform	5	1 U	1 UJ	1 U	5 U	5 U	1 UJ	1 UJ	1 U	1 U	5 U	1 U	1 U
Bromomethane	5	1 UJ	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 UJ
Carbon disulfide	60	1 U	1 UJ	1 U	5 U	5 U	1 U	1 UJ	1 U	1 U	5 U	1 U	1 U
Carbon Tetrachloride	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Chlorobenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Chlorodibromomethane	NA	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U
Chloroethane	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U
Chloroform	7	1 U	1 UJ	1 U	5 U	5 U	1 U	1 UJ	1 U	1 U	5 U	1 U	1 U
Chloromethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
cis-1,2-Dichloroethene	5	1 U	1 U	1 U	**3** J	**3** J	**1.2**	**1.9**	**1.1**	**1.2**	**1** J	**15**	**15**
cis-1,3-Dichloropropene	0.4	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Cyclohexane	NA	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Dichlorodifluoromethane	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 UJ	1 U
Ethylbenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Isopropylbenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Methyl Acetate	NA	1 U	1 U	1 UJ	5 U	5 U	1 UJ	1 U	1 UJ	1 U	5 U	1 U	1 U
Methyl tert-Butyl Ether	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U

Table 1

VOCs in Groundwater

	NYS	MW11S				(dup)	MW11D			(dup)	MW11D	MW12S	(dup)
Units: µg/L	Class GA	5/12/2010	10/3/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	10/3/2011	4/24/2012	4/24/2012	6/20/2013	5/11/2010	5/11/2010
Methylcyclohexane	NA	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Methylene Chloride	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Styrene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Tetrachloroethene (PCE)	5	**8.7**	**5.5** J	**4.7**	**4** J	**4** J	**8.1**	**17** J	**9**	**8**	**14**	**10**	**10**
Toluene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
trans-1,2-Dichloroethene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
trans-1,3-Dichloropropene	0.4	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U
Trichloroethene (TCE)	5	1 U	**0.71** J	1 UJ	5 U	**5** U	3 U	**5.3**	**2.4** J	**2.6**	**4** J	**2.5**	**2.4**
Trichlorofluoromethane	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 UJ	1 U
Vinyl chloride	2	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Xylenes, total	5	2 U	2 U	2 U	5 U	5 U	2 U	2 U	2 U	2 U	5 U	2 U	2 U

U-Not detected
J-Estimated
R-Rejected
Detections are in bold text.
Exceedances are highlighted

Table 1
VOCs in Groundwater

	NYS	MW-12S			MW12D	MW12D			MW13S		MW13S (dup)	MW13S	
Units: µg/L	Class GA	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	8/9/2011	4/24/2012	6/20/2013
1,1,1-Trichloroethane	5	5 U	1 UJ	5 U	**8.8**	**0.91** J	**1.1** J	**2** J	1 U	**2.1** J	**1.8** J	**2.5** J	**6**
1,1,2,2-Tetrachloroethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,1,2-Trichloroethane	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	1 U	NA	**2.2**	5 U	1 U	NA	1 U	5 U	5 U	1 U	
1,1-Dichloroethane	5	5 U	1 U	5 U	**2.4**	5 U	1 U	5 U	1 U	**4.2** J	**3.6** J	**5.3**	**15**
1,1-Dichloroethene	5	5 U	1 U	5 U	**17**	**1.5** J	1 U	**4** J	1 U	**0.82** J	**0.74** J	1 U	**2** J
1,2,4-Trichlorobenzene	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
1,2-Dibromo-3-chloropropane	0.04	5 UJ	1 U	5 UJ	1 U	5 UJ	1 U	5 UJ	1 UJ	5 UJ	5 UJ	1 U	5 UJ
1,2-Dibromoethane (EDB)	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichlorobenzene	3	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichloroethane	0.6	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichloroethene, Total	5	**2.2** J	NA	5 U	**1.8** J	5 U	NA	5 U	**0.74** J	**6.1**	**5.3**	NA	**24**
1,2-Dichloropropane	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,3-Dichlorobenzene	3	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,4-Dichlorobenzene	3	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
2-Butanone (MEK)	5	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U	5 UJ
2-Hexanone	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ
Acetone	5	R	R	5 UJ	5 U	R	R	5 UJ	5 U	R	R	R	5 UJ
Benzene	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromodichloromethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromoform	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromomethane	5	5 U	1 U	5 UJ	1 UJ	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
Carbon disulfide	60	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Carbon Tetrachloride	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Chlorobenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Chlorodibromomethane	NA	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 UJ	5 U	5 U	1 U	5 U
Chloroethane	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
Chloroform	7	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Chloromethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
cis-1,2-Dichloroethene	5	**2.2** J	**1.7**	5 U	**1.8**	5 U	1 U	5 U	1 U	**6.1**	**5.3**	**7.9**	**24**
cis-1,3-Dichloropropene	0.4	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Cyclohexane	NA	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Dichlorodifluoromethane	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 UJ	5 U	5 U	1 UJ	5 U
Ethylbenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Isopropylbenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Methyl Acetate	NA	5 UJ	1 UJ	5 U	1 U	5 UJ	1 UJ	5 U	1 U	5 UJ	5 UJ	1 UJ	5 U
Methyl tert-Butyl Ether	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U

Table 1

VOCs in Groundwater

	NYS	MW-12S			MW12D	MW12D			MW13S		MW13S (dup)	MW13S	
Units: µg/L	Class GA	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	8/9/2011	4/24/2012	6/20/2013
Methylcyclohexane	NA	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Methylene Chloride	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Styrene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Tetrachloroethene (PCE)	5	**18**	**21**	**5**	**7.1**	**1.8** J	**2.6**	**3** J	**1.2**	**3.5** J	**3.3** J	**5.5**	**14**
Toluene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
trans-1,2-Dichloroethene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
trans-1,3-Dichloropropene	0.4	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 UJ	5 U	5 U	1 U	5 U
Trichloroethene (TCE)	5	**1.9** J	**3** J	**2** J	**25**	**1.4** J	**1.6** J	**3** J	**1.7**	**16**	**14**	**16** J	**22**
Trichlorofluoromethane	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 UJ	5 U	5 U	1 U	5 UJ
Vinyl chloride	2	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Xylenes, total	5	5 U	2 U	5 U	2 U	5 U	2 U	5 U	2 U	5 U	5 U	2 U	5 U

Table 1
VOCs in Groundwater

	NYS	MW13D				MW1S					MW1D		
Units: µg/L	Class GA	5/11/2010	8/9/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011
1,1,1-Trichloroethane	5	**4.2**	**4.7** J	**3.1** J	**2** J	**3.6**	1 U	5 U	1 UJ	5 U	**17**	**15**	**3.7** J
1,1,2,2-Tetrachloroethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,1,2-Trichloroethane	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,1,2-Trichlorotrifluoroethane	5	**1.2**	5 U	1 U	NA	0.5 U	1 U	5 U	1 U	NA	**1.7**	**3.5**	5 U
1,1-Dichloroethane	5	**1.2**	**0.72** J	**0.63** J	5 U	**0.9**	1 U	5 U	1 U	5 U	**4**	**4.3**	**2.2** J
1,1-Dichloroethene	5	**7**	**5.6**	**3.8**	**5**	**1.4**	1 U	5 U	1 U	5 U	**22**	**30**	**4.3** J
1,2,4-Trichlorobenzene	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
1,2-Dibromo-3-chloropropane	0.04	1 UJ	5 UJ	1 U	5 UJ	0.5 U	1 U	5 UJ	1 U	5 UJ	0.5 U	1 U	5 UJ
1,2-Dibromoethane (EDB)	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichlorobenzene	3	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichloroethane	0.6	**0.58** J	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichloroethene, Total	5	**17**	**8.5**	NA	**8**	NA	**18**	**20**	NA	**4**	NA	**4.4**	**5.7**
1,2-Dichloropropane	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,3-Dichlorobenzene	3	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,4-Dichlorobenzene	3	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
2-Butanone (MEK)	5	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ
2-Hexanone	5	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U
Acetone	5	5 U	R	R	5 UJ	5 U	**5** J	R	R	5 UJ	5 U	5 U	R
Benzene	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromodichloromethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromoform	5	1 U	5 U	1 U	5 U	0.5 U	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromomethane	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 UJ	5 U
Carbon disulfide	60	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Carbon Tetrachloride	5	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Chlorobenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chlorodibromomethane	NA	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chloroethane	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
Chloroform	7	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chloromethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
cis-1,2-Dichloroethene	5	**17**	**8.5**	**6.1**	**8**	**84**	**18**	**20**	**12**	**4** J	**4.4**	**4.4**	**5.7**
cis-1,3-Dichloropropene	0.4	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Cyclohexane	NA	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Dichlorodifluoromethane	5	1 UJ	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Ethylbenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Isopropylbenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Methyl Acetate	NA	1 U	5 UJ	1 UJ	5 U	0.5 U	1 UJ	5 UJ	1 UJ	5 U	0.5 U	1 U	5 UJ
Methyl tert-Butyl Ether	5	1 U	5 U	1 U	5 U	**0.97**	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U

Table 1

VOCs in Groundwater

	NYS	MW13D				MW1S					MW1D		
Units: µg/L	Class GA	5/11/2010	8/9/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011
Methylcyclohexane	NA	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Methylene Chloride	5	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Styrene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Tetrachloroethene (PCE)	5	**9.4**	**5.5**	**5.2**	**7**	**220**	**8.9**	**4.4** J	**5.5**	**4** J	**8.6**	**18**	**6.6**
Toluene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
trans-1,2-Dichloroethene	5	1 U	5 U	1 U	5 U	**0.76**	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
trans-1,3-Dichloropropene	0.4	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Trichloroethene (TCE)	5	**200**	**88**	**60** J	**65**	**33**	3.1 U	**2.2** J	**1.8** J	**2** J	**54**	**74**	**65**
Trichlorofluoromethane	5	1 UJ	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
Vinyl chloride	2	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Xylenes, total	5	2 U	5 U	2 U	5 U	0.5 U	2 U	5 U	2 U	5 U	0.5 U	2 U	5 U

Table 1
VOCs in Groundwater

Units: µg/L	NYS Class GA	MW1D 4/24/2012	MW1D 6/20/2013	NC-12 6/20/2013
1,1,1-Trichloroethane	5	**9.9** J	**9**	5 U
1,1,2,2-Tetrachloroethane	5	1 U	5 U	5 U
1,1,2-Trichloroethane	1	1 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	1 U	NA	NA
1,1-Dichloroethane	5	**2.8**	**3** J	5 U
1,1-Dichloroethene	5	**24**	**28**	5 U
1,2,4-Trichlorobenzene	5	1 U	5 UJ	5 UJ
1,2-Dibromo-3-chloropropane	0.04	1 U	5 UJ	5 UJ
1,2-Dibromoethane (EDB)	5	1 U	5 U	5 U
1,2-Dichlorobenzene	3	1 U	5 U	5 U
1,2-Dichloroethane	0.6	1 U	5 U	5 U
1,2-Dichloroethene, Total	5	NA	**7**	5 U
1,2-Dichloropropane	1	1 U	5 U	5 U
1,3-Dichlorobenzene	3	1 U	5 U	5 U
1,4-Dichlorobenzene	3	1 U	5 UJ	5 U
2-Butanone (MEK)	5	5 U	5 UJ	5 UJ
2-Hexanone	5	5 U	5 UJ	5 UJ
4-Methyl-2-pentanone (MIBK)	5	5 U	5 UJ	5 U
Acetone	5	R	5 UJ	5 UJ
Benzene	1	1 U	5 U	5 U
Bromodichloromethane	5	1 U	5 U	5 U
Bromoform	5	1 U	5 U	5 U
Bromomethane	5	1 U	5 UJ	5 UJ
Carbon disulfide	60	1 U	5 U	5 UJ
Carbon Tetrachloride	5	1 UJ	5 U	5 U
Chlorobenzene	5	1 U	5 U	5 U
Chlorodibromomethane	NA	1 U	5 U	5 UJ
Chloroethane	5	1 U	5 UJ	5 UJ
Chloroform	7	1 U	5 U	5 U
Chloromethane	5	1 U	5 U	5 U
cis-1,2-Dichloroethene	5	**6.6**	**7**	5 U
cis-1,3-Dichloropropene	0.4	1 U	5 U	5 U
Cyclohexane	NA	1 UJ	5 U	5 UJ
Dichlorodifluoromethane	5	1 UJ	5 U	5 U
Ethylbenzene	5	1 U	5 U	5 U
Isopropylbenzene	5	1 U	5 U	5 U
Methyl Acetate	NA	1 UJ	5 U	5 UJ
Methyl tert-Butyl Ether	5	1 U	5 U	5 U

Table 1
VOCs in Groundwater

Units: µg/L	NYS Class GA	MW1D 4/24/2012	MW1D 6/20/2013	NC-12 6/20/2013
Methylcyclohexane	NA	1 U	5 U	5 UJ
Methylene Chloride	5	1 UJ	5 U	5 U
Styrene	5	1 U	5 U	5 U
Tetrachloroethene (PCE)	5	**24**	**26**	5 U
Toluene	5	1 U	5 U	5 U
trans-1,2-Dichloroethene	5	1 U	5 U	5 U
trans-1,3-Dichloropropene	0.4	1 U	5 U	5 U
Trichloroethene (TCE)	5	**110** J	**110**	5 U
Trichlorofluoromethane	5	1 U	5 UJ	5 UJ
Vinyl chloride	2	1 U	5 U	5 U
Xylenes, total	5	2 U	5 U	5 U

Table 2

MNA Parameters in Groundwater

ANALYTE	UNITS	NY Class GA	MW11S				MW11D				MW12S	(dup)	MW12S		
			5/12/2010	10/3/2011	4/24/2012	6/20/2013	5/12/2010	10/3/2011	4/24/2012	6/20/2013	5/11/2010	5/11/2010	8/9/2011	4/24/2012	6/20/2013
Methane	µg/L	NA	1 U	**1.9**	**1.8**	1 U	**0.63** J	**1.7**	**13**	1 U	1 U	1 U	**0.61**	**1.8**	1 U
Carbon Dioxide	µg/L	NA	**5200**	**1750**	**2340**	**13200**	**1000**	**7350**	**10300**	**26400**	**3500**	**3400**	**6400**	**3530**	**8800**
Sulfate	mg/L	250	**16.1** B	**12**	**23.5**	**44.6**	**28.4** B	**17**	**15.6**	**16.2**	**28.9**	**29**	**37**	**47.6**	**39.2**
Nitrogen, Nitrate	mg/L-N	10	**1.42**	**1.3** B	**2.3** D	**2.31** D	**1.62**	**1.3** B	**1.2** D	**0.77**	**2.97**	**2.97**	**4** B	**3.77**	**2.68** D
Iron - Dissolved	mg/L	300	0.05 U	0.2 U	**0.05** B	**0.04** B	0.05 U	0.2 U	**0.23**	**0.35**	0.05 U	0.05 U	0.2 U	0.2 U	**0.04** B
pH - Field	pH	NA	**4.04**	**5.84**	**5.57**	**4.52**	**5.63**	**5.93**	**5.91**	**5.93**	**3.56**	NA	**7.47**	**6.97**	**4.24**
ORP - Field	mV	NA	**203**	**216**	**230**	**280**	**82**	**175**	**184**	**213**	**194**	NA	**278**	**247**	**323**
Dissolved Oxygen															
Laboratory	mg/L	NA	**10.5**	**33.6**	**50.4**	**12.0**	**10.6**	**35.6**	**37.3**	**1.8**	**11.3**	**11.3**	**37.2**	**27.4**	**8.9**
Field	mg/L	NA	**9.7**	**13.4**	**14.0**	**6.7**	**3.8**	**3.1**	**2.8**	**0.7**	**10.1**	NA	**7.5**	**12.7**	**3.3**
Temperature															
Field	Celsius	NA	**14.4**	**17.9**	**11.7**	**22.2**	**13.3**	**19.0**	**15.9**	**18.9**	**15.8**	NA	**20.1**	**15.0**	**38.8**

U Not detected

J Concentrations are estimated.

D Dilution required due to high concentration of target analyte(s)

B Analyte was detected in the associated Method Blank

NA Not available

Detections are in bold text.

The field dissolved oxygen and temperature are the final readings collected during groundwater sampling.

Table 2

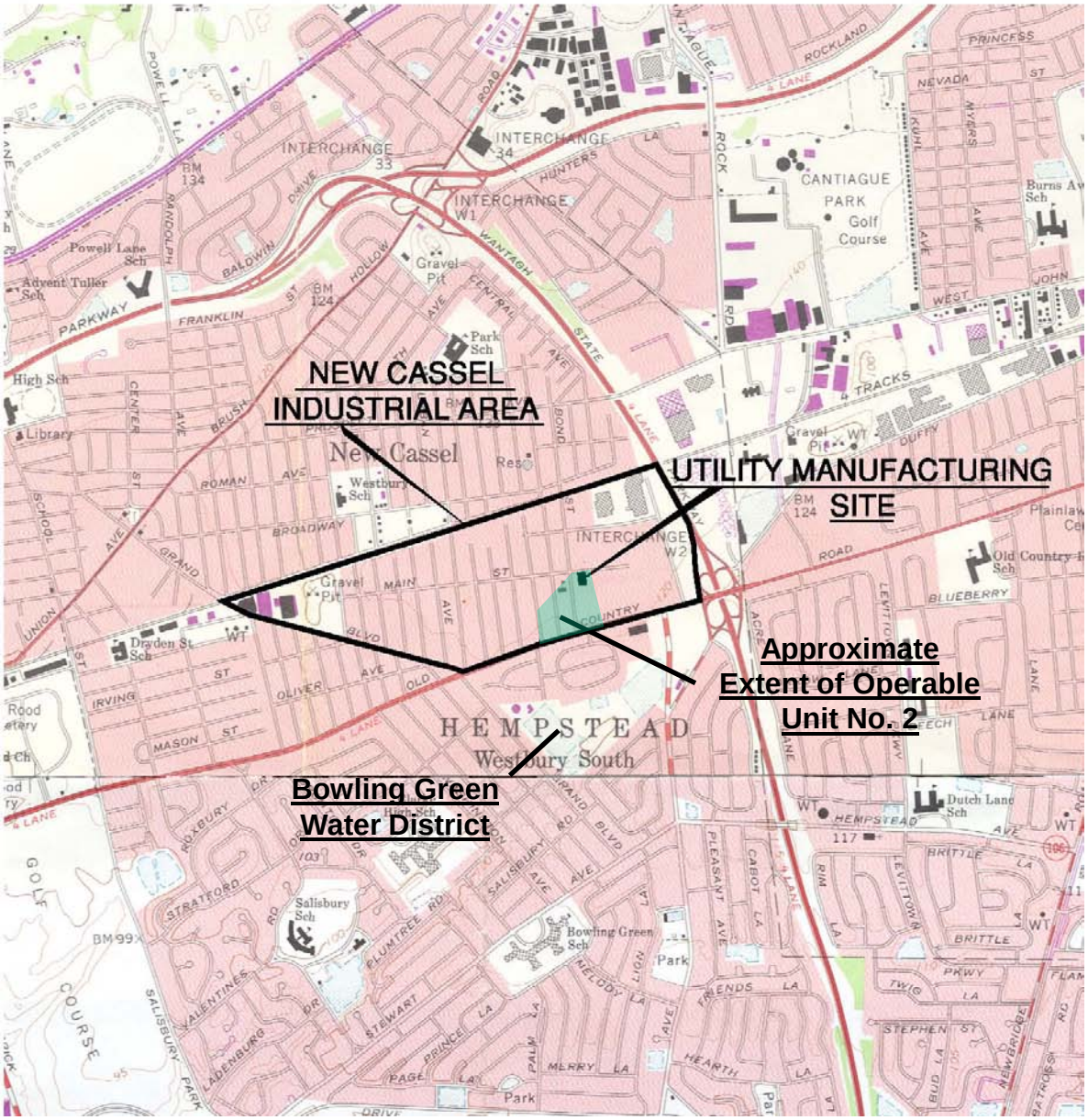
MNA Parameters in Groundwater

		NY	MW12D				MW13S				MW13D				MW1S
ANALYTE	UNITS	Class GA	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/12/2010
Methane	µg/L	NA	1 U	**0.63**	**1.6**	1 U	1 U	**0.63**	**2.0**	1 U	1 U	**0.67**	**1.7**	1 U	1 U
Carbon Dioxide	µg/L	NA	**3500**	**2300**	**8150**	**13200**	**17000**	**11000**	**12900**	**17600**	**9000**	**13600**	**22400**	**30800**	**7700**
Sulfate	mg/L	250	**46.8**	**25**	**29.3**	**22.8**	**47.9**	**28**	**39.5**	**31.2**	**12.4**	**12**	**16.5**	**9.94**	**25.9** B
Nitrogen, Nitrate	mg/L-N	10	**3.38** D	**2.4** B	**2.59**	**2.57** D	**3.81** D	**4.4** B	**5.34**	**4.44** D	**6.39** D	**4.6** B	**5.7**	**6.53** D	**1.85**
Iron - Dissolved	mg/L	300	0.05 U	0.2 U	0.2 U	**0.09** B	0.05 U	0.2 U	0.2 U	**0.04** B	0.05 U	1.17 U	0.2 U	**0.04** B	0.05 U
pH - Field	pH	NA	**3.88**	**7.06**	**5.58**	**5.78**	**2.45**	**7.96**	**4.74**	**4.79**	**3.88**	**5.76**	**5.42**	**6.14**	**4.41**
ORP - Field	mV	NA	**197**	**206**	**277**	**231**	**262**	**289**	**349**	**293**	**208**	**297**	**268**	**134**	**256**
Dissolved Oxygen															
Laboratory	mg/L	NA	**9.9**	**47.4**	**35.0**	**9.9**	**12.2**	**16.9**	**18.4**	**9.3**	**9.3**	**16.0**	**52.3**	**5.5**	**6.6**
Field	mg/L	NA	**9.9**	**15.8**	**8.3**	**8.3**	**10.1**	**7.5**	**10.7**	**8.0**	**10.1**	**4.5**	**3.3**	**5.7**	**6.8**
Temperature															
Field	Celsius	NA	**17.2**	**18.7**	**10.5**	**18.1**	**16.7**	**19.4**	**11.3**	**17.8**	**18.3**	**18.3**	**15.7**	**18.9**	**15.8**

Table 2

MNA Parameters in Groundwater

		NY	MW1S				MW1D				NC-12
ANALYTE	UNITS	Class GA	8/10/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	8/10/2011	4/24/2012	6/20/2013	6/28/2013
Methane	µg/L	NA	**0.7**	**1.7**	1 U	1 U	1 U	**0.78**	**1.8**	1 U	1 U
Carbon Dioxide	µg/L	NA	**10400**	**8790**	**26400**	**13200**	**15000**	**3860**	**13000**	**35200**	**26400**
Sulfate	mg/L	250	**13**	**18.6**	**25.4**	**44.4**	**24.4** B	**16**	**22.5**	**20**	**134** D
Nitrogen, Nitrate	mg/L-N	10	**2.2** B	**2.6** D	**2.39** D	**2.27** D	**2.8**	**2.5** B	**2.4** D	**1.67** D	**2.8** D
Iron - Dissolved	mg/L	300	0.2 U	**0.05** B	**0.05** B	**0.06** B	**0.029** J	0.2 U	**0.036** B	**0.20**	**0.11**
pH - Field	pH	NA	**4.39**	**5.29**	**5.20**	NA	**5.14**	**8.97**	**4.98**	**4.72**	**5.67**
ORP - Field	mV	NA	**330**	**319**	**281**	NA	**300**	**229**	**292**	**291**	**300**
Dissolved Oxygen											
Laboratory	mg/L	NA	**25.2**	**48.4**	**8.1**	**11.4**	**4.2**	**38.0**	**18.3**	**2.3**	**8.0**
Field	mg/L	NA	**12.2**	**10.4**	**7.0**	NA	**0.6**	**16.8**	**2.3**	**1.1**	**8.08**
Temperature											
Field	Celsius	NA	**17.9**	**15.9**	**19.3**	NA	**15.2**	**20.8**	**16.4**	**17.7**	**18.9**



From ERM (2005):
USGS Hicksville & Freeport NY Quadrangle, 1979

100 Red Schoolhouse Road, Suite B-1
Chestnut Ridge , NY 10977-6715

ENVIRONMENTAL CONSULTING ENGINEERS

AECOM

PROJECT:

SITE MANAGEMENT

Utility Manufacturing/Wonder King, OU2
700 – 712 Main Street, Westbury, New York

SITE LOCATION MAP

Project No: 60269807

Figure No: 1

June 24, 2013

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 20 40 80
Feet

Legend

Monitoring Wells

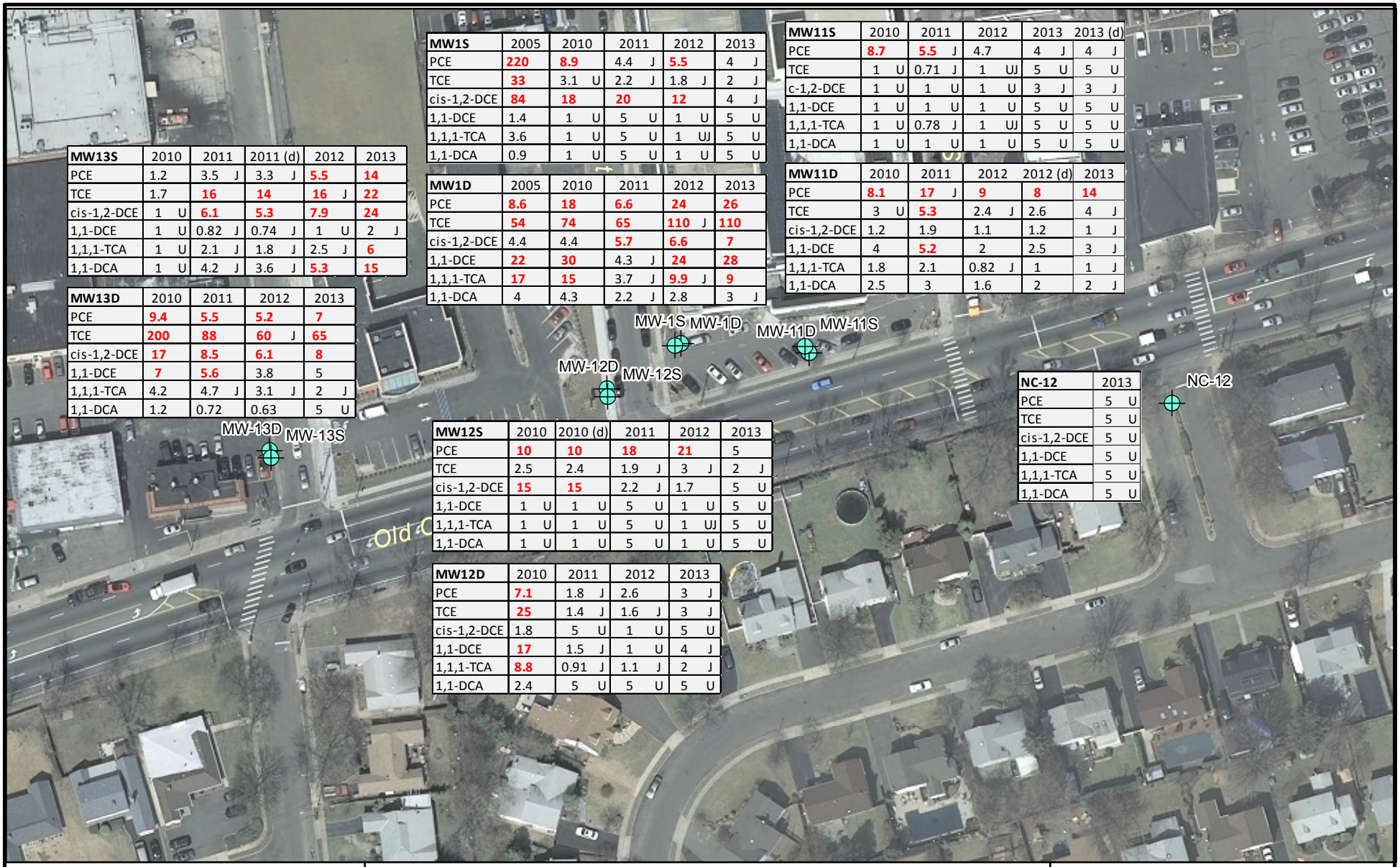
Indoor Air Sample Structures

Groundwater Sampling Locations

Project No: 60269807

Figure No: 2

June 24, 2013



MW13S	2010	2011	2011 (d)	2012	2013
PCE	1.2	3.5 J	3.3 J	5.5	14
TCE	1.7	16	14	16 J	22
cis-1,2-DCE	1 U	6.1	5.3	7.9	24
1,1-DCE	1 U	0.82 J	0.74 J	1 U	2 J
1,1,1-TCA	1 U	2.1 J	1.8 J	2.5 J	6
1,1-DCA	1 U	4.2 J	3.6 J	5.3	15

MW13D	2010	2011	2012	2013
PCE	9.4	5.5	5.2	7
TCE	200	88	60 J	65
cis-1,2-DCE	17	8.5	6.1	8
1,1-DCE	7	5.6	3.8	5
1,1,1-TCA	4.2	4.7 J	3.1 J	2 J
1,1-DCA	1.2	0.72	0.63	5 U

MW1S	2005	2010	2011	2012	2013
PCE	220	8.9	4.4 J	5.5	4 J
TCE	33	3.1 U	2.2 J	1.8 J	2 J
cis-1,2-DCE	84	18	20	12	4 J
1,1-DCE	1.4	1 U	5 U	1 U	5 U
1,1,1-TCA	3.6	1 U	5 U	1 UJ	5 U
1,1-DCA	0.9	1 U	5 U	1 U	5 U

MW1D	2005	2010	2011	2012	2013
PCE	8.6	18	6.6	24	26
TCE	54	74	65	110 J	110
cis-1,2-DCE	4.4	4.4	5.7	6.6	7
1,1-DCE	22	30	4.3 J	24	28
1,1,1-TCA	17	15	3.7 J	9.9 J	9
1,1-DCA	4	4.3	2.2 J	2.8	3 J

MW11S	2010	2011	2012	2013	2013 (d)
PCE	8.7	5.5 J	4.7	4 J	4 J
TCE	1 U	0.71 J	1 UJ	5 U	5 U
c-1,2-DCE	1 U	1 U	1 U	3 J	3 J
1,1-DCE	1 U	1 U	1 U	5 U	5 U
1,1,1-TCA	1 U	0.78 J	1 UJ	5 U	5 U
1,1-DCA	1 U	1 U	1 U	5 U	5 U

MW11D	2010	2011	2012	2012 (d)	2013
PCE	8.1	17 J	9	8	14
TCE	3 U	5.3	2.4 J	2.6	4 J
cis-1,2-DCE	1.2	1.9	1.1	1.2	1 J
1,1-DCE	4	5.2	2	2.5	3 J
1,1,1-TCA	1.8	2.1	0.82 J	1	1 J
1,1-DCA	2.5	3	1.6	2	2 J

NC-12	2013
PCE	5 U
TCE	5 U
cis-1,2-DCE	5 U
1,1-DCE	5 U
1,1,1-TCA	5 U
1,1-DCA	5 U

MW12S	2010	2010 (d)	2011	2012	2013
PCE	10	10	18	21	5
TCE	2.5	2.4	1.9 J	3 J	2 J
cis-1,2-DCE	15	15	2.2 J	1.7	5 U
1,1-DCE	1 U	1 U	5 U	1 U	5 U
1,1,1-TCA	1 U	1 U	5 U	1 UJ	5 U
1,1-DCA	1 U	1 U	5 U	1 U	5 U

MW12D	2010	2011	2012	2013
PCE	7.1	1.8 J	2.6	3 J
TCE	25	1.4 J	1.6 J	3 J
cis-1,2-DCE	1.8	5 U	1 U	5 U
1,1-DCE	17	1.5 J	1 U	4 J
1,1,1-TCA	8.8	0.91 J	1.1 J	2 J
1,1-DCA	2.4	5 U	5 U	5 U

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 20 40 80
Feet

Legend

Monitoring Well

Concentrations exceeding the NYS Class GA criteria are in red.

The NYS Class GA criteria for all other parameters shown are 5 µg/L.

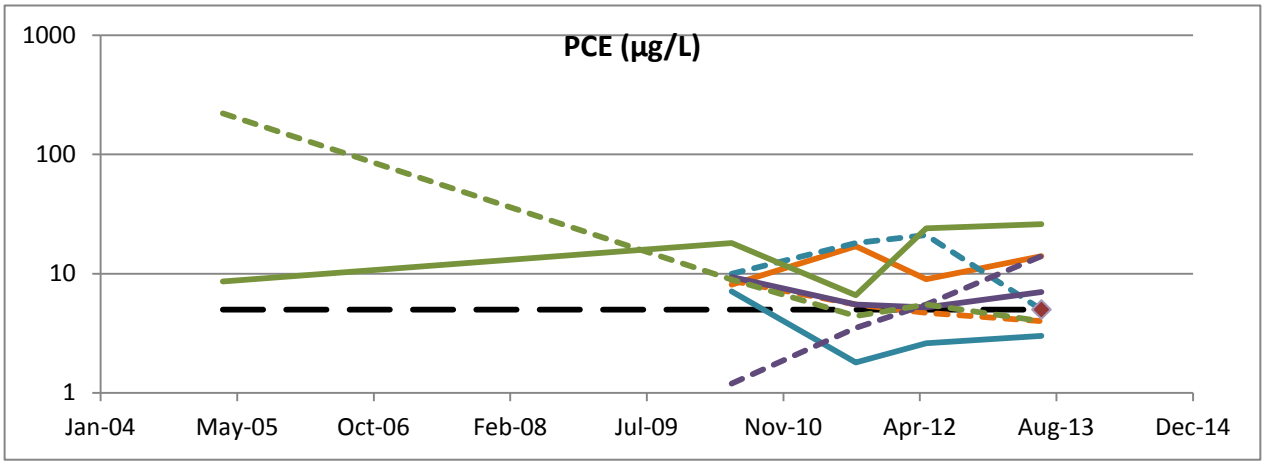
(d) Environmental duplicate sample

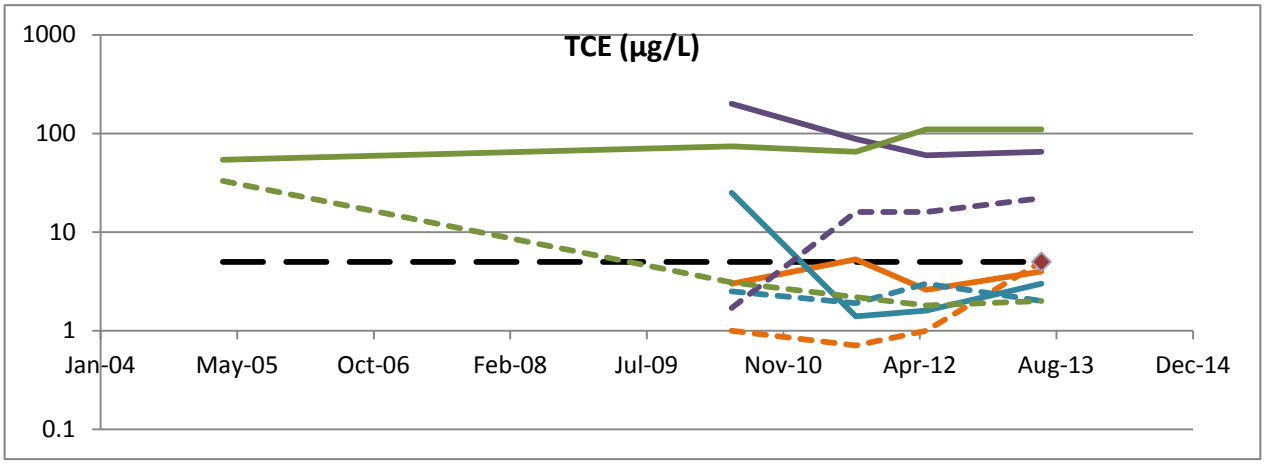
Groundwater Sampling Results

Project No: 60269807

Figure No: 3

September 27, 2013





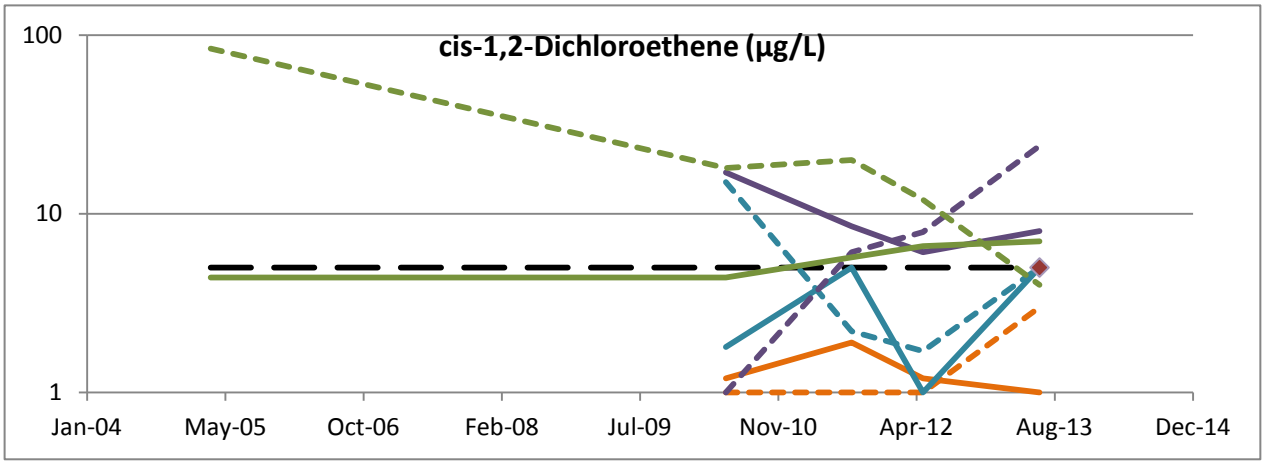
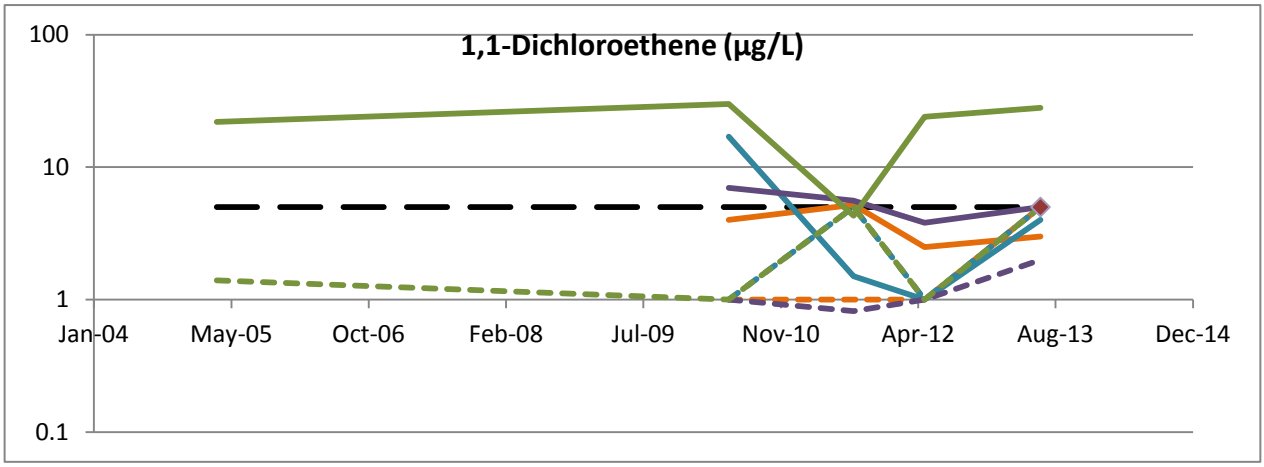


Figure 4

Groundwater VOC Concentrations over Time

Page 1 of 2



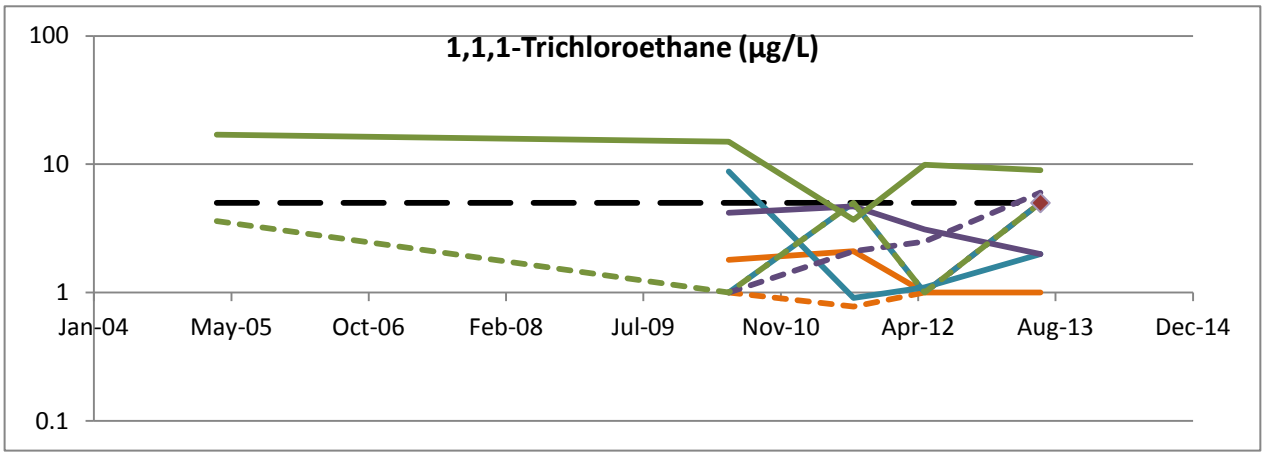
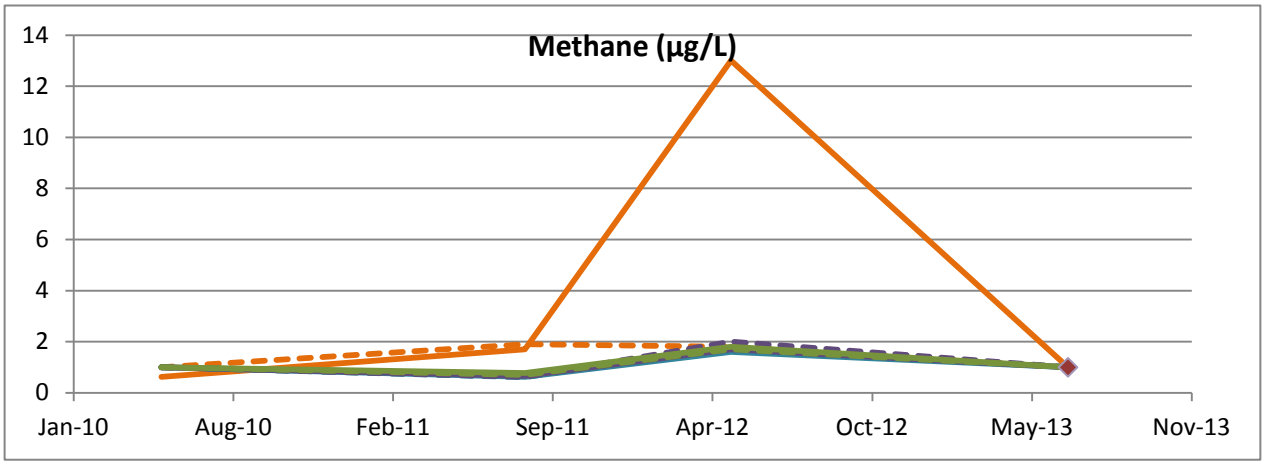


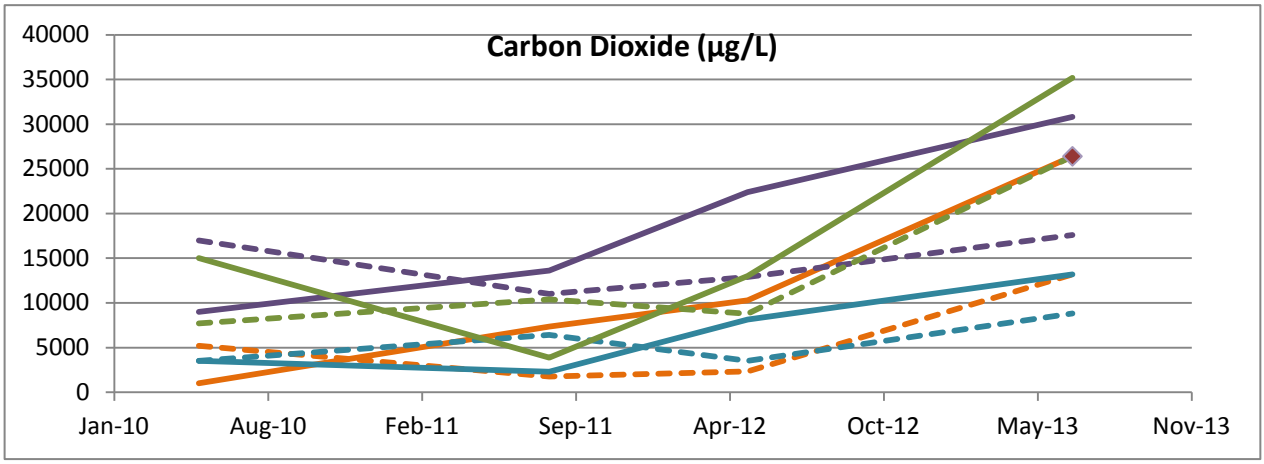
Figure 4

Groundwater VOC Concentrations over Time

Page 2 of 2

Standard
MW11D
MW11S
MW12D
MW12S
MW13D
MW13S
MW1D
MW1S
NC-12





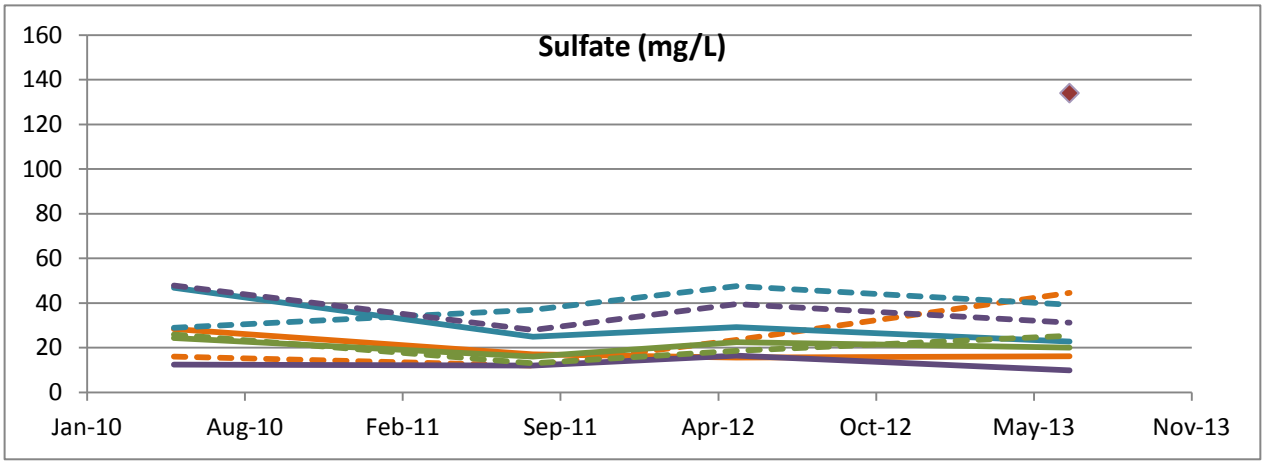
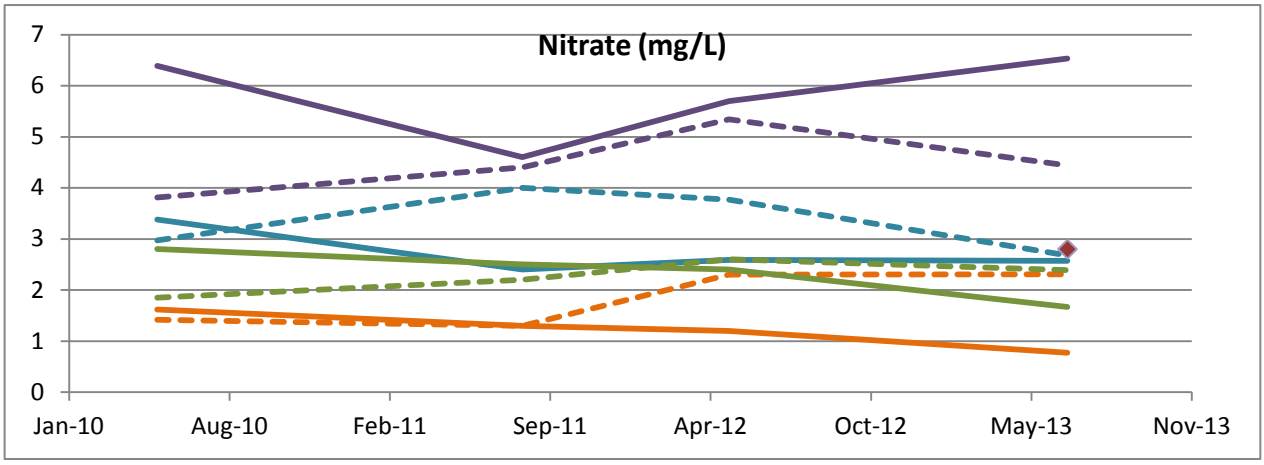


Figure 5

Groundwater MNA Parameter Concentrations over Time

Page 1 of 2



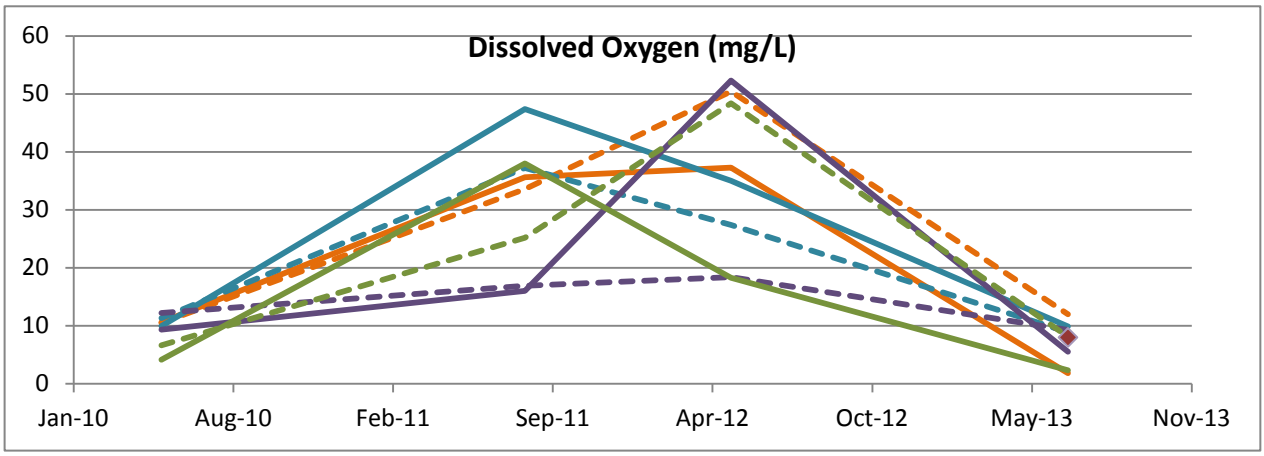


Figure 5

Groundwater MNA Parameter Concentrations over Time

Page 2 of 2

MW11D
MW11S
MW12D
MW12S
MW13D
MW13S
MW1D
MW1S
NC-12

APPENDIX A

Minor Change to Selected Remedy

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 12th Floor
625 Broadway, Albany, New York 12233-7015
Phone: (518) 402-9625 • **Fax:** (518) 402-9627
Website: www.dec.ny.gov

Joe Martens
Commissioner

MEMORANDUM

OK JBH 4/4/12

TO: Jim Harrington, Director, Remedial Bureau A

FROM: Jeffrey Dyber through Guy Bobersky, Chief, Remedial Section A

SUBJECT: Utility Manufacturing/Wonder King OU2 (Site No. 130043H)
Minor Change to the Selected Remedy

DATE: March 19, 2012

The New York State Department of Environmental Conservation (Department) is making a minor change to the selected remedy for Operable Unit 2 (OU2) of the Utility Manufacturing/Wonder King ("Utility") inactive hazardous waste disposal site (Site No. 130043H). The Department selected the remedy in a Record of Decision (ROD), which was signed on March 28, 2008.

The Department is removing the following element of the selected remedy:

Imposition of an institutional control in the form of an environmental easement on the site that will require: (a) compliance with the approved site management plan; and (b) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

The Department is removing this element from the selected remedy because:

- The Department is implementing the remedy using State Superfund money; and
- All of the elements of the selected remedy are located off-site.

As the Department is implementing the selected remedy at off-site locations, the property owner cannot certify the institutional and engineering controls. In addition, the site management plan will address equipment located in off-site locations, which the site owner does not control. Therefore, the environmental easement is not needed and has been removed from the selected remedy.

APPENDIX B

As-Built Drawings

GENERAL CONSTRUCTION NOTES:

1. The SSD system installation was done so as to coordinate with other building components. All mitigation system components were installed to facilitate servicing, maintenance and repair or replacement of other equipment components in or outside the building. System materials and equipment were installed to provide the maximum headroom or side clearance possible. All systems, materials and equipment were installed level, plumb, parallel or perpendicular to other building systems and components unless otherwise specified.

2. The contractor installing the SSD system took precaution to avoid any damage to existing utilities located anywhere in the building or those located in or below the slab floor.

3. The contractor covered the SSD system components at SVE-9 and SVE-10. The degree of finishing required was based on a consensus between the owners and NYSDEC.

4. The contractor who installed the SSD system sealed all penetrations through foundation walls and floors created to install the SSD system. Penetrations through side walls were carefully cut to match the shape of the pipe.

5. The entire system has UL or equivalent ratings for both individual components and the entire system as applicable.

6. The work performed conformed to ASTM 2121

7. Unless otherwise noted all areas disturbed by this work were restored to original condition.

8. Each system was installed with a Sensocon pressure gauge, and low pressure alarm inside the building along the wall that the piping exits out to the fan.The post installation static pressure reading of each subsystem
was recorded next to the pressure guage.

9. An easily accessible ball valve was place between each suction point/drainage point and the main piping line. The valves were manipulated to equalize the flow at the suction points and to minimize the air flow at the drainage point.

ORIGINAL PRESSURE CONDITIONS

Main Line Gauges	Original Static Pressure (in.w.c)
L-1	6.0
L-2	16.0
L-3	8.0

Extraction and Drainage Points	Original Pressure (in.w.c)	Air Flow (cfm)	Valve Open (%)
SVE-3	5.0	14.4	100
SVE-4	5.0	13.2	100
SVE-5	6.0	12.9	100
SVE-6	5.0	14.6	100
SVE-7	16.0	20.5	100
SVE-8	16.0	33.8	100
SVE-9	14.0	24.2	100
SVE-10	3.3	14.1	50
SVE-11	6.0	12.1	100
SVE-12	6.0	14.2	100
DP-1	1	17	40

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075332
LICENSED PROFESSIONAL ENGINEER

Legend

- HS-5000 Fan
- Suction Point
- Drainage Point
- Boxed in Vertical Run
- Gauge/Alarm
- Valve and Test Hole
- Piping
- Machines

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

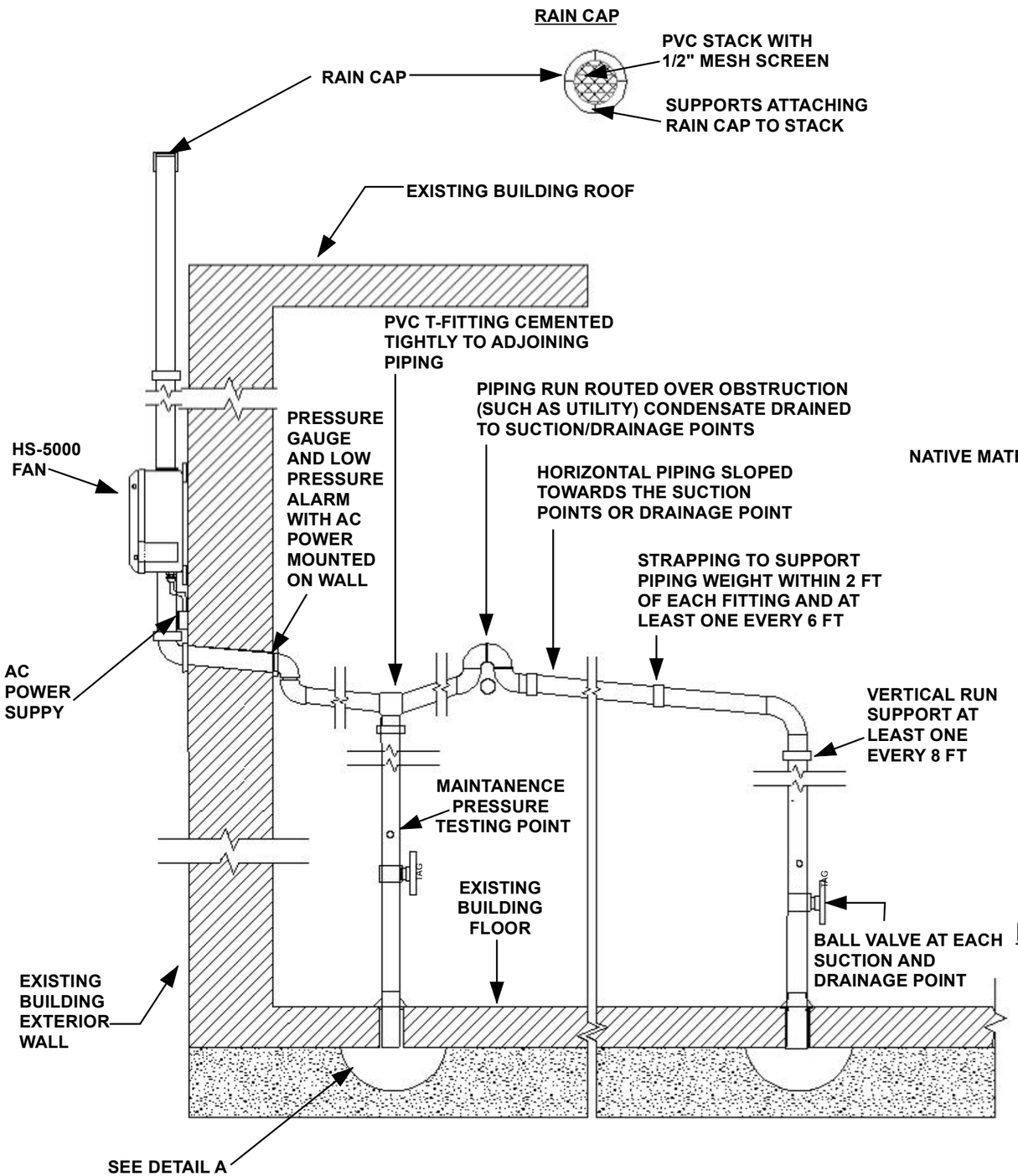
N

Utility Manufacturing/Wonder King
Operable Unit 2
Site No. 130043H

Date: AUGUST 2012

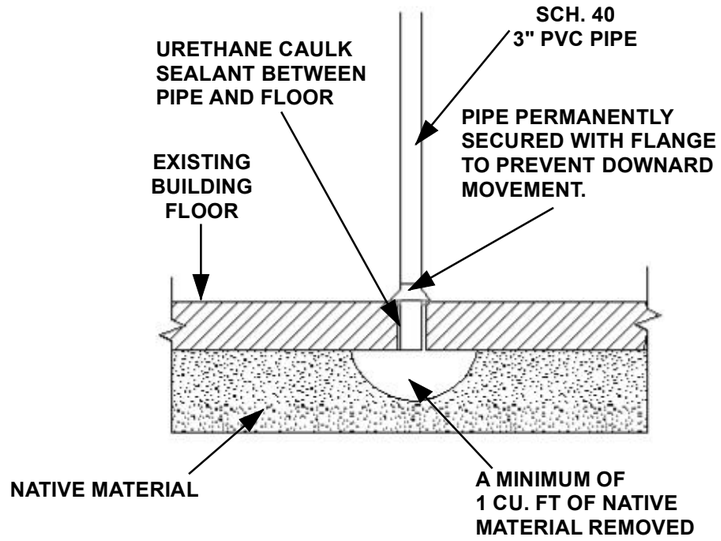
SUB-SLAB DEPRESSURIZATION
SYSTEM LAYOUT
717 MAIN STREET

Figure No. : D-1



TYPICAL INDIVIDUAL SYSTEM DETAIL

NOT TO SCALE



DETAIL A - SUCTION POINT

NOT TO SCALE

DETAIL B - STRAPPING AND SUPPORTS

NOT TO SCALE
(Reference: USEPA 1993)

SUCTION HOLE INSTALLATION NOTES:
1. The contractor removed a minimum of 1 cubic foot of sub-slab material from below and around each suction hole.

2. To prevent blockage of air flow into the bottom of suction point pipes and pipe movement to the bottom of the suction pits, the pipes at the suction points were supported and secured to the concrete floor slab with a floor flange.

3. A polyurethane caulk sealant was applied to securely seal the space between the outer diameter of the pipe and the concrete floor.

4. Shut-off valves and flow adjustment valves were installed on each extraction point and discharge point.

VENT PLACEMENT NOTES:
1. All exhaust pipes were installed to a termination point no less than 12" above the roof.

2. All system exhaust termination points were a minimum of 10 feet above grade and away from any intakes or openings into conditioned or other occupiable spaces.

4. All exhaust pipes were fitted with a protective screen.

PVC PIPE INSTALLATION NOTES:
1. All horizontal pipe runs between the fan and the suction holes were sloped to ensure that water from rain or condensation drains downward into the ground beneath the slab.

2. All vertical pipe runs were installed plumb. In no case was the piping installed so as to create a possible water trap in the piping.

3. All horizontal pipe runs have a support with an appropriate device within 2 ft of each fitting and a maximum distance between supports of 6 ft as per BOCA National Plumbing Code and ASTM 2121.

4. Vertical runs were secured either above or below the points of penetration through floors, ceilings, and roofs, or at least every 8 ft (2.5 m) on runs that do not penetrate floors, ceilings, or roofs.

5. System piping was fastened to the structure of the building with hangers, strapping, and clamps that secured it adequately.

6. System piping was not attached to or supported by existing pipes, ducts, conduits, or any kind of equipment. System piping does not block window and doors or access to installed equipment.

7. Horizontal piping inside the office areas were concealed above drop ceilings

8. The vertical piping at extraction points SVE-9 and SVE-10 were boxed in and painted. The valves associated with these points are located in the mezzanine area for easy access.

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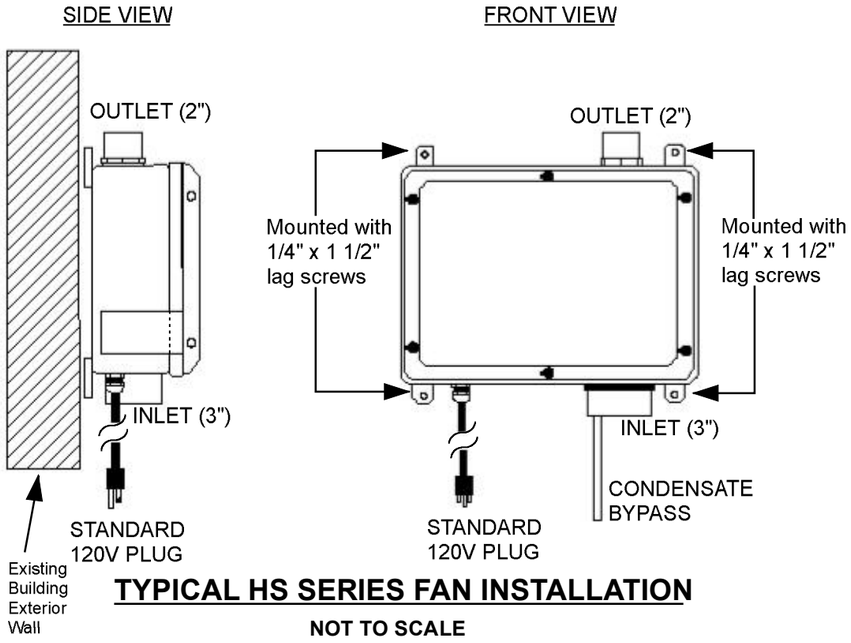
Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Utility Manufacturing/Wonder King
Operable Unit 2
Site No. 130043H

Date:	SSDS DETAILS	Figure No. :
AUGUST 2012	1025 OLD COUNTRY ROAD	D-2



TYPICAL HS SERIES FAN INSTALLATION

NOT TO SCALE

HS SERIES FAN INFORMATION

(Reference: RadonAway Instruction Manual)

Inlet: 3.0" PVC
Outlet: 2.0" PVC
Mounting: Brackets for vertical mount
Weight: Approximately 18 lbs.
Size: Approximately 15"W x 13"H x 8"D
Minimum recommended inlet ducting (greater diameter may always be used):
HS3000, HS5000 --- 2.0" PVC Pipe
HS2000 --- Main feeder line of 3.0" or greater PVC Pipe
Branch lines (if 3 or more) may be 2.0" PVC Pipe
Outlet ducting: 2.0" PVC
Storage temperature range: 32 - 100 degrees F.
Thermally protected
Locked rotor protection
Internal Condensate Bypass

Fan Wiring Notes:

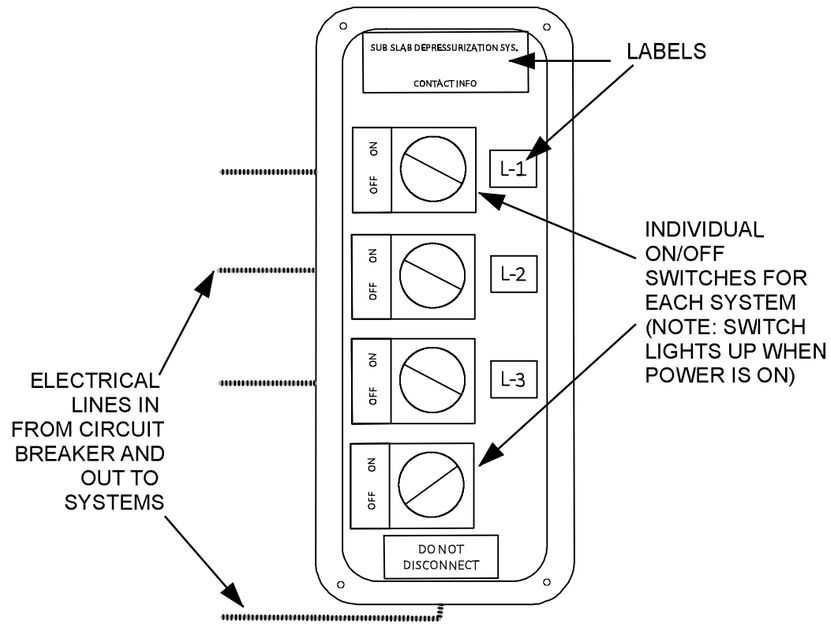
1. All wiring was performed in accordance with the National Fire Protection Association's (NFPA) "National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes and manufacturer's specifications.

2. Wiring was not located in or chased through the mitigation installation ducting or any other heating or cooling ductwork. All electrical work was performed by a licensed electrician and meet the substantive requirements of the Town of North Hempstead.

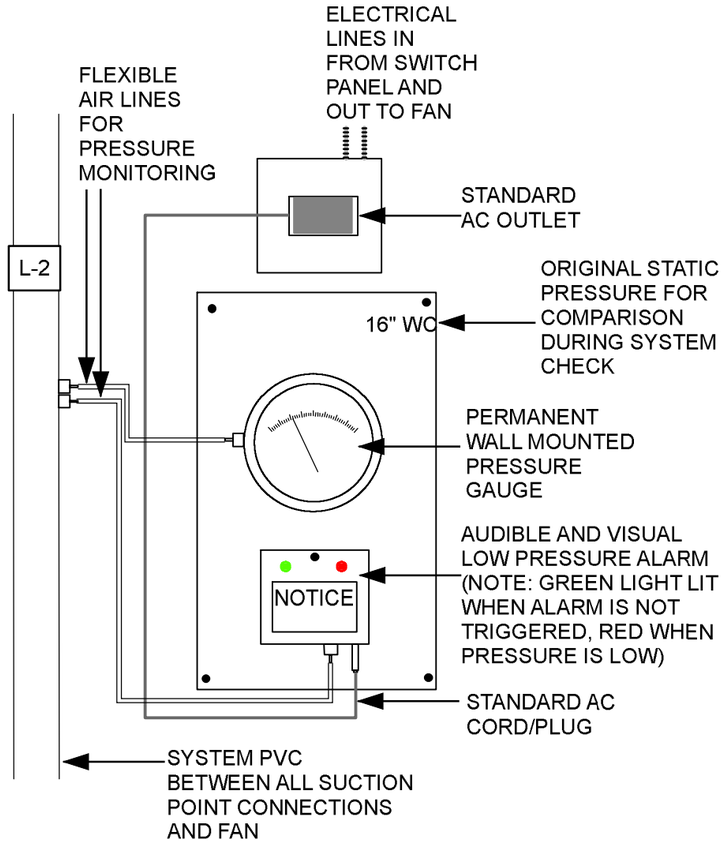
3. The sub-slab depressurization unit fans are powered by two dedicated circuits that are not used for any other building components.

4. The standard plug acts as a disconnect switch within 3 ft of each fan. The plug is in an outdoor rated electrical box with a switch cover. Additional disconnect switches are located inside the building next to the circuit breaker boxes.

5. The contractor used outdoor rated flexible conduit from each switch box to the fan.



SHUT OFF PANEL NEXT TO CIRCUIT BREAKER



WALL MOUNTED PRESSURE GAUGE AND AUDIBLE/VISIBLE ALARM

STATE OF NEW YORK
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075332
LICENSED PROFESSIONAL ENGINEER

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Utility Manufacturing/Wonder King
Operable Unit 2
Site No. 130043H

Date:	FAN INSTALLATION, SWITCH PANEL AND PRESSURE GAUGE	Figure No. :
AUGUST 2012	1025 OLD COUNTRY ROAD	D-3

T-3A
SVE-3
T-5D
T-3B
sub slab anomaly
T-4D
T-3C
T-5C
T-4C
T-5B
SVE-6
T-4B
T-5A
T-4A
SVE-5
SVE-4
DRAIN
T-6A
T-7A
T-7C
SVE-8
SVE-7
T-8A
T-8B
T-9D
T-9B
T-9C
SVE-9
T-9A
T-12A
T-7B
T-11A
T-12B
SVE-10
SVE-11
SVE-12
T-11B

LEGEND:

- SOIL VAPOR EXTRACTION POINT (4" Dia)
- SUB SLAB VACUUM TEST POINT (1/2" Dia)
- CONDENSATION DRAIN

0 5 10 20 30 40 Feet

1 inch = 20 feet

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LICENSED PROFESSIONAL ENGINEER

Prepared by: AECOM

Prepared for: NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

N

Utility Manufacturing/Wonder King

SUB SLAB DEPRESSURIZATION SYSTEM
AS-BUILT TEST POINT LOCATIONS FOR
FINAL RADIUS OF INFLUENCE TESTING

Date: 01/24/2012

717 MAIN STREET, WESTBURY NY

Figure No. : 2

APPENDIX C

Site Inspection Form and Photo Log

Maintenance Procedure Report Form

Reason for Inspection Check:	Routine	**Date:**	12/3/2013	**Time:**	11:00
Site Name:	**Utility Manufacturing/ Wonder King Site, Structure 2**				
Personnel completing the checklist:	Celeste Foster (AECOM)				

Reasons for Completing Critical Equipment Inspection Checks:

- Initial system start-up
- System re-start following temporary shutdown (does not include routine O&M shutdown)
- Manufacturer recommended inspection interval
- ~~Annual~~

Critical Equipment	Date 12/3/13 Initial CF	Date ____ Initial	Date ____ Initial	Date ____ Initial
L-1, L2, L3 Run Indicator Light	✓			
Outside CFGI Outlets	✓			
L-1 Low Vacuum Alarm	✓			
L-2 Low Vacuum Alarm	✓			
L-3 Low Vacuum Alarm	✓			

CRITICAL EQUIPMENT	MAINTENANCE PROCEDURE
Outside CFGI Outlets	Manually reset the outlet. Check for proper operation. Check for leaks and damage to enclosure. ✓
Run Light Indicators	Visually check that each fan control switch is lit up when in the on-position ✓
Low Vacuum Alarm	Remove tubing and clean if required on regular basis. Ensure the alarm sounds when the tubing is disconnected from the piping. ✓

Notes:

- **Initial when completed.**
- **If CE fails, appropriate notifications should be made and repairs sch eduled as soon as possible.**

Line 1 Pressure Gauge

Line 2 Pressure Gauge

Line 3 Pressure Gauge

Shut Off Panel

APPENDIX D

Engineering Controls – Engineering Standby Contractor Certification Form

Enclosure 1
Engineering Controls - Engineering Standby Contractor Certification Form

Site Details **Box 1**

Site No. 130043H

Site Name Utility Manufacturing/Wonder King

Site Address: 700-712 Main Street Zip Code: 11590
City/Town: Westbury
County: Nassau
Site Acreage: 0.9

Reporting Period: November 27, 2012 to December 14, 2013

	YES	NO
1. Is the information above correct?	☒	☐
If NO, include handwritten above or on a separate sheet.		
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☒
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☒
4. To your knowledge have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☐
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. To your knowledge is the site currently undergoing development?	☐	☒

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Industrial	☒	☐
7. Are all ICs/ECs in place and functioning as designed?	☒	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Engineering Standby Contractor Date

SITE NO. 130043H **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
11-328-176	Audie Kranz	Monitoring Plan O&M Plan Site Management Plan

- Annual Monitoring of groundwater
- Inspection and repair of sub-slab depressurization system

Box 4

Description of Engineering Controls

Parcel	Engineering Control
11-328-176	Vapor Mitigation

Subslab depressurization system at one off-site property

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification, including data and material prepared by previous contractors for the current certifying period, if any;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☒	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists.

YES	NO
☒	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Engineering Standby Contractor

Date

IC/EC CERTIFICATIONS

Box 6

Signature

I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Scott A. Underhill at AECOM Technical Services Northeast, Inc. (AECOM)
print name

40 British American Boulevard

Latham, New York 12110
(print business address)

am certifying as a Professional Engineer.

Scott A. Underhill
Signature of

STATE OF NEW YORK
SCOTT ANDREW UNDERHILL
075232
LICENSED PROFESSIONAL ENGINEER
Stamp
(Required for PE)

12-26-13
Date

APPENDIX E

Annual Long Term Monitoring Report For 2013

AECOM Environment

Prepared for:
NYSDEC
Albany, NY

Prepared by:
AECOM
Chestnut Ridge, NY
60269807
December 2013

Annual Long Term Monitoring Report For 2013 (Site No. 130043H) December 30, 2013

:

Contents

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1.0 Introduction

AECOM Technical Services Northeast, Inc. (AECOM) has been issued Work Assignment #D007626-16 under the New York State Department of Environmental Conservation (NYSDEC) State Superfund Standby Program. The site under this work assignment is Utility Manufacturing/Wonder King (Utility Manufacturing), Operable Unit No. 2 (Site No. 130043H). The location of the site is shown on Figure 1.

The scope of work for this project consisted of collecting a round of groundwater samples from nine wells in 2013. The work was performed in accordance with NYSDEC Division of Environmental Remediation Final DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, May 2010).

1.1 Background

The Utility Manufacturing site is located at 700-712 Main Street (south side) between Bond Street and Frost Street, approximately 500 feet (ft) north of Old Country Road in the New Cassel Industrial Area (NCIA), Westbury, Nassau County, New York. The site and study area for Operable Unit No. 2 are located within the NCIA (Figure 1), which is a 170-acre industrial and commercial area on the north side of Old Country Road. The sites within the Operable Unit No. 2 consist mostly of commercial and industrial operations including an auto repair facility, auto garage, office spaces, warehouse, and machine tool shop. The Former Applied Fluidics site, No. 130043M, is located approximately 750 feet east of the Utility Manufacturing site. The 89 Frost Street site, No. 130043L, and the Former Autoline Automotive site, No. 130043I, are adjacent to the Former Applied Fluidics site. All three of these sites are Class 2 sites.

1.2 Previous Investigations Conducted at the Utility Manufacturing Site

AECOM completed the initial scope of work for this project including project scoping, preparation of plans and specifications, oversight of construction services including sub-slab depressurization system installation at one facility and installation of six monitoring wells, and one round of groundwater and indoor air sampling under Work Assignment #D004436-32 issued by NYSDEC. The work was performed in accordance with NYSDEC Division of Environmental Remediation Final DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, May 2010) and the Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH; Final, October 2006). The work conducted under the initial scope (well installation, groundwater sampling, and indoor air sampling) was completed in 2010 and documented in the Final Annual Long Term Monitoring Report (AECOM, 2011). In August 2011, two rounds of monitoring well sampling and vapor intrusion sampling at two structures was conducted. One round of monitoring well sampling and soil vapor intrusion sampling at one structure conducted in 2011 was documented in the Annual Long Term Monitoring Report for 2011 (AECOM, 2012a). One round of monitoring well sampling in 2012 was documented in the Annual Long Term Monitoring Report for 2012 (AECOM, 2012b).

A summary of the site investigations conducted for the Utility Manufacturing site between 1986 and 2007 is provided in the Record of Decision (ROD) dated March 2008 for Operable Unit No. 2 (NYSDEC, 2008).

1.3 Selected Remedy

A ROD presenting the selected remedy for Operable Unit No. 2 was finalized by NYSDEC in March 2008. The elements of the selected remedy are as follows:

1. Implementation of a remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.
2. Installation of sub-slab depressurization systems in three off-site buildings that have vapor intrusion impacts.
3. Collection of periodic sub-slab vapor, indoor air and outdoor air samples at three properties where the potential for vapor intrusion exists. Periodic sampling will continue until sampling results indicate that continued sampling is no longer required.
4. Natural attenuation of groundwater contamination within the study area.
5. Imposition of an institutional control in the form of an environmental easement on the site that will require: (a) compliance with the approved site management plan; and (b) the property owner to complete and submit to NYSDEC (the Department) a periodic certification of institutional and engineering controls.
6. Development of a site management plan which will include the following institutional and engineering controls: (a) monitoring of groundwater, sub-slab vapor, indoor air and outdoor air; and (b) provisions for the continued proper operation and maintenance of the components of the remedy.
7. Provision of a periodic certification of institutional and engineering controls by the property owner, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed.
8. Continued operation of the components of the remedy until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.
9. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. Up to nine monitoring wells will be sampled periodically for VOCs to track the progress of the natural attenuation. In addition, sub-slab vapor, indoor air and outdoor air samples will be obtained and analyzed for VOCs at three buildings with potential vapor intrusion impacts. This program will allow the effectiveness of the natural attenuation and soil vapor intrusion mitigation measures to be monitored and will be a component of the operation, maintenance, and monitoring for the site.

Vapor intrusion sampling at three structures (item 3) and groundwater monitoring sampling (item 9) were conducted in 2010 and documented in the Final Annual Long Term Monitoring Report for 2011 (AECOM, 2011). Of the three off-site buildings identified for installation of sub-slab depressurization systems (item 2), property managers for two of the structures (6 and 9) have declined to have the systems installed. NYSDEC has proposed to collect vapor intrusion samples from these structures instead. To date, the firm managing Structure 9 has declined to have the vapor intrusion samples collected. Subsequent testing at Structure 6 indicates an SSDS system is not required. Since finalizing the ROD, NYSDEC has determined that an environmental easement (item 5) is not needed for the site (NYSDEC, 2012). A site management plan (AECOM, 2012c) was approved for the site by NYSDEC in September 2012 (item 6). The groundwater sampling documented in this report was completed in accordance with the long-term monitoring requirements for the site (item 9).

2.0 Field Investigation

Groundwater sampling and collection of groundwater elevation measurements was conducted in June 2013. Groundwater samples were collected from the nine wells shown on Figure 2. Well construction data is provided in Table 1. YEC, Inc. participated in field activities as a subcontractor to AECOM. A well inspection checklist was completed for each monitoring well sampled. Field forms are provided in Appendix A.

2.1 Groundwater Sampling

AECOM collected one round of samples from two wells installed for the off-site remedial investigation (MW1S and MW1D), six wells installed off-site in May 2010 (MW11S, MW11D, MW12S, MW12D, MW13S, and MW13D), and one well installed by Nassau County (NC-12). Well sampling forms showing compliance with EPA low-flow sampling procedures (EPA SOP, 1998) are provided in Appendix A. A bladder pump was used for sampling. The pump intake was set at the midpoint of the screened interval. Dedicated Teflon-lined tubing was used for all groundwater sample collection. Field measurements recorded during purging include flow rate, depth to water, temperature, pH, conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP) and turbidity. The measurements were recorded on a well sampling form. Measurements were collected approximately every five minutes. A flow-through cell was used to measure the parameters. Purging was considered complete when the indicator parameters stabilized over three consecutive readings. If the groundwater parameters did not stabilize, the samples were collected after two hours of purging. Stabilization parameters are:

- depth to water: less than 0.3 ft drawdown during purging;
- pH: ± 0.1
- conductivity: ± 3%
- DO: ± 10 %
- ORP: ±10 mV and
- Turbidity: less than 50 nephelometric turbidity units (NTU).

During sample collection, the flow cell was disconnected and the sample tubing discharge was poured directly into the laboratory supplied sample containers and field vials. Water samples were collected in pre-preserved bottles provided by the laboratory, cooled to 4ºC after collection, and shipped to the subcontract laboratory for analysis of VOCs, dissolved iron (field filtered), sulfates, nitrates, carbon dioxide, and methane. All parameters other than VOCs are referred to as monitored natural attenuation (MNA) parameters. Analyses were performed by H2M Labs, Inc., Melville, New York, a NYSDOH Environmental Laboratory Approval Program (ELAP) certified lab (ELAP ID 10478).

A round of water table elevation data for the monitoring wells was collected on June 20, 2013, prior to groundwater sampling. A groundwater elevation reading was also collected from MW-02, located to the north of the wells along Old Country Road, to better define flow direction. All wells were sampled on June 20, 2013 except NC-12 which was sampled on June 28, 2013. The results are presented in Table 2. Groundwater elevations are shown on Figure 3 for the shallow wells and Figure 4 for the deep wells. The groundwater flow direction appears to be to the southwest.

3.0 Laboratory Analytical Results

3.1 Groundwater Samples

3.1.1 VOC Data

Groundwater samples were collected from nine wells and submitted for the following analyses: VOCs (EPA SW-846 Method 8260), dissolved iron (EPA SW-846 Method 6010B), sulfates (EPA 300.0), nitrates (EPA 353.2), carbon dioxide (EPA SM4500CO2 D), dissolved oxygen (EPA 360.2), and methane (EPA RSK-175). The VOC groundwater results are compared to the NYS Class GA groundwater criteria and presented in Table 3. VOC detections are summarized on Figure 5. A summary of concentrations exceeding the NYS Class GA groundwater criteria are provided below:

- Tetrachloroethene (PCE) was detected in all wells except NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in four of the eight wells with concentrations ranging from 7 µg/L (MW13D) to 26 µg/L (MW1D);
- Trichloroethene (TCE) was detected in all wells except MW11S and NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (22 µg/L), MW13D (65 µg/L), and MW1D (110 µg/L);
- Cis-1,2-dichloroethene (cis-1,2-DCE) was detected in all wells except MW12S, MW12D, and NC-12. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (24 µg/L), MW13D (8 µg/L), and MW1D (7 µg/L). Trans-1,2-dichloroethene was not detected in any of the wells;
- 1,1-Dichloroethene (1,1-DCE) was detected in MW11D, MW12D, MW13S, MW13D, and MW1D. The concentration exceeds the NYS Class GA criterion of 5 µg/L in MW1D (28 µg/L);
- 1,1,1-Trichloroethane (1,1,1-TCA) was detected in five of the wells. The concentrations exceed the NYS Class GA criterion of 5 µg/L in MW13S (6 µg/L) and MW1D (9 µg/L); and,
- 1,1-Dichloroethane (1,1-DCA) was detected in three of the wells. The concentration exceeds the NYS Class GA criterion of 5 µg/L in MW13S (15 µg/L).

The VOC concentrations for parameters with exceedances of the NY Class GA criteria are presented over time in Figure 6. Groundwater samples collected from monitoring wells MW1S and MW1D in 2005 for the remedial investigation (ERM, 2005) are also included. The concentrations were compared as follows:

- Shallow well concentration differs from the deeper well concentration by more than 5 µg/L;
- The concentration differs from the previous year by more than 5 µg/L; and,
- The concentration in the well is greater than the NY Class GA criterion (5 µg/L for each parameter) or greater than twice the NY Class GA criterion.

A description of the data collected in 2013 compared to data collected in 2012 is provided below.

For wells MW11S and MW11D, the current PCE concentration in the deep well is more than 5 µg/L higher that in the shallow well. The PCE concentration in MW11D is greater than the NY Class GA criterion of 5 µg/L (14 µg/L). No other parameters have exceedances in these wells. The PCE concentration in MW11D increased in 2013 compared to the concentration in 2012. The 2013 VOC levels in these wells for compounds other than PCE are within 5 µg/L of the 2012 VOC levels.

For wells MW12S and MW12D, all current levels are below the NY Class GA criterion. The 2013 PCE concentration declined by more than 5 µg/L from the 2012 levels.

For wells MW13S and MW13D, the TCE concentration in the deep well is more than 5 µg/L higher than in the shallow well, and the TCE concentrations in both wells are greater than twice the NY Class GA criterion. The TCE concentration in the shallow well increased more than 5 µg/L over the 2012 level. The PCE, cis-1,2-DCE and 1,1-DCA concentrations in the shallow well are more than 5 µg/L higher than in the shallow well, are greater than twice the NY Class GA criteria, and have increased more than 5 µg/L over the 2012 levels. The concentrations in the deep well have not changed by more than 5 µg/L over the 2012 levels.

For wells MW1S and MW1D, the concentrations are lower in the shallow well than in the deeper well by more than 5 µg/L for PCE, TCE, and 1,1-DCE. Concentrations are greater than twice the NY Class GA criterion of 5 µg/L for PCE, TCE, and cis-1,2-DCE in MW1D. Concentrations are below the NY Class GA criterion of 5 µg/L in MW1S; and 1,1,1-TCA in MW1D. The concentration of cis-1,2-DCE declined between 2012 and 2013 in well MW1S by more than 5 µg/L. The 2013 VOC levels in these wells for the other compounds are within 5 µg/L of the 2012 VOC levels.

The groundwater concentrations generally appear to be stabilizing over time. With the exception of PCE in MW11D and the concentrations of PCE, TCE, cis-1,2-DCE, and 1,1-DCA in MW13S, VOC concentrations are within 5 µg/L of the 2012 levels or have declined by more than 5 µg/L. There were no detections in NC-12. This well may be located outside of the Utility Manufacturing plume. The VOC concentrations in MW1S and MW1D are stable, but the concentrations in MW12S and MW12D have declined over time. The VOC concentrations in MW13S and MW13D which are located farther to the west are still elevated and increasing in the shallow well. The concentrations in MW13S and MW13D may originate from another plume unrelated to the Utility Manufacturing contamination.

3.1.2 MNA Data

The results for laboratory MNA parameters are provided in Table 4. The final field measurements of temperature and dissolved oxygen are also listed. The data were evaluated to determine whether reductive dechlorination is occurring.

Biologically-mediated reductive dechlorination of chlorinated VOCs occurs through a series of progressive biochemical reactions where chloride atoms are replaced by hydrogen atoms.

PCE → TCE → DCE → vinyl chloride → ethene

1,1,1-TCA → 1,1-DCA → chloroethane → ethane

Naturally occurring bacteria create hydrogen under reducing conditions that replaces chlorine to sequentially dechlorinate the chlorinated ethenes. These biologically-mediated reactions occur favorably in anaerobic (negligible dissolved oxygen), reducing (oxidation reduction potential or ORP is less than -75 mV), and circumneutral (pH between 6.0 and 8.5) groundwater.

For microbial-mediated reactions, aerobic reactions are the most energetically favorable. As dissolved oxygen is consumed, microbes use electron acceptors in the order of reducing energy efficiencies (denitrification of nitrate, manganese reduction, ferric iron reduction, sulfate reduction, carbon dioxide in methanogenesis). Biotic reductive dechlorination typically occurs most favorably in the ORP range needed for sulfate reduction or methanogenesis (i.e., below -100 mV).

- pH: Water quality measurements indicate that the groundwater is slightly acidic (pH 4.24 to 6.14), and eight of the nine wells sampled have pH values less than pH 6.0. The low pH values observed are below the range indicated above and would limit biological natural attenuation processes.
- ORP and Dissolved Oxygen: Water quality measurements collected in real time during the field sampling indicate that the groundwater is aerobic (ORP 213 to 293 mV and dissolved oxygen between 3.29 and 8.27 mg/L) in seven out of nine wells. Biotic reductive dechlorination does not occur favorably under these observed aerobic conditions. The deep groundwater monitoring wells are slightly less aerobic, with the lower dissolved oxygen values recorded in the deeper intervals. Monitoring wells MW-1D and MW-11D had DO concentrations suggestive of an anaerobic environment at 1.1 mg/L and 0.68 mg/L.
- Nitrate was detected in all nine wells sampled (0.77 mg/L to 6.53 mg/L). Under the anaerobic conditions required for reductive dechlorination, nitrate would not be expected to be present due to conversion to ammonia through denitrification. Nitrate concentrations have been relatively stable from 2010 to 2013.
- Dissolved Iron: An increase in dissolved ferrous iron (Fe II) may indicate reducing conditions and the reduction of insoluble ferric iron (Fe III) by serving as an electron acceptor. Total dissolved iron was detected at very low concentrations (<1 mg/L) in all of the nine monitoring wells.
- Sulfate was detected in all nine wells sampled (9.94 mg/L to 134 mg/L). Under the anaerobic conditions required for reductive dechlorination, sulfate reducing bacteria would convert sulfate to sulfide. Sulfate concentrations have been relatively stable from 2010 to 2013.
- Methane is a byproduct of microbial degradation using carbon dioxide as an electron acceptor, and the presence of methane is an indicator of reducing conditions in groundwater. Methane was not detected in any of the nine monitoring wells sampling in June 2013.
- Carbon dioxide: An increase in carbon dioxide may provide an indication of microbial processes. Carbon dioxide was detected in all wells with concentrations ranging from 8,800 µg/L to 35,200 µg/L. However, aerobic conditions suggest that aerobic bacteria are generating this carbon dioxide.
- Daugher products are another indicator of reductive dechlorination processes, and increases in daughter products accompany decreases in parent VOCs as shown in the reactions above (i.e., increase in cis-1,2-DCE as TCE decreases). In addition, 1,1-DCA is an abiotic breakdown product of 1,1,1-TCA. Concentrations of TCE and 1,2-DCE were detected in five of the nine monitoring wells. Concentrations of 1,1-DCA were detected in three of the nine monitoring wells. There has been no indication of inverse trends in chlorinated VOC mass. Daughter products of both PCE and 1,1,1-TCA have been relatively stable over time. In addition, chloroethane and vinyl chloride were not detected.

The concentrations for 2010 through 2013 are shown over time for VOCs exceeding the NYS Class GA Groundwater Criteria in Figure 6 and for methane, carbon dioxide, sulfate, nitrate, dissolved oxygen in Figure 7. From the evaluation of MNA analyses and water quality parameters in this section, there is no evidence suggesting that biological reductive dechlorination is occurring in site groundwater for the majority of the monitoring wells. Monitoring well MW-11D is the only well that indicates a more favorable environment for microbial reductive dechlorination to occur based on biogeochemical parameters (DO, pH). However, increasing degradation of PCE in this well may be

inhibited due to a prevailing aerobic and acidic environment. The overall biogeochemical environment in all other wells tends to favor aerobic bacteria. Reductions in concentrations of VOCs are mostly likely the result of dilution and dispersion and to a lesser extent sorption and volatilization. For bioremediation of site VOCs to occur, the pH would need to be raised to circumneutral levels and groundwater would need to become more reducing.

4.0 Data Validation

Data validation was provided by Environmental Data Services, Inc. (EDS) of Williamsburg, Virginia, an independent chemist under subcontract to AECOM. Data usability summary reports (DUSRs) for each sample delivery group (SDG) are included in Appendix B.

Groundwater data from samples collected in June 2013 were reported by H2M Labs, Inc., Melville, New York as two SDGs, AECOM221 and AECOM223. A total of 16 analyses were validated, including two trip blank, two storage blanks, one MS/MSD pair, one field duplicate, and nine environmental samples.

AECOM221: There were no rejections of data. Overall, the data are acceptable for the intended purposes as qualified for the following deficiencies:

- Ten compounds (bromomethane, chloroethane, trichlorofluoromethane, acetone, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, 1,4-dichlorobenzene, 1,2-dibromo-3-chloropropane, and 1,2,4-trichlorobenzene) were qualified as estimated in all samples due to high continuing calibration percent difference values.

AECOM223: There were no rejections of data. Overall, the data are acceptable for the intended purposes as qualified for the following deficiencies:

- Thirteen compounds (bromomethane, chloroethane, trichlorofluoromethane, acetone, carbon disulfide, methyl acetate, 2-butanone, cyclohexane, methylcyclohexane, 2-hexanone, dibromochloromethane, 1,2-dibromo-3-chloropropane, and 1,2,4-trichlorobenzene) were qualified as estimated in all samples due to high continuing calibration percent difference values.

5.0 Conclusions and Recommendations

Groundwater sampling was performed at the Utility Manufacturing site in Westbury, NY with field work conducted in June 2013. A summary of the sampling effort is provided below:

- The groundwater flow direction is to the southwest.
- Groundwater VOC concentrations in samples from one or more monitoring wells exceed the NYS Class GA criteria for PCE, TCE, cis-1,2-DCE, 1,1,1-TCA, 1,1-DCA, and 1,1-DCE. The VOC concentrations in 2013 are either stable with concentrations that have changed less than 5 µg/L compared to 2012 or have declined by more than 5 µg/L since 2012, with the exception of PCE in MW11D and PCE, TCE, cis-1,2-DCE, and 1,1-DCA in MW13S.
- Review of the MNA and VOC data indicate that natural attenuation is occurring primarily through dilution and dispersion and to a lesser extent sorption and volatilization.
- NYSDEC may consider collecting one more sample from NC-12 in 2014. If there are no VOC detections or exceedances of the NYS Class GA criteria, this would confirm that the well is located outside of the plume and no further sampling would be necessary.
- Several monitoring wells have been consistently below the NYS Class GA groundwater criteria. NYSDEC may consider collecting another round of samples from MW-1S, MW11D, MW12S, MW12D, and MW1S in 2014. If VOC levels are below criteria, no further sampling of these wells would be necessary. MNA parameters do not need to be collected for these wells in this confirmation round, because the VOC levels are expected to be low or not detected.
- NYSDEC may consider no longer collecting samples for laboratory analysis of nitrate, carbon dioxide, methane, and dissolved oxygen. Nitrate and methane levels have been stable over time. Carbon dioxide is not likely to be an indicator of dechlorination given site conditions. Sulfate and iron are sufficient for the evaluation. In addition to measurement of dissolved oxygen in the field with a Horiba, a field instrument specifically for dissolved oxygen measurement is suggested to improve the quality of the reading.
- NYSDEC may consider reviewing reports from the individual sites in the NCIA to determine if the contamination in MW13S and MW13D originates from another site.

6.0 References

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Table 1
Well Construction Data

Well Number	Northing	Easting	Ground Elevation	Top of Casing Elevation	Total Depth of Well
MW-1D	214,707.10	1,106,646.90	120.18	119.77	130
MW-1S	214,708.46	1,106,651.34	120.28	119.82	90
MW-11D	214,701.44	1,106,744.20	119.77	119.51	124
MW-11S	214,706.18	1,106,741.07	119.96	119.66	95
MW-12D	214,675.55	1,106,597.69	118.56	118.26	125
MW-12S	214,670.11	1,106,598.27	118.51	117.88	95
MW-13D	214,630.74	1,106,353.23	116.82	116.41	126
MW-13S	214,625.69	1,106,354.25	116.66	116.32	96
MW-02	215,480.78	1,106,935.05	123.48	122.49	58
NC-12	214,665.28	1,107,007.09	121.9	121.1	54

Notes:
All elevations and depths are in feet.
Vertical datum: NAVD88
Horizontal datum: NY State Plane NAD83

Table 2
Groundwater Elevations

Well Number	Top of Inner Casing	Depth To Water 5/12/10	Groundwater Elevation 5/12/10	Depth To Water 8/9/11	Groundwater Elevation 8/9/11	Depth To Water 4/24/12	Groundwater Elevation 4/24/12	Depth To Water 6/20/13	Groundwater Elevation 6/20/13
MW-1D	119.77	42.4	77.37	45.59	74.18	43.84	75.93	44.06	75.71
MW-1S	119.82	41.85	77.97	45.58	74.24	43.82	76.00	44.05	75.77
MW-11D	119.51	42.74	76.77	46.65	72.86	44.7	74.81	44.95	74.56
MW-11S	119.66	42.76	76.90	46.5	73.16	44.66	75.00	45.01	74.65
MW-12D	118.26	41.47	76.79	45.25	73.01	43.52	74.74	43.76	74.50
MW-12S	117.88	41.08	76.80	44.82	73.06	43.12	74.76	43.38	74.50
MW-13D	116.41	39.74	76.67	43.5	72.91	41.81	74.6	42.1	74.31
MW-13S	116.32	39.68	76.64	43.4	72.92	41.73	74.59	42.05	74.27
MW-02	122.49	NM	NM	NM	NM	NM	NM	46.28	76.21
NC-12	121.1	NM	NM	NM	NM	NM	NM	45.25	75.85

Notes:
All elevations and depths are in feet.
Vertical datum: NAVD88
NM - No measurement

Table 3
VOCs in Groundwater

	NYS	MW11S				(dup)	MW11D			(dup)	MW11D	MW12S	(dup)
Units: µg/L	Class GA	5/12/2010	10/3/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	10/3/2011	4/24/2012	4/24/2012	6/20/2013	5/11/2010	5/11/2010
1,1,1-Trichloroethane	5	1 U	**0.78** J	1 UJ	5 U	5 U	**1.8**	**2.1**	**0.82** J	**1**	**1** J	1 U	1 U
1,1,2,2-Tetrachloroethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,1,2-Trichlorotrifluoroethane	5	1 U	1 U	1 U	NA	NA	1 U	1 U	1 U	1 U	NA	1 U	1 U
1,1-Dichloroethane	5	1 U	1 U	1 U	5 U	5 U	**2.5**	**3**	**1.6**	**2**	**2** J	1 U	1 U
1,1-Dichloroethene	5	1 U	1 U	1 U	5 U	5 U	**4**	**5.2**	**2**	**2.5**	**3** J	1 U	1 U
1,2,4-Trichlorobenzene	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 UJ	5 UJ	1 U	1 U
1,2-Dibromo-3-chloropropane	0.04	1 U	1 UJ	1 U	5 UJ	5 UJ	1 U	1 UJ	1 U	1 U	5 UJ	1 UJ	1 U
1,2-Dibromoethane (EDB)	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichlorobenzene	3	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichloroethane	0.6	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,2-Dichloroethene, Total	5	2 U	1 U	NA	**3**	**3**	**1.2** J	**1.9**	NA	NA	**1**	**15**	**15**
1,2-Dichloropropane	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,3-Dichlorobenzene	3	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
1,4-Dichlorobenzene	3	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U
2-Butanone (MEK)	5	5 U	R	5 U	5 UJ	5 UJ	5 UJ	R	5 U	5 R	5 UJ	5 U	5 U
2-Hexanone	5	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetone	5	5 U	R	R	5 UJ	5 UJ	**4.8** J	R	R	R	5 UJ	5 U	5 U
Benzene	1	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Bromodichloromethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Bromoform	5	1 U	1 UJ	1 U	5 U	5 U	1 UJ	1 UJ	1 U	1 U	5 U	1 U	1 U
Bromomethane	5	1 UJ	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 UJ
Carbon disulfide	60	1 U	1 UJ	1 U	5 U	5 U	1 U	1 UJ	1 U	1 U	5 U	1 U	1 U
Carbon Tetrachloride	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Chlorobenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Chlorodibromomethane	NA	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U
Chloroethane	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 U	1 U
Chloroform	7	1 U	1 UJ	1 U	5 U	5 U	1 U	1 UJ	1 U	1 U	5 U	1 U	1 U
Chloromethane	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
cis-1,2-Dichloroethene	5	1 U	1 U	1 U	**3** J	**3** J	**1.2**	**1.9**	**1.1**	**1.2**	**1** J	**15**	**15**
cis-1,3-Dichloropropene	0.4	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Cyclohexane	NA	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Dichlorodifluoromethane	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 UJ	1 U
Ethylbenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Isopropylbenzene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Methyl Acetate	NA	1 U	1 U	1 UJ	5 U	5 U	1 UJ	1 U	1 UJ	1 U	5 U	1 U	1 U
Methyl tert-Butyl Ether	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U

Table 3

VOCs in Groundwater

	NYS	MW11S				(dup)	MW11D			(dup)	MW11D	MW12S	(dup)
Units: µg/L	Class GA	5/12/2010	10/3/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	10/3/2011	4/24/2012	4/24/2012	6/20/2013	5/11/2010	5/11/2010
Methylcyclohexane	NA	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Methylene Chloride	5	1 U	1 U	1 UJ	5 U	5 U	1 U	1 U	1 UJ	1 U	5 U	1 U	1 U
Styrene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Tetrachloroethene (PCE)	5	**8.7**	**5.5** J	**4.7**	**4** J	**4** J	**8.1**	**17** J	**9**	**8**	**14**	**10**	**10**
Toluene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
trans-1,2-Dichloroethene	5	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
trans-1,3-Dichloropropene	0.4	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 UJ	1 U
Trichloroethene (TCE)	5	1 U	**0.71** J	1 UJ	**5** U	**5** U	3 U	**5.3**	**2.4** J	**2.6**	**4** J	**2.5**	**2.4**
Trichlorofluoromethane	5	1 U	1 U	1 U	5 UJ	5 UJ	1 U	1 U	1 U	1 U	5 UJ	1 UJ	1 U
Vinyl chloride	2	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Xylenes, total	5	2 U	2 U	2 U	5 U	5 U	2 U	2 U	2 U	2 U	5 U	2 U	2 U

U-Not detected
J-Estimated
R-Rejected
Detections are in bold text.
Exceedances are highlighted

Table 3
VOCs in Groundwater

	NYS	MW-12S			MW12D	MW12D			MW13S		MW13S (dup)	MW13S	
Units: µg/L	Class GA	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	8/9/2011	4/24/2012	6/20/2013
1,1,1-Trichloroethane	5	5 U	1 UJ	5 U	**8.8**	**0.91** J	**1.1** J	**2** J	1 U	**2.1** J	**1.8** J	**2.5** J	**6**
1,1,2,2-Tetrachloroethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,1,2-Trichloroethane	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	1 U	NA	**2.2**	5 U	1 U	NA	1 U	5 U	5 U	1 U	
1,1-Dichloroethane	5	5 U	1 U	5 U	**2.4**	5 U	1 U	5 U	1 U	**4.2** J	**3.6** J	**5.3**	**15**
1,1-Dichloroethene	5	5 U	1 U	5 U	**17**	**1.5** J	1 U	**4** J	1 U	**0.82** J	**0.74** J	1 U	**2** J
1,2,4-Trichlorobenzene	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
1,2-Dibromo-3-chloropropane	0.04	5 UJ	1 U	5 UJ	1 U	5 UJ	1 U	5 UJ	1 UJ	5 UJ	5 UJ	1 U	5 UJ
1,2-Dibromoethane (EDB)	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichlorobenzene	3	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichloroethane	0.6	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,2-Dichloroethene, Total	5	**2.2** J	NA	5 U	**1.8** J	5 U	NA	5 U	**0.74** J	**6.1**	**5.3**	NA	**24**
1,2-Dichloropropane	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,3-Dichlorobenzene	3	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
1,4-Dichlorobenzene	3	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
2-Butanone (MEK)	5	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U	5 UJ
2-Hexanone	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 UJ
Acetone	5	R	R	5 UJ	5 U	R	R	5 UJ	5 U	R	R	R	5 UJ
Benzene	1	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromodichloromethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromoform	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Bromomethane	5	5 U	1 U	5 UJ	1 UJ	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
Carbon disulfide	60	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Carbon Tetrachloride	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Chlorobenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Chlorodibromomethane	NA	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 UJ	5 U	5 U	1 U	5 U
Chloroethane	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 U	5 U	5 U	1 U	5 UJ
Chloroform	7	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Chloromethane	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
cis-1,2-Dichloroethene	5	**2.2** J	**1.7**	**5** U	**1.8**	5 U	1 U	**5** U	1 U	**6.1**	**5.3**	**7.9**	**24**
cis-1,3-Dichloropropene	0.4	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Cyclohexane	NA	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Dichlorodifluoromethane	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 UJ	5 U	5 U	1 UJ	5 U
Ethylbenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Isopropylbenzene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Methyl Acetate	NA	5 UJ	1 UJ	5 U	1 U	5 UJ	1 UJ	5 U	1 U	5 UJ	5 UJ	1 UJ	5 U
Methyl tert-Butyl Ether	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U

Table 3

VOCs in Groundwater

	NYS	MW-12S			MW12D	MW12D			MW13S		MW13S (dup)	MW13S	
Units: µg/L	Class GA	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	8/9/2011	4/24/2012	6/20/2013
Methylcyclohexane	NA	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Methylene Chloride	5	5 U	1 UJ	5 U	1 U	5 U	1 UJ	5 U	1 U	5 U	5 U	1 UJ	5 U
Styrene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Tetrachloroethene (PCE)	5	**18**	**21**	**5**	**7.1**	**1.8** J	**2.6**	**3** J	**1.2**	**3.5** J	**3.3** J	**5.5**	**14**
Toluene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
trans-1,2-Dichloroethene	5	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
trans-1,3-Dichloropropene	0.4	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 UJ	5 U	5 U	1 U	5 U
Trichloroethene (TCE)	5	**1.9** J	**3** J	**2** J	**25**	**1.4** J	**1.6** J	**3** J	**1.7**	**16**	**14**	**16** J	**22**
Trichlorofluoromethane	5	5 U	1 U	5 UJ	1 U	5 U	1 U	5 UJ	1 UJ	5 U	5 U	1 U	5 UJ
Vinyl chloride	2	5 U	1 U	5 U	1 U	5 U	1 U	5 U	1 U	5 U	5 U	1 U	5 U
Xylenes, total	5	5 U	2 U	5 U	2 U	5 U	2 U	5 U	2 U	5 U	5 U	2 U	5 U

Table 3
VOCs in Groundwater

	NYS	MW13D				MW1S					MW1D		
Units: µg/L	Class GA	5/11/2010	8/9/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011
1,1,1-Trichloroethane	5	**4.2**	**4.7** J	**3.1** J	**2** J	**3.6**	1 U	5 U	1 UJ	5 U	**17**	**15**	**3.7** J
1,1,2,2-Tetrachloroethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,1,2-Trichloroethane	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,1,2-Trichlorotrifluoroethane	5	**1.2**	5 U	1 U	NA	0.5 U	1 U	5 U	1 U	NA	**1.7**	**3.5**	5 U
1,1-Dichloroethane	5	**1.2**	**0.72** J	**0.63** J	5 U	**0.9**	1 U	5 U	1 U	5 U	**4**	**4.3**	**2.2** J
1,1-Dichloroethene	5	**7**	**5.6**	**3.8**	**5**	**1.4**	1 U	5 U	1 U	5 U	**22**	**30**	**4.3** J
1,2,4-Trichlorobenzene	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
1,2-Dibromo-3-chloropropane	0.04	1 UJ	5 UJ	1 U	5 UJ	0.5 U	1 U	5 UJ	1 U	5 UJ	0.5 U	1 U	5 UJ
1,2-Dibromoethane (EDB)	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichlorobenzene	3	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichloroethane	0.6	**0.58** J	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,2-Dichloroethene, Total	5	**17**	**8.5**	NA	**8**	NA	**18**	**20**	NA	**4**	NA	**4.4**	**5.7**
1,2-Dichloropropane	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,3-Dichlorobenzene	3	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
1,4-Dichlorobenzene	3	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
2-Butanone (MEK)	5	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ
2-Hexanone	5	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	5	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U
Acetone	5	5 U	R	R	5 UJ	5 U	**5** J	R	R	5 UJ	5 U	5 U	R
Benzene	1	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromodichloromethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromoform	5	1 U	5 U	1 U	5 U	0.5 U	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U
Bromomethane	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 UJ	5 U
Carbon disulfide	60	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Carbon Tetrachloride	5	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Chlorobenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chlorodibromomethane	NA	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chloroethane	5	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
Chloroform	7	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Chloromethane	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
cis-1,2-Dichloroethene	5	**17**	**8.5**	**6.1**	**8**	**84**	**18**	**20**	**12**	**4** J	**4.4**	**4.4**	**5.7**
cis-1,3-Dichloropropene	0.4	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Cyclohexane	NA	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Dichlorodifluoromethane	5	1 UJ	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Ethylbenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Isopropylbenzene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Methyl Acetate	NA	1 U	5 UJ	1 UJ	5 U	0.5 U	1 UJ	5 UJ	1 UJ	5 U	0.5 U	1 U	5 UJ
Methyl tert-Butyl Ether	5	1 U	5 U	1 U	5 U	**0.97**	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U

Table 3

VOCs in Groundwater

	NYS	MW13D				MW1S					MW1D		
Units: µg/L	Class GA	5/11/2010	8/9/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011	4/24/2012	6/20/2013	4/5/2005	5/12/2010	8/10/2011
Methylcyclohexane	NA	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Methylene Chloride	5	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U	1 UJ	5 U	0.5 U	1 U	5 U
Styrene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Tetrachloroethene (PCE)	5	**9.4**	**5.5**	**5.2**	**7**	**220**	**8.9**	**4.4** J	**5.5**	**4** J	**8.6**	**18**	**6.6**
Toluene	5	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
trans-1,2-Dichloroethene	5	1 U	5 U	1 U	5 U	**0.76**	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
trans-1,3-Dichloropropene	0.4	1 UJ	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Trichloroethene (TCE)	5	**200**	**88**	**60** J	**65**	**33**	3.1 U	**2.2** J	**1.8** J	**2** J	**54**	**74**	**65**
Trichlorofluoromethane	5	1 UJ	5 U	1 U	5 UJ	0.5 U	1 U	5 U	1 U	5 UJ	0.5 U	1 U	5 U
Vinyl chloride	2	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U	1 U	5 U	0.5 U	1 U	5 U
Xylenes, total	5	2 U	5 U	2 U	5 U	0.5 U	2 U	5 U	2 U	5 U	0.5 U	2 U	5 U

Table 3
VOCs in Groundwater

Units: µg/L	NYS Class GA	MW1D 4/24/2012	MW1D 6/20/2013	NC-12 6/20/2013
1,1,1-Trichloroethane	5	**9.9** J	**9**	5 U
1,1,2,2-Tetrachloroethane	5	1 U	5 U	5 U
1,1,2-Trichloroethane	1	1 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	1 U	NA	NA
1,1-Dichloroethane	5	**2.8**	**3** J	5 U
1,1-Dichloroethene	5	**24**	**28**	5 U
1,2,4-Trichlorobenzene	5	1 U	5 UJ	5 UJ
1,2-Dibromo-3-chloropropane	0.04	1 U	5 UJ	5 UJ
1,2-Dibromoethane (EDB)	5	1 U	5 U	5 U
1,2-Dichlorobenzene	3	1 U	5 U	5 U
1,2-Dichloroethane	0.6	1 U	5 U	5 U
1,2-Dichloroethene, Total	5	NA	**7**	5 U
1,2-Dichloropropane	1	1 U	5 U	5 U
1,3-Dichlorobenzene	3	1 U	5 U	5 U
1,4-Dichlorobenzene	3	1 U	5 UJ	5 U
2-Butanone (MEK)	5	5 U	5 UJ	5 UJ
2-Hexanone	5	5 U	5 UJ	5 UJ
4-Methyl-2-pentanone (MIBK)	5	5 U	5 UJ	5 U
Acetone	5	R	5 UJ	5 UJ
Benzene	1	1 U	5 U	5 U
Bromodichloromethane	5	1 U	5 U	5 U
Bromoform	5	1 U	5 U	5 U
Bromomethane	5	1 U	5 UJ	5 UJ
Carbon disulfide	60	1 U	5 U	5 UJ
Carbon Tetrachloride	5	1 UJ	5 U	5 U
Chlorobenzene	5	1 U	5 U	5 U
Chlorodibromomethane	NA	1 U	5 U	5 UJ
Chloroethane	5	1 U	5 UJ	5 UJ
Chloroform	7	1 U	5 U	5 U
Chloromethane	5	1 U	5 U	5 U
cis-1,2-Dichloroethene	5	**6.6**	**7**	5 U
cis-1,3-Dichloropropene	0.4	1 U	5 U	5 U
Cyclohexane	NA	1 UJ	5 U	5 UJ
Dichlorodifluoromethane	5	1 UJ	5 U	5 U
Ethylbenzene	5	1 U	5 U	5 U
Isopropylbenzene	5	1 U	5 U	5 U
Methyl Acetate	NA	1 UJ	5 U	5 UJ
Methyl tert-Butyl Ether	5	1 U	5 U	5 U

Table 3
VOCs in Groundwater

	NYS	MW1D		NC-12
Units: µg/L	Class GA	4/24/2012	6/20/2013	6/20/2013
Methylcyclohexane	NA	1 U	5 U	5 UJ
Methylene Chloride	5	1 UJ	5 U	5 U
Styrene	5	1 U	5 U	5 U
Tetrachloroethene (PCE)	5	**24**	**26**	5 U
Toluene	5	1 U	5 U	5 U
trans-1,2-Dichloroethene	5	1 U	5 U	5 U
trans-1,3-Dichloropropene	0.4	1 U	5 U	5 U
Trichloroethene (TCE)	5	**110** J	**110**	5 U
Trichlorofluoromethane	5	1 U	5 UJ	5 UJ
Vinyl chloride	2	1 U	5 U	5 U
Xylenes, total	5	2 U	5 U	5 U

Table 4

MNA Parameters in Groundwater

ANALYTE	UNITS	NY Class GA	MW11S 5/12/2010	MW11S 10/3/2011	MW11S 4/24/2012	MW11S 6/20/2013	MW11D 5/12/2010	MW11D 10/3/2011	MW11D 4/24/2012	MW11D 6/20/2013	MW12S (dup) 5/11/2010	MW12S 5/11/2010	MW12S 8/9/2011	MW12S 4/24/2012	MW12S 6/20/2013
Methane	µg/L	NA	1 U	**1.9**	**1.8**	**1** U	**0.63** J	**1.7**	**13**	**1** U	1 U	1 U	**0.61**	**1.8**	**1** U
Carbon Dioxide	µg/L	NA	**5200**	**1750**	**2340**	**13200**	**1000**	**7350**	**10300**	**26400**	**3500**	**3400**	**6400**	**3530**	**8800**
Sulfate	mg/L	250	**16.1** B	**12**	**23.5**	**44.6**	**28.4** B	**17**	**15.6**	**16.2**	**28.9**	**29**	**37**	**47.6**	**39.2**
Nitrogen, Nitrate	mg/L-N	10	**1.42**	**1.3** B	**2.3** D	**2.31** D	**1.62**	**1.3** B	**1.2** D	**0.77**	**2.97**	**2.97**	**4** B	**3.77**	**2.68** D
Iron - Dissolved	mg/L	300	0.05 U	0.2 U	**0.05** B	**0.04** B	0.05 U	0.2 U	**0.23**	**0.35**	0.05 U	0.05 U	0.2 U	0.2 U	**0.04** B
Dissolved Oxygen															
Laboratory	mg/L	NA	**10.5**	**33.6**	**50.4**	**12.0**	**10.6**	**35.6**	**37.3**	**1.8**	**11.3**	**11.3**	**37.2**	**27.4**	**8.9**
Field	mg/L	NA	**9.7**	**13.4**	**14.0**	**6.7**	**3.8**	**3.1**	**2.8**	**0.7**	**10.1**	NA	**7.5**	**12.7**	**3.3**
Temperature															
Field	Celsius	NA	**14.4**	**17.9**	**11.7**	**22.2**	**13.3**	**19.0**	**15.9**	**18.9**	**15.8**	NA	**20.1**	**15.0**	**38.8**

U Not detected

J Concentrations are estimated.

D Dilution required due to high concentration of target analyte(s)

B Analyte was detected in the associated Method Blank

NA Not available

Detections are in bold text.

The field dissolved oxygen and temperature are the final readings collected during groundwater sampling.

Table 4

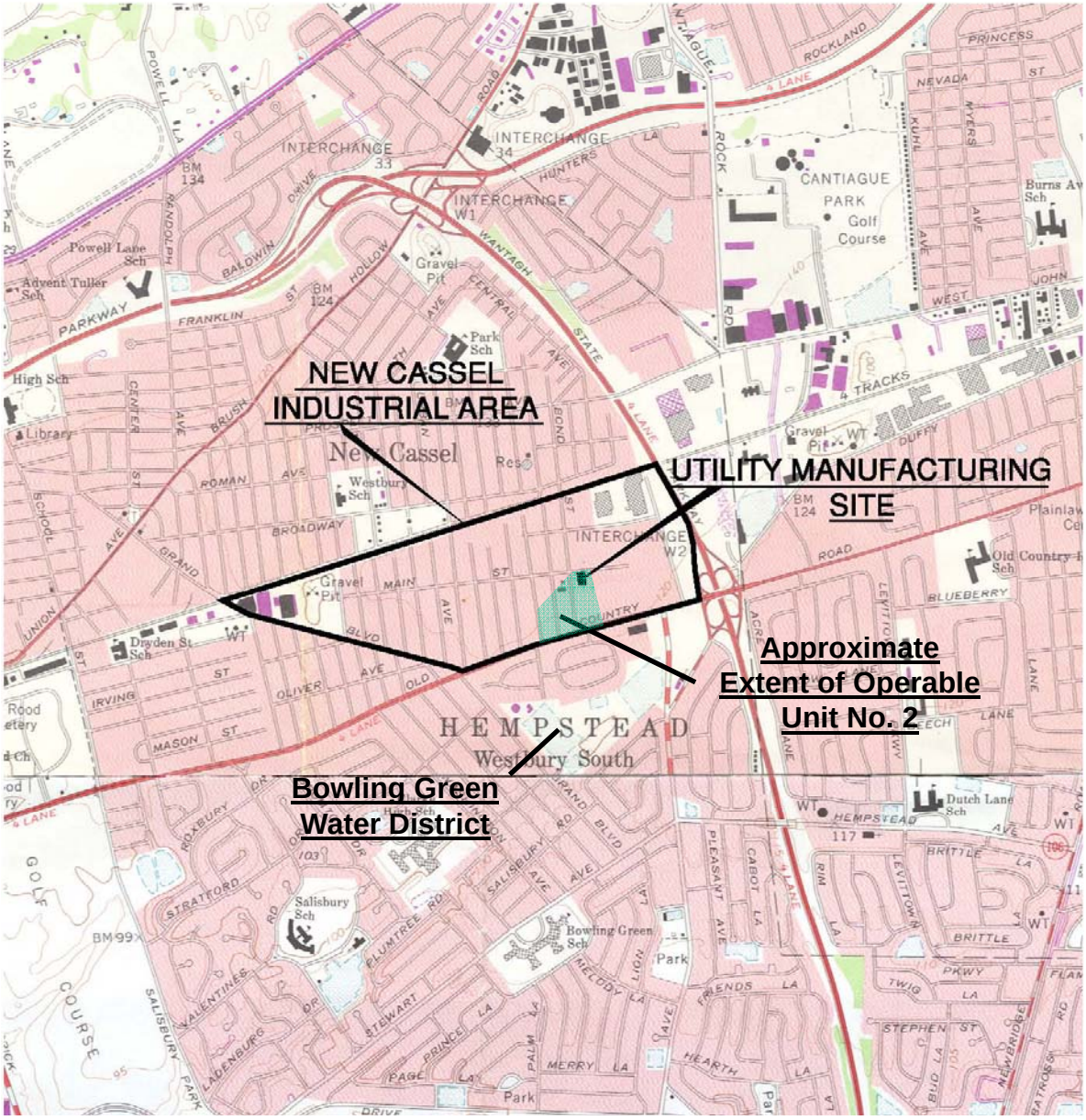
MNA Parameters in Groundwater

ANALYTE	UNITS	NY Class GA	MW12D				MW13S				MW13D				MW1S
			5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/11/2010	8/9/2011	4/24/2012	6/20/2013	5/12/2010
Methane	µg/L	NA	1 U	**0.63**	**1.6**	**1** U	1 U	**0.63**	**2.0**	**1** U	1 U	**0.67**	**1.7**	**1** U	1 U
Carbon Dioxide	µg/L	NA	**3500**	**2300**	**8150**	**13200**	**17000**	**11000**	**12900**	**17600**	**9000**	**13600**	**22400**	**30800**	**7700**
Sulfate	mg/L	250	**46.8**	**25**	**29.3**	**22.8**	**47.9**	**28**	**39.5**	**31.2**	**12.4**	**12**	**16.5**	**9.94**	**25.9** B
Nitrogen, Nitrate	mg/L-N	10	**3.38** D	**2.4** B	**2.59**	**2.57** D	**3.81** D	**4.4** B	**5.34**	**4.44** D	**6.39** D	**4.6** B	**5.7**	**6.53** D	**1.85**
Iron - Dissolved	mg/L	300	0.05 U	0.2 U	0.2 U	**0.09** B	0.05 U	0.2 U	0.2 U	**0.04** B	0.05 U	1.17 U	0.2 U	**0.04** B	0.05 U
Dissolved Oxygen															
Laboratory	mg/L	NA	**9.9**	**47.4**	**35.0**	**9.9**	**12.2**	**16.9**	**18.4**	**9.3**	**9.3**	**16.0**	**52.3**	**5.5**	**6.6**
Field	mg/L	NA	**9.9**	**15.8**	**8.3**	**8.3**	**10.1**	**7.5**	**10.7**	**8.0**	**10.1**	**4.5**	**3.3**	**5.7**	**6.8**
Temperature															
Field	Celsius	NA	**17.2**	**18.7**	**10.5**	**18.1**	**16.7**	**19.4**	**11.3**	**17.8**	**18.3**	**18.3**	**15.7**	**18.9**	**15.8**

Table 4

MNA Parameters in Groundwater

ANALYTE	UNITS	NY Class GA	MW1S				MW1D				NC-12
			8/10/2011	4/24/2012	6/20/2013	6/20/2013	5/12/2010	8/10/2011	4/24/2012	6/20/2013	6/28/2013
Methane	µg/L	NA	**0.7**	**1.7**	**1** U	**1** U	1 U	**0.78**	**1.8**	**1** U	1 U
Carbon Dioxide	µg/L	NA	**10400**	**8790**	**26400**	**13200**	**15000**	**3860**	**13000**	**35200**	**26400**
Sulfate	mg/L	250	**13**	**18.6**	**25.4**	**44.4**	**24.4** B	**16**	**22.5**	**20**	**134** D
Nitrogen, Nitrate	mg/L-N	10	**2.2** B	**2.6** D	**2.39** D	**2.27** D	**2.8**	**2.5** B	**2.4** D	**1.67** D	**2.8** D
Iron - Dissolved	mg/L	300	0.2 U	**0.0463** B	**45.5** B	**0.06** B	**0.029** J	0.2 U	**0.036** B	**0.199**	**0.11**
Dissolved Oxygen											
Laboratory	mg/L	NA	**25.2**	**48.4**	**8.1**	**11.4**	**4.2**	**38.0**	**18.3**	**2.3**	**8.0**
Field	mg/L	NA	**12.2**	**10.4**	**7.0**	NA	**0.6**	**16.8**	**2.3**	**1.1**	**8.08**
Temperature											
Field	Celsius	NA	**17.9**	**15.9**	**19.3**	NA	**15.2**	**20.8**	**16.4**	**17.7**	**18.9**



From ERM (2005):
USGS Hicksville & Freeport NY Quadrangle, 1979

100 Red Schoolhouse Road, Suite B-1
Chestnut Ridge , NY 10977-6715

ENVIRONMENTAL CONSULTING ENGINEERS

AECOM	PROJECT: **SITE MANAGEMENT** **Utility Manufacturing/Wonder King, OU2** 700 – 712 Main Street, Westbury, New York	SITE LOCATION MAP Project No: 60269807 Figure No: 1 June 24, 2013

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 20 40 80
Feet

Legend

Monitoring Wells

Indoor Air Sample Structures

Groundwater Sampling Locations

Project No: 60269807

Figure No: 2

June 24, 2013

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 150 60
Feet

Legend

- Monitoring Wells
- Groundwater Contours
- Indoor Air Sample Structures

Groundwater elevations are in NAVD88.

Groundwater Elevations
Shallow Wells - June 2013

Project No: 60269807

Figure No: 3

June 24, 2013

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 15 30 60
Feet

Legend

Monitoring Wells

Indoor Air Sample Structures

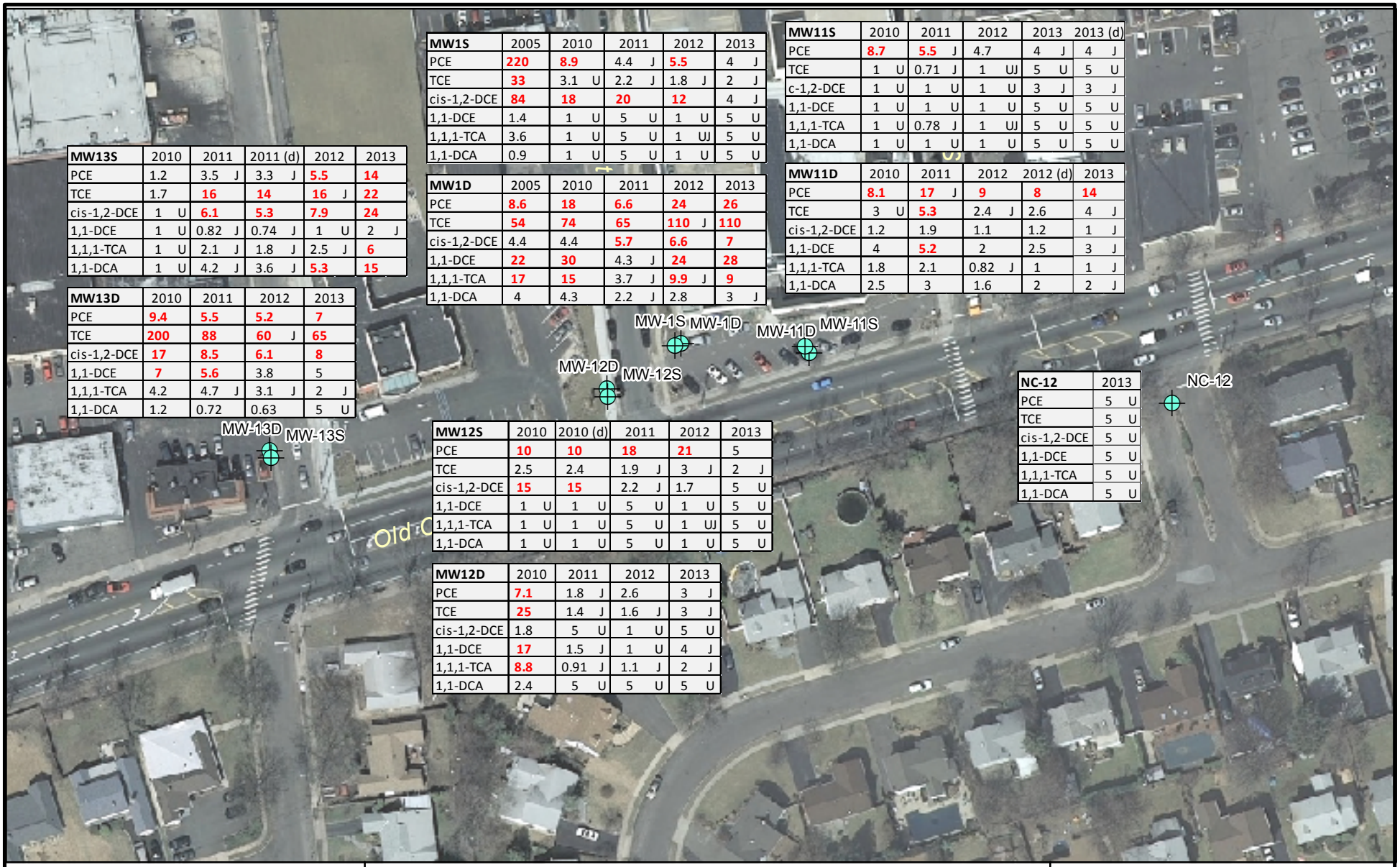
Groundwater elevations are in NAVD88.

Groundwater Elevations
Deep Wells - June 2013

Project No: 60269807

Figure No: 4

June 24, 2013



MW13S	2010	2011	2011 (d)	2012	2013
PCE	1.2	3.5 J	3.3 J	5.5	14
TCE	1.7	16	14	16 J	22
cis-1,2-DCE	1 U	6.1	5.3	7.9	24
1,1-DCE	1 U	0.82 J	0.74 J	1 U	2 J
1,1,1-TCA	1 U	2.1 J	1.8 J	2.5 J	6
1,1-DCA	1 U	4.2 J	3.6 J	5.3	15

MW13D	2010	2011	2012	2013
PCE	9.4	5.5	5.2	7
TCE	200	88	60 J	65
cis-1,2-DCE	17	8.5	6.1	8
1,1-DCE	7	5.6	3.8	5
1,1,1-TCA	4.2	4.7 J	3.1 J	2 J
1,1-DCA	1.2	0.72	0.63	5 U

MW1S	2005	2010	2011	2012	2013
PCE	220	8.9	4.4 J	5.5	4 J
TCE	33	3.1 U	2.2 J	1.8 J	2 J
cis-1,2-DCE	84	18	20	12	4 J
1,1-DCE	1.4	1 U	5 U	1 U	5 U
1,1,1-TCA	3.6	1 U	5 U	1 UJ	5 U
1,1-DCA	0.9	1 U	5 U	1 U	5 U

MW1D	2005	2010	2011	2012	2013
PCE	8.6	18	6.6	24	26
TCE	54	74	65	110 J	110
cis-1,2-DCE	4.4	4.4	5.7	6.6	7
1,1-DCE	22	30	4.3 J	24	28
1,1,1-TCA	17	15	3.7 J	9.9 J	9
1,1-DCA	4	4.3	2.2 J	2.8	3 J

MW11S	2010	2011	2012	2013	2013 (d)
PCE	8.7	5.5 J	4.7	4 J	4 J
TCE	1 U	0.71 J	1 UJ	5 U	5 U
c-1,2-DCE	1 U	1 U	1 U	3 J	3 J
1,1-DCE	1 U	1 U	1 U	5 U	5 U
1,1,1-TCA	1 U	0.78 J	1 UJ	5 U	5 U
1,1-DCA	1 U	1 U	1 U	5 U	5 U

MW11D	2010	2011	2012	2012 (d)	2013
PCE	8.1	17 J	9	8	14
TCE	3 U	5.3	2.4 J	2.6	4 J
cis-1,2-DCE	1.2	1.9	1.1	1.2	1 J
1,1-DCE	4	5.2	2	2.5	3 J
1,1,1-TCA	1.8	2.1	0.82 J	1	1 J
1,1-DCA	2.5	3	1.6	2	2 J

NC-12	2013
PCE	5 U
TCE	5 U
cis-1,2-DCE	5 U
1,1-DCE	5 U
1,1,1-TCA	5 U
1,1-DCA	5 U

MW12S	2010	2010 (d)	2011	2012	2013
PCE	10	10	18	21	5
TCE	2.5	2.4	1.9 J	3 J	2 J
cis-1,2-DCE	15	15	2.2 J	1.7	5 U
1,1-DCE	1 U	1 U	5 U	1 U	5 U
1,1,1-TCA	1 U	1 U	5 U	1 UJ	5 U
1,1-DCA	1 U	1 U	5 U	1 U	5 U

MW12D	2010	2011	2012	2013
PCE	7.1	1.8 J	2.6	3 J
TCE	25	1.4 J	1.6 J	3 J
cis-1,2-DCE	1.8	5 U	1 U	5 U
1,1-DCE	17	1.5 J	1 U	4 J
1,1,1-TCA	8.8	0.91 J	1.1 J	2 J
1,1-DCA	2.4	5 U	5 U	5 U

AECOM

Utility Manufacturing/Wonder King
700 – 712 Main Street
Westbury, New York

0 20 40 80
Feet

Legend

Monitoring Well

Concentrations exceeding the NYS Class GA criteria are in red.

The NYS Class GA criteria for all other parameters shown are 5 µg/L.

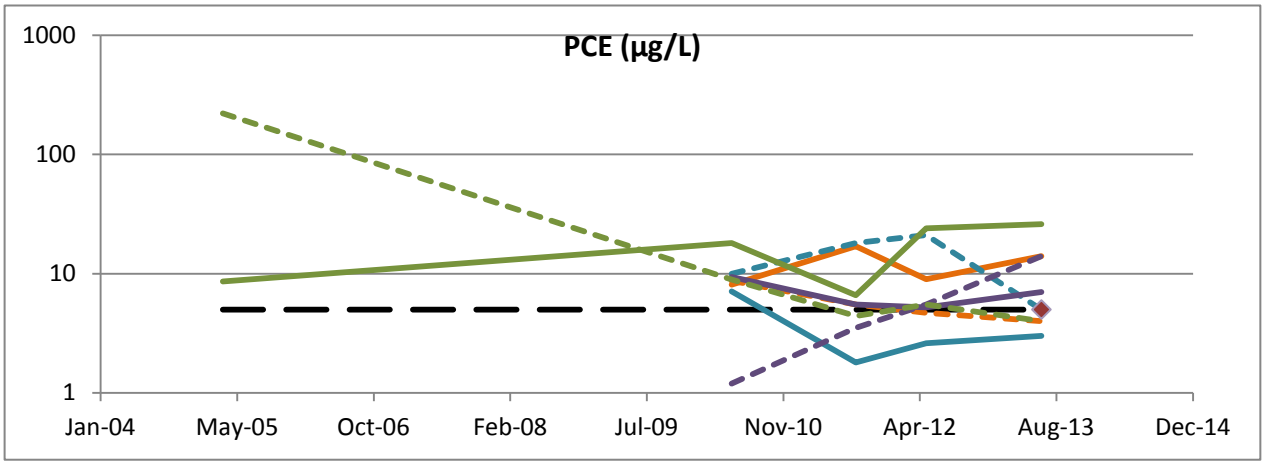
(d) Environmental duplicate sample

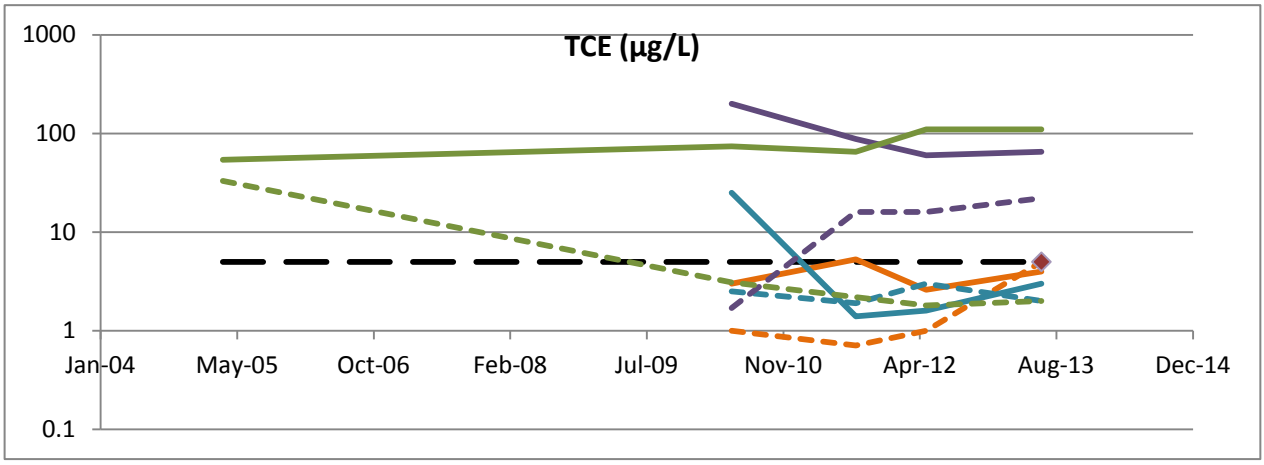
Groundwater Sampling Results

Project No: 60269807

Figure No: 5

September 27, 2013





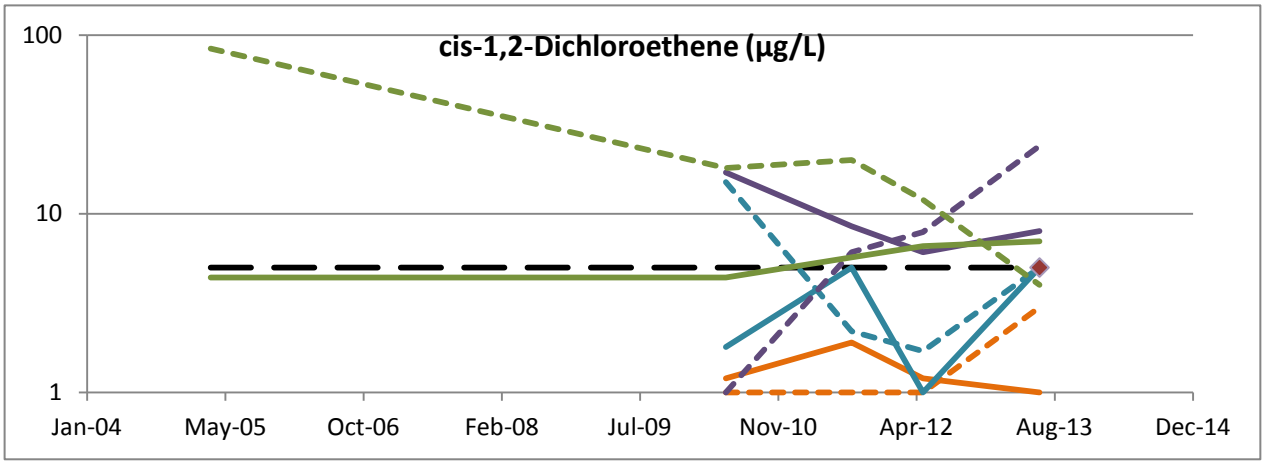
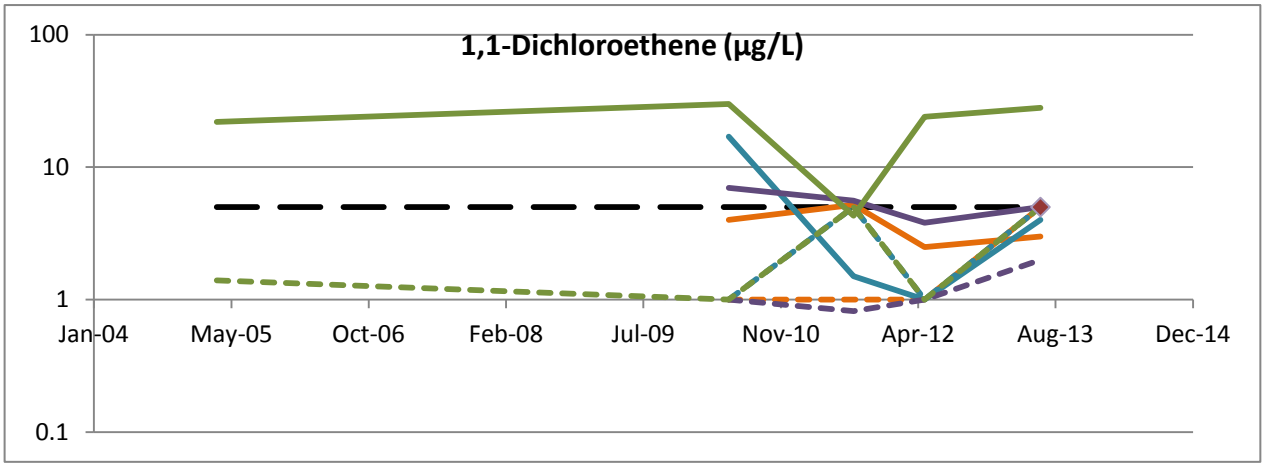


Figure 6

Groundwater VOC Concentrations over Time

Page 1 of 2



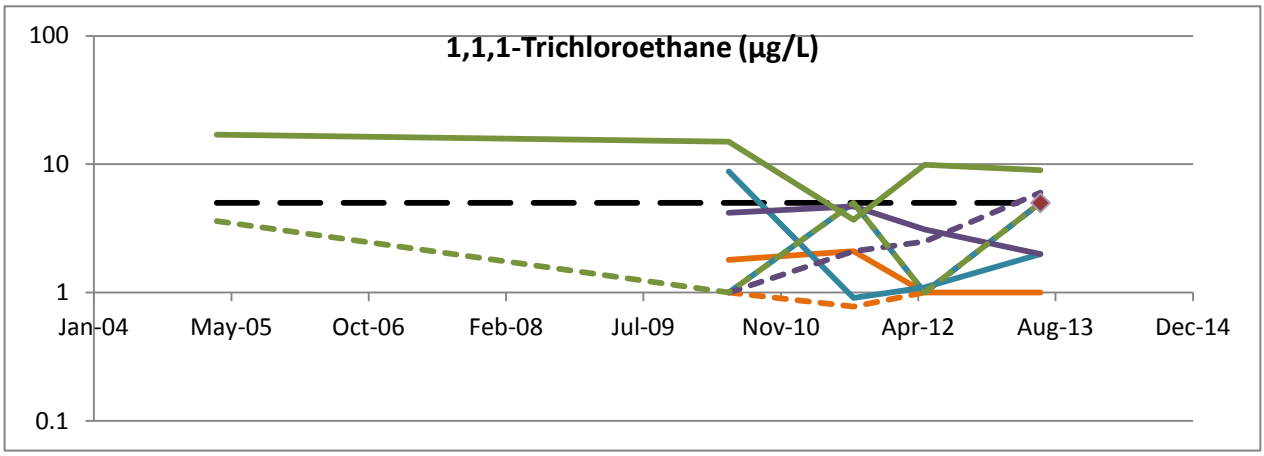
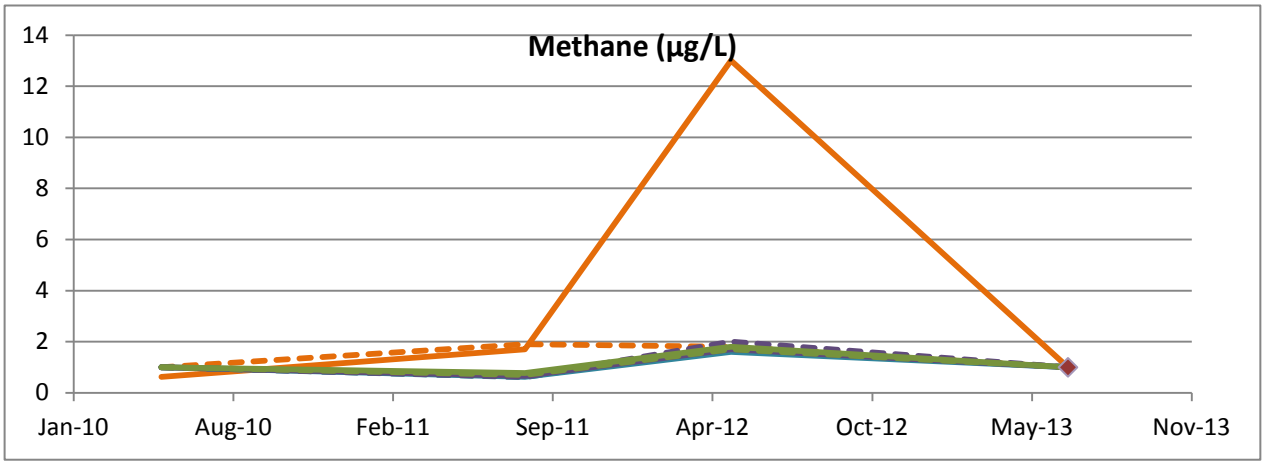
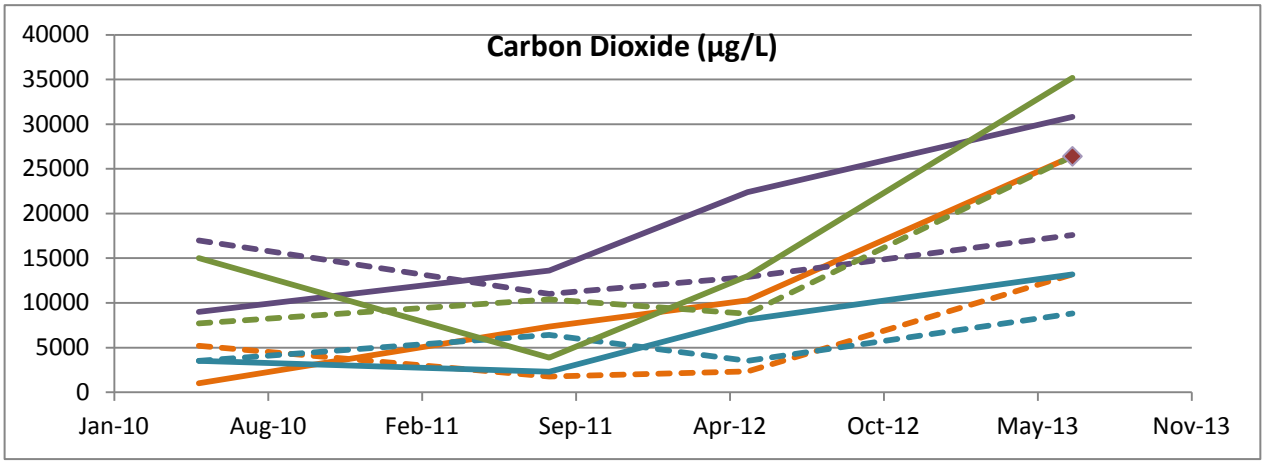


Figure 6

Groundwater VOC Concentrations over Time

Page 2 of 2





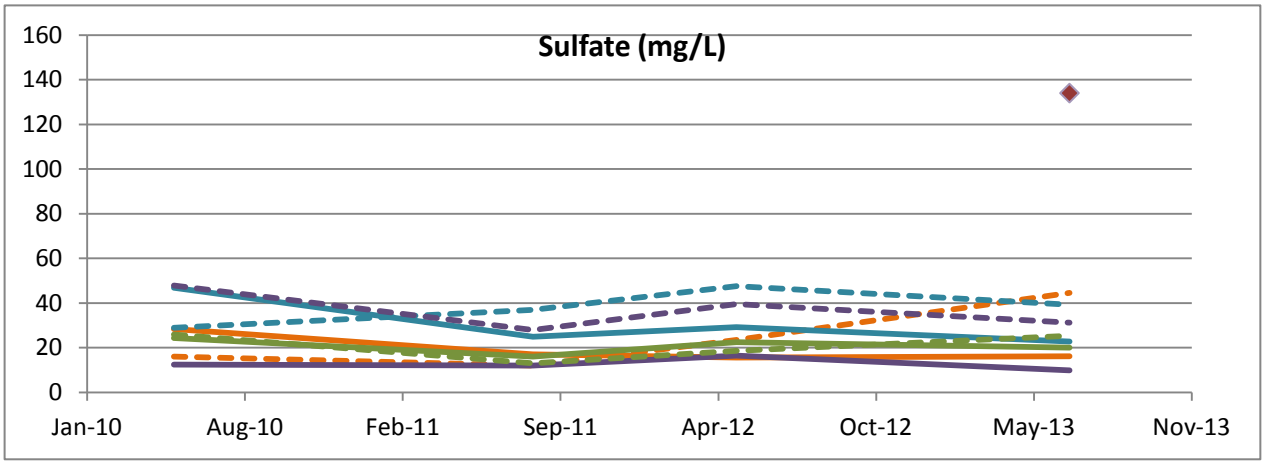
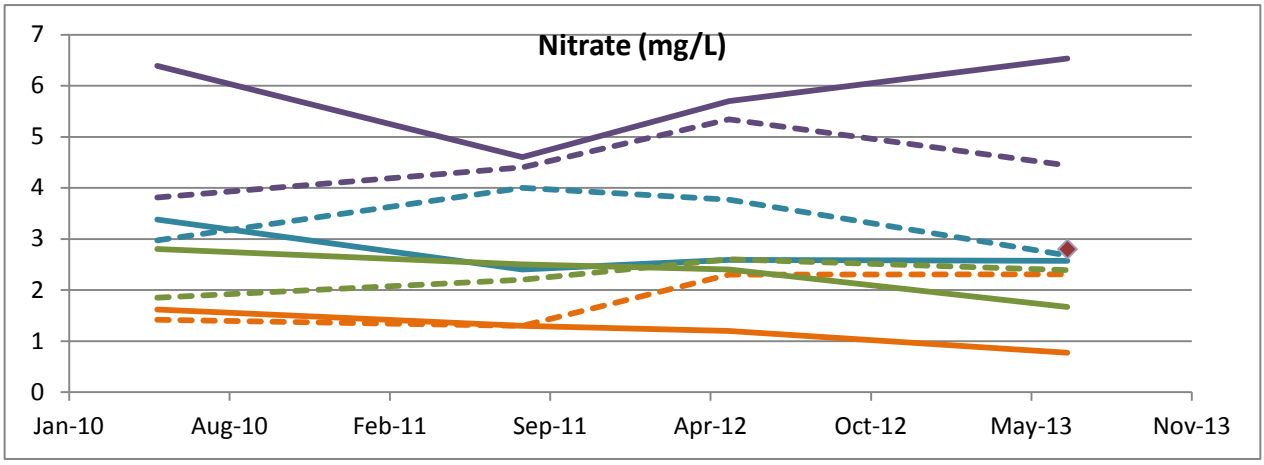


Figure 7

Groundwater MNA Parameter Concentrations over Time

Page 1 of 2



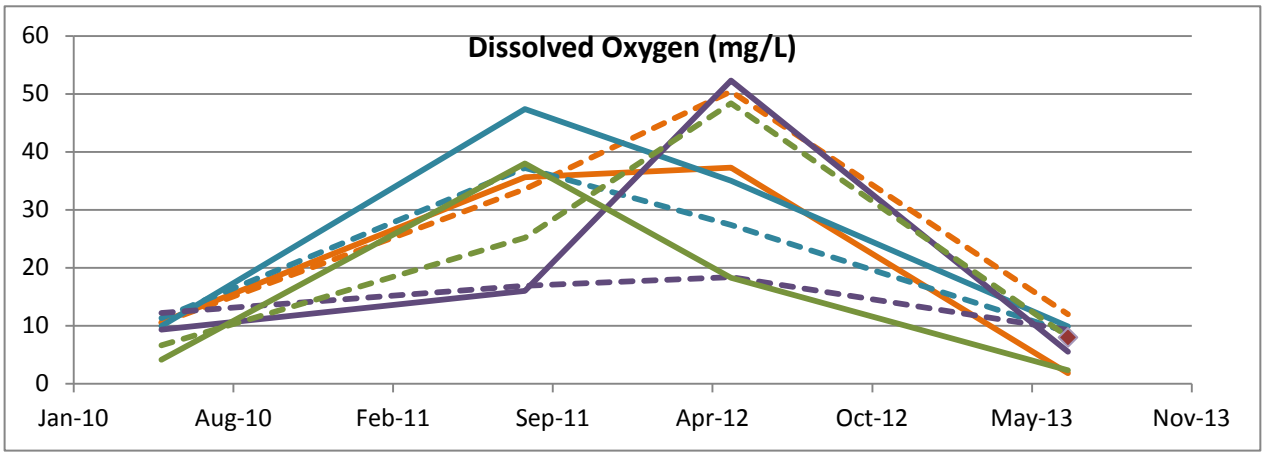


Figure 7

Groundwater MNA Parameter Concentrations over Time

Page 2 of 2

MW11D
MW11S
MW12D
MW12S
MW13D
MW13S
MW1D
MW1S
NC-12

APPENDIX A

Field Forms

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 15 **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: —
Riser Diameter: 2 in
Riser Material: PVC
Riser Appearance: Good
Stickup Material: PVC ~~Stainless steel~~ ~~Other~~ flush
~~Stickup Diameter:~~
Inspector:

CONDITION

Signs of Vandalism: No

~~Cannot Locate:~~

Locked / No Lock: (YES) ■ NO ■ Lock Replaced: YES ■ NO ■

Inner Cap: (YES) ■ NO ■ VENTED ■

Protective Casing Loose: No

Concrete Pad: CRACKED ■ MISSING ■ Fine

Soil Erosion: No

Ponded Water: No

Well Marked: METAL TAG ■ MARKER ■ OTHER ■ No

Cannot Identify:

Depth to water from TOC: See sample form

Depth to bottom from TOC:

Does well appear: SILTED UP ■ (HARD BOTTOM ■) OTHER ■

Obstruction in well: No

PID reading: 0.0

Active pump in well: YES ■ (NO ■) Type:

Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 1D **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: _____ **Stickup Material:** PVC Stainless steel Other
Riser Diameter: 2 **Stickup Diameter:** _____
Riser Material: PVC
Riser Appearance: Good **Inspector:**

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: N
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 11D **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: _____ **Stickup Material:** PVC Stainless steel Other
Riser Diameter: 2 **Stickup Diameter:** _____
Riser Material: PVC
Riser Appearance: Good **Inspector:**

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify: N

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: No
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 115 **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: —
Stickup Material: PVC Stainless steel Other
Riser Diameter: 2
Stickup Diameter:
Riser Material: PVC
Riser Appearance: Green
Inspector:

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ No
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: No
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 12S **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: —
Riser Diameter: 2
Riser Material: PVC
Riser Appearance: Good
Stickup Material: PVC Stainless steel Other
Stickup Diameter: _____
Inspector:

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: N
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 12D **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: ~
Stickup Material: PVC Stainless steel Other
Riser Diameter: 2"
Stickup Diameter:
Riser Material: PVC
Riser Appearance: good
Inspector:

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: NO
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: MW-13S **Date:** 6/20/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: — **Stickup Material:** PVC Stainless steel Other
Riser Diameter: 2 **Stickup Diameter:** _____
Riser Material: PVC
Riser Appearance: Good **Inspector:**

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: NO
PID reading: 0.0
Active pump in well: YES ■ NO ■ Type:
Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: 13D **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: —
Stickup Material: PVC Stainless steel Other
Riser Diameter: 2
Stickup Diameter:
Riser Material: PVC
Riser Appearance: Good
Inspector:

CONDITION

Signs of Vandalism: N
Cannot Locate: N
Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■
Inner Cap: YES ■ NO ■ VENTED ■
Protective Casing Loose: N
Concrete Pad: CRACKED ■ MISSING ■ N
Soil Erosion: N
Ponded Water: N
Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N
Cannot Identify:

Depth to water from TOC:
Depth to bottom from TOC:
Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■
Obstruction in well: No
PID reading: 0.0

Active pump in well: YES ■ NO ■ Type:

Comments:

Utility Manufacturing Site/Wonder King, New Cassel, NY
WA # D007626-16
NYSDEC Site: 130043H

Well Inspection Checklist

Well ID: NC-12 **Date:** 6/13/2013
Type: **Stickup** ■ **Flushmount** ■
Stickup Height: NA
As-Built Well Depth: —
Stickup Material: PVC Stainless steel Other
Riser Diameter: 1 1/2 in **Stickup Diameter:**
Riser Material: PVC
Riser Appearance: Good **Inspector:**

CONDITION

Signs of Vandalism: N

~~Cannot Locate:~~

Locked / No Lock: YES ■ NO ■ Lock Replaced: YES ■ NO ■

Inner Cap: YES ■ NO ■ VENTED ■

Protective Casing Loose: N

Concrete Pad: CRACKED ■ MISSING ■ Fine

Soil Erosion: N

Ponded Water: N

Well Marked: METAL TAG ■ MARKER ■ OTHER ■ N

Cannot Identify:

Depth to water from TOC: See sample form

Depth to bottom from TOC:

Does well appear: SILTED UP ■ HARD BOTTOM ■ OTHER ■

Obstruction in well: N

PID reading: 0.0

Active pump in well: YES ■ NO ■ Type:

Comments:

AECOM

WELL NO. MW-1D

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: NA			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	
925	44.06	--	--	--	--	--	--	--	Static water level
926	44.06	--	--	--	--	--	--	--	Pump on
950	44.10	--	--	--	--	--	--	--	
1000	44.08	--	--	--	--	--	--	--	
1025	44.09	--	--	--	--	--	--	--	Cleaned pump
1029	44.18	50	25.60	0.311	7.43	5.75	87	>800	
1035	44.16	50	25.50	0.299	6.86	5.63	108	>800	
1040	44.16	50	25.60	0.295	6.52	5.50	130	>800	
1045	44.18	50	25.50	0.296	6.33	5.43	142	>800	
1050	44.16	50	25.60	0.296	6.12	5.37	153	>800	
1055	--	--	--	--	--	--	--	--	Cleaned pump
1110	44.17	50	23.00	0.297	3.58	5.12	209	>800	
1127	44.22	175	18.8	0.294	2.68	4.91	249	>800	
1133	44.20	175	18.7	0.293	2.14	4.81	262	>800	Switched compressor
1143	44.30	250	20.6	0.297	2.16	4.75	267	>800	
1148	44.30	250	18.4	0.292	1.87	4.75	276	>800	
1156	44.31	250	18.2	0.29	1.56	4.72	282	525.0	
1201	44.30	250	18.1	0.283	1.47	4.70	286	412.0	
1205	44.30	250	178.0	0.281	1.38	4.71	286	377.0	
1212	44.30	250	18.0	0.3	1.29	4.70	289	259	
1217	44.30	250	18.1	0.279	1.22	4.73	287	238	
1223	44.30	250	18.0	0.279	1.25	4.74	290	189	
1228	44.30	250	17.8	0.277	1.15	4.72	290	184	
1233	44.30	250	17.7	0.273	1.10	4.72	291	114	
1235									Collected MW-1D_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-1S

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY	DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013	
CLIENT: NYSDEC	NAME OF INSPECTOR: Celeste Foster		
DRILLING COMPANY: NA			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	
903	44.05	--	--	--	--	--	--	--	Static water level
930	44.05	75	20.08	0.900	6.34	5.41	818	787	Pump on
945	44.04	100	20.77	0.900	6.36	5.33	242	600	
950	44.03	100	20.57	0.900	6.31	5.33	256	485	
955	44.04	150	19.35	0.900	6.34	5.19	270	393	
1000	44.05	150	19.04	0.940	6.25	5.24	271	359	
1010	44.04	150	19.00	0.950	6.14	5.22	277	316	
1015	44.05	150	18.97	0.970	6.12	5.26	281	323	
1020	44.04	150	18.84	0.990	6.63	5.22	280	145	
1025	44.05	150	19.01	0.972	6.61	5.31	281	147	
1030	44.05	150	19.05	0.970	6.54	5.29	280	169	
1040	44.06	150	19.11	0.973	6.52	5.29	279	133	
1045	44.06	150	19.13	0.977	6.64	5.29	280	131	
1050	44.06	150	19.15	0.977	6.52	5.28	279	91.6	
1055	44.06	150	19.22	0.975	6.35	5.28	279	70.4	
1100	44.06	150	19.24	0.973	6.30	5.28	280	86.4	
1105	44.06	150	19.25	0.984	6.26	5.27	280	61.0	
1110	44.06	150	19.30	0.979	6.59	5.25	280	60.1	
1115	44.06	150	19.26	0.978	6.80	5.26	280	51.9	
1120	44.06	150	19.35	0.977	6.84	5.24	280	64.6	
1125	44.06	150	19.26	0.977	6.99	5.26	281	85.9	
1130	44.06	150	19.32	0.978	7.06	5.25	282	70.6	
1140	44.06	150	19.34	0.969	6.99	5.20	281	99.7	
1145									Collected MW-1S_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-11D

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	
919	45.00	--	--	--	--	--	--	--	Static water level
920	--	--	--	--	--	--	--	--	Pump on
1010	45.20	100	20.91	0.255	2.56	6.01	209	-5.0	
1015	45.20	100	21.01	0.246	1.65	5.96	212	-5.0	
1020	45.20	100	21.30	0.245	1.55	5.95	212	-5.0	
1025	45.18	--	--	--	--	--	--	--	Switched compressor
1035	45.18	150	21.65	0.235	1.31	5.96	221	-5.0	
1040	45.18	150	20.20	0.244	1.08	5.99	220	-5.0	
1045	45.18	150	19.73	0.246	1.01	6.00	219	-5.0	
1050	45.18	150	19.49	0.250	0.84	6.02	216	-5.0	
1055	45.18	150	19.36	0.253	0.82	6.05	212	-5.0	
1100	45.18	150	19.01	0.253	0.80	6.05	210	-5.0	
1105	45.18	150	18.88	0.254	0.79	6.05	207	-5.0	
1110	45.18	150	18.77	0.254	0.75	6.05	204	-5.0	
1115	45.18	150	18.99	0.253	0.73	6.04	204	-5.0	
1120	45.18	150	19.08	0.252	0.72	6.04	204	-5.0	
1125	45.18	150	18.93	0.250	0.71	6.03	204	-5.0	
1130	45.18	150	18.79	0.249	0.71	6.02	205	-5.0	
1200	45.18	150	18.77	0.245	0.70	5.95	208	-5.0	
1205	45.18	150	18.79	0.243	0.70	5.95	210	-5.0	
1210	45.18	150	18.82	0.240	0.68	5.94	215	981	
1215	45.18	150	18.86	0.237	0.68	5.93	213	834	
1220	45.18	150	18.92	0.236	0.68	5.93	213	926	
1225									Collected MW-11D_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-11S

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS: Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	REMARKS
918	45.00	--	--	--	--	--	--	--	Static water level
920	--	--	--	--	--	--	--	--	Pump on
1010	45.00	250	18.07	0.457	9.3	4.49	263	290	
1015	45.00	250	18.61	0.457	9.23	4.48	264	252	
1020	45.00	250	45.57	0.286	3.11	4.68	265	318	Anomalous temperature reading
1035	45.00	250	20.27	0.447	8.79	4.49	267	301	
1040	45.00	250	28.75	0.365	5.96	4.57	268	200	
1045	45.00	250	26.78	0.381	6.56	4.53	270	417	
1050	45.00	--	--	--	--	--	--	--	Switched Horiba
1110	45.00	250	25.11	0.405	8.36	4.44	288	--	
1115	45.00	250	22.8	0.413	8.63	4.41	290	93.7	
1120	45.00	250	22.43	0.437	9.12	4.41	286	514	
1125	45.00	250	22.19	0.385	6.66	4.52	280	631	
1130									Collected MW-11S_201306
1140									Collected MW-61S_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-12D

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	
1420	43.85	--	--	--	--	--	--	--	Static water level
1420	43.85	300	--	--	--	--	--	--	Pump on
1425	43.95	250	--	--	--	--	--	--	
1430	43.90	250	--	--	--	--	--	--	
1445	43.95	200	19.7	0.410	7.48	6.59	186	>800	
1450	43.93	200	19.2	0.398	7.16	6.56	190	>800	
1455	43.94	200	18.7	0.388	6.86	4.48	197	>800	
1500	43.94	200	18.6	0.374	6.52	6.30	207	>800	
1505	43.94	200	18.7	0.366	6.39	6.20	211	>800	
1510	43.94	200	19.0	0.361	6.69	6.08	215	>800	
1515	43.94	200	18.7	0.360	7.58	6.03	218	>800	
1520	43.94	200	18.6	0.354	7.95	5.96	219	724	
1525	43.94	200	18.4	0.350	9.15	5.85	222	627	
1530	43.94	200	18.4	0.346	8.05	5.83	225	399	
1535	43.94	200	18.4	0.344	9.17	5.76	226	330	
1540	43.94	200	18.4	0.344	9.26	5.76	227	314	
1545	43.94	200	18.4	0.341	10.32	5.78	228	274	
1550	43.94	200	18.4	0.340	12.57	5.76	231	240	
1555	43.95	200	18.3	0.340	12.84	5.76	229	215	
1600	43.95	200	18.4	0.338	14.15	5.75	231	209	
1605	43.94	200	18.8	0.337	13.99	5.78	231	196	
1610	43.94	200	18.3	0.335	14.00	5.75	230	215	
1615	43.95	200	18.3	0.333	14.53	5.80	231	192	
1620	43.95	200	18.4	0.332	13.30	5.79	229	168	
1630	43.94	200	18.1	0.331	8.27	5.78	231	214	
1632									Collected MW-12D_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-12S

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS: Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	REMARKS
1420	43.37	--	--	--	--	--	--	--	Static water level
1420	43.37	150	--	--	--	--	--	--	Pump on
1430	43.37	150	21.04	0.347	9.93	3.95	308	>800	
1435	43.36	150	19.99	0.317	9.39	3.90	317	>800	
1440	43.36	150	20.36	0.313	8.90	3.92	316	>800	
1445	43.37	150	20.46	0.308	8.16	3.89	323	>800	
1450	43.36	150	29.28	0.258	5.48	3.97	324	735	
1455	43.36	150	29.77	0.256	5.64	3.98	323	580	
1500	43.36	150	29.30	0.260	6.00	3.98	323	452	
1505	43.36	150	24.49	0.280	6.64	3.95	323	359	
1510	43.36	150	24.52	0.270	6.48	3.97	323	339	
1515	43.36	150	27.14	0.247	5.84	4.00	323	308	
1520	43.36	150	25.75	0.266	6.88	3.97	322	275	
1525	43.36	150	25.32	0.271	6.59	3.99	321	274	
1530	43.36	150	30.00	0.226	4.88	4.07	321	252	
1535	43.36	150	34.54	0.218	4.26	4.09	321	247	
1540	43.36	150	29.17	0.240	5.17	4.05	321	237	
1545	43.36	150	32.30	0.232	4.71	4.08	321	241	
1550	43.36	150	33.22	0.225	5.40	4.10	321	250	
1555	43.36	150	35.17	0.218	4.15	4.12	321	256	
1600	43.36	150	35.19	0.214	4.27	4.13	322	271	
1605	43.36	150	33.10	0.2215	4.27	4.13	322	293	
1610	43.36	150	34.88	0.219	4.39	4.12	322	304	
1615	43.36	150	36.74	0.210	3.85	4.15	322	316	
1620	43.36	150	38.76	0.177	3.29	4.24	323	331	
1625									Collected MW-12S_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-13D

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS: Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	REMARKS
1300	42.37	--	--	--	--	--	--	--	Static water level
1305	42.39	250	--	--	--	--	--	--	Pump on
1315	42.39	250	21.41	0.328	9.80	6.33	8.0	-5.0	
1330	42.39	250	19.30	0.280	2.19	6.30	8.5	-5.0	
1345	42.39	250	19.66	0.271	0.69	6.39	8.5	-5.0	
1400	42.39	250	19.47	0.271	0.60	6.37	8.7	686	
1415	42.39	250	19.23	0.269	0.68	6.36	9.0	506	
1430	42.39	250	19.27	0.268	1.92	6.21	114	325	
1445	42.39	250	19.33	0.263	2.16	6.21	126	284	
1500	42.39	250	18.87	0.259	2.89	6.17	128	281	
1505	42.39	250	18.88	0.258	5.67	6.14	134	252	
1515									Collected MW-13DMS_201306
									Collected MW-13DMSD_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. MW-13S

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 20, 2013	DATE WELL COMPLETED: June 20, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: E.A.R./Clearwater Drilling, Inc.			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS: Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	REMARKS
1340	40.78	--	--	--	--	--	--	--	Static water level
1345	40.78	200	--	--	--	--	--	--	Pump on
1400	40.78	200	19.99	0.849	7.47	5.26	292	413	
1415	40.78	200	18.82	0.843	7.38	5.19	296	260	
1430	40.78	200	19.00	0.818	7.27	4.94	302	266	
1445	40.78	200	18.13	0.833	7.39	4.83	312	69.4	
1500	40.78	200	17.64	0.832	8.79	4.88	310	55.8	
1515	40.78	200	17.75	0.825	8.00	4.80	294	47.7	
1525	40.78	200	17.68	0.824	8.00	4.80	293	49.2	
1535	40.78	200	17.75	0.825	7.98	4.79	293	49.1	
1545									Collected MW-13S_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

AECOM

WELL NO. NC-12

WELL SAMPLING FORM	PROJECT: Utility Manufacturing/Wonder King Site	PROJECT No.: 60269807	SHEET: 1 OF 1 SHEETS
LOCATION: Westbury, NY		DATE WELL STARTED: June 28, 2013	DATE WELL COMPLETED: June 28, 2013
CLIENT: NYSDEC		NAME OF INSPECTOR: Celeste Foster	
DRILLING COMPANY: NA			

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	Conduct. (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turbidity (ntu)	
1130	45.33								Static water level
1141	45.38	225							Pump on
1150	45.38	225	20.04	3.01	19.03	5.64	372	97.2	
1155	45.38	225	19.73	3.00	8.96	5.64	332	83.2	
1200	45.36	225	19.53	3.01	8.57	5.65	325	67.4	
1210	45.38	225	19.16	3.03	8.14	5.66	308	29.5	
1215	45.35	225	19.19	3.03	8.16	5.66	304	22.2	
1220	45.35	225	18.87	3.07	8.08	5.67	300	17.2	
1225									Collected NC-12_201306

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, methane, carbon dioxide, dissolved oxygen, iron

APPENDIX B

Data Usability Summary Reports

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT
UTILITY MANUFACTURING, WESTBURY, NEW YORK

Client: AECOM Technical Services, Inc., Chestnut Ridge, New York
SDG: AECOM221
Laboratory: H2M Labs, Melville, New York
Site: Utility Manufacturing, Westbury, New York
Date: August 20, 2013

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MW-1D-201306	1306B92-001	Water
2	MW-1S-201306	1306B92-002	Water
3	MW-11D-201306	1306B92-003	Water
4	MW-11S-201306	1306B92-004	Water
5	MW-12D-201306	1306B92-005	Water
6	MW-12S-201306	1306B92-006	Water
7	MW-13D-201306	1306B92-007	Water
7MS	MW-13D-201306MS	1306B92-007MS	Water
7MSD	MW-13D-201306MSD	1306B92-007MSD	Water
8	MW-13S-201306	1306B92-008	Water
9	MW-61S-201306	1306B92-009	Water
10	TRIP BLANK	1306B92-010	Water
11	STORAGE BLANK	1306B92-011	Water

A Data Usability Summary Review was performed on the analytical data for nine water samples, one aqueous trip blank sample, and one aqueous storage blank sample collected on June 20, 2013 by AECOM at the Utility Manufacturing site in Westbury, New York. The samples were analyzed under Environmental Protection Agency (USEPA) *"Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions".*

Specific method references are as follows:

Analysis	*Method References*
VOCs	USEPA SW-846 Method 8260B

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods and the USEPA Region II Data Review Standard Operating Procedures (SOPs) as follows:

- SOP Number HW-24, Revision 2, August 2008: Validating Volatile Organic Compounds by SW-846 Method 8260B;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Data Completeness
- Holding times and sample preservation
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Duplicate (LCS/LCSD) recoveries
- Method blank and field blank contamination
- Gas Chromatography (GC)/Mass Spectroscopy (MS) tuning
- Initial and continuing calibration summaries
- Compound Quantitation
- Internal standard area and retention time summary forms
- Field Duplicate sample precision

Overall Usability Issues:

There were no rejections of data.

Overall the data is acceptable for the intended purposes as qualified for the following deficiencies.

- Ten compounds were qualified as estimated in all samples due to high continuing calibration %D values.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Data Completeness

- The data is a complete Category B data package as defined under the requirements for the NYS Department of Environmental Conservation Analytical Services Protocol.

Volatile Organic Compounds (VOCs)

Holding Times

- All samples were analyzed within 14 days for preserved water samples.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values except the following.

MS/MSD Sample ID	Compound	MS %R/MSD %R/RPD	Qualifier	Affected Samples
7	Trichloroethene	Ok/Ok/46	None	None for RPD Alone

Laboratory Control Samples

- The LCS samples exhibited acceptable %R values except the following.

LCS ID	Compound	%R	Qualifier	Affected Samples
LFB062713	Bromomethane	136%	None	All ND
	Acetone	195%		
	2-Butanone	198%		

Method Blank

- The method blanks were free of contamination.

Field Blank

- The following table lists field QC samples with contamination and the samples associated with the blanks that had results qualified as a consequence of the blank contamination. Detected sample concentrations of acetone, 2-butanone and methylene chloride (common laboratory contaminants) less than ten times (10x) the highest associated blank (after taking sample dilution levels, percent moisture and sample volume into account) are negated and qualified with a (U). For all other compounds, an action level of five times (5x) the highest associated blank concentration is used.

Blank ID	Compound	Conc. ug/L	Action Level ug/L	Qualifier	Affected Samples
TRIP BLANK	ND	-	-	-	-
STORAGE BLANK	ND	-	-	-	-

GC/MS Tuning

- All criteria were met.

Initial Calibration

- The initial calibrations exhibited acceptable %RSD and/or correlation coefficients and mean RRF values.

Continuing Calibration

- The following table presents compounds that exceeded 20 percent deviation (%D) and/or RRF values <0.05 in the continuing calibration (CCAL). A low RRF indicates poor instrument sensitivity for these compounds. Positive results for these compounds in the affected samples are considered estimated and qualified (J). Non-detect results for these compounds in the affected samples are rejected (R) and are unusable for project objectives. A high %D may indicate a potential high or low bias. All results for these compounds in affected samples are considered estimated and qualified (J/UJ).

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
06/27/13	Bromomethane	33.4%	J/UJ	All Samples
	Chloroethane	28.6%		
	Trichlorofluoromethane	32.3%		
	Acetone	77.7%		
	2-Butanone	75.0%		
	4-Methyl-2-pentanone	20.4%		
	2-Hexanone	81.2%		
	1,4-Dichlorobenzene	21.3%		
	1,2-Dibromo-3-chloropropane	30.6%		
	1,2,4-Trichlorobenzene	40.4%		

Compound Quantitation

- All criteria were met.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision is acceptable.

VOC				
Compound	MW-11S-201306 ug/L	MW-61S-201306 ug/L	RPD	Qualifier
1,2-Dichloroethene	3	3	0%	None
cis-1,2-Dichloroethene	3	3	0%	
Tetrachloroethene	4	4	0%	

Tentatively Identified Compounds (TICs)

- TICs were not reported.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Very truly yours,
Environmental Data Services, Inc.

Nancy Weaver 8/20/13

Nancy Weaver Date
Senior Chemist

Data Qualifiers

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

UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

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

R = The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1D - 201306 1

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79052.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	UJ
75-69-4	Trichlorofluoromethane	5	~~U~~	UJ
75-35-4	1,1-Dichloroethene	28		
67-64-1	Acetone	5	~~U~~	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	3	J	
540-59-0	1,2-Dichloroethene (total)	7		
156-59-2	cis-1,2-Dichloroethene	7		
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	9		
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	110		
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	~~U~~	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	26		
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V24

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1D-201306

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79052.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~	UJ

AECOM221 V25

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1S-201306 2

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79053.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	4		
156-59-2	cis-1,2-Dichloroethene	4	J	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	2	J	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	4	J	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V32

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1S-201306

2

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79053.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	↓

AECOM221 V33

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11D-201306

3

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79054.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	
75-69-4	Trichlorofluoromethane	5	~~U~~	
75-35-4	1,1-Dichloroethene	3	J	
67-64-1	Acetone	5	~~U~~	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	2	J	
540-59-0	1,2-Dichloroethene (total)	1		
156-59-2	cis-1,2-Dichloroethene	1	J	
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	1	J	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	4	J	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	~~U~~	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	14		
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V38

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11D-201306

3

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79054.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V39

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11S-201306

4

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79055.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	3		
156-59-2	cis-1,2-Dichloroethene	3	J	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	4	J	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V46

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11S-20130 6

4

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79055.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V47

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-12D - 201306

5

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79056.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	4	J	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	2	J	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	3	J	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	3	J	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V52

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-12D-201306 5

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79056.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V53

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-12S - 201306 6

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79057.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	2	J	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5		
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V58

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-12S - 201306

6

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-006A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79057.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V59

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13D-201306 F

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79058.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5		
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	8		
156-59-2	cis-1,2-Dichloroethene	8		
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	2	J	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	65		
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	7		
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V63

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13D-201306

7

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79058.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V64

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13S-201306

8

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79061.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	↓
75-69-4	Trichlorofluoromethane	5	~~U~~	↓
75-35-4	1,1-Dichloroethene	2	J	
67-64-1	Acetone	5	~~J~~	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	15		
540-59-0	1,2-Dichloroethene (total)	24		
156-59-2	cis-1,2-Dichloroethene	24		
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	6		
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	22		
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	~~U~~	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	14		
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V70

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-13S – 201306

8

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79061.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~	UJ

AECOM221 V71

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-61S - 201306

9

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79062.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	3		
156-59-2	cis-1,2-Dichloroethene	3	J	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	4	J	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V78

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-61S-201306

9

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-009A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79062.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~	UJ

AECOM221 V79

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

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10

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79051.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V88

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

10

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-010A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79051.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	U	UJ
120-82-1	1,2,4-Trichlorobenzene	5	U	UJ

AECOM221 V89

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STORAGE BLANK

11

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79050.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	U	UJ
75-00-3	Chloroethane	5	U	↓
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	U	UJ
75-15-0	Carbon disulfide	5	U	
79-20-9	Methyl Acetate	5	U	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	U	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	U	
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	UJ
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-Hexanone	5	U	UJ
124-48-1	Dibromochloromethane	5	U	

AECOM221 V84

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

STORAGE BLANK

11

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM221

Matrix: (soil/water) WATER Lab Sample ID: 1306B92-011A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79050.D

Level: (low/med) LOW Date Received: 06/20/13

% Moisture: not dec. Date Analyzed: 06/27/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	~~U~~	UJ
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~	UJ

AECOM221 V85

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT
UTILITY MANUFACTURING, WESTBURY, NEW YORK

Client: AECOM Technical Services, Inc., Chestnut Ridge, New York
SDG: AECOM223
Laboratory: H2M Labs, Melville, New York
Site: Utility Manufacturing, Westbury, New York
Date: August 20, 2013

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	NC-12-201306	1306G37-001	Water
2	TB-20130628	1306G37-002	Water
3	STORAGE BLANK	1306G37-003	Water

A Data Usability Summary Review was performed on the analytical data for one water sample, one aqueous trip blank sample, and one aqueous storage blank sample collected on June 28, 2013 by AECOM at the Utility Manufacturing site in Westbury, New York. The samples were analyzed under Environmental Protection Agency (USEPA) *"Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions"*.

Specific method references are as follows:

Analysis	*Method References*
VOCs	USEPA SW-846 Method 8260B

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods and the USEPA Region II Data Review Standard Operating Procedures (SOPs) as follows:

- SOP Number HW-24, Revision 2, August 2008: Validating Volatile Organic Compounds by SW-846 Method 8260B;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Data Completeness
- Holding times and sample preservation
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Duplicate (LCS/LCSD) recoveries
- Method blank and field blank contamination

- Gas Chromatography (GC)/Mass Spectroscopy (MS) tuning
- Initial and continuing calibration summaries
- Compound Quantitation
- Internal standard area and retention time summary forms
- Field Duplicate sample precision

Overall Usability Issues:

There were no rejections of data.

Overall the data is acceptable for the intended purposes as qualified for the following deficiencies.

- Thirteen compounds were qualified as estimated in all samples due to high continuing calibration %D values.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Data Completeness

- The data is a complete Category B data package as defined under the requirements for the NYS Department of Environmental Conservation Analytical Services Protocol.

Volatile Organic Compounds (VOCs)

Holding Times

- All samples were analyzed within 14 days for preserved water samples.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- A MS/MSD sample was not analyzed.

Laboratory Control Samples

- The LCS samples exhibited acceptable %R values except the following.

LCS ID	Compound	%R	Qualifier	Affected Samples
LFB070213	Bromomethane	127%	None	All ND

Method Blank

- The method blanks were free of contamination.

Field Blank

- The following table lists field QC samples with contamination and the samples associated with the blanks that had results qualified as a consequence of the blank contamination. Detected sample concentrations of acetone, 2-butanone and methylene chloride (common laboratory contaminants) less than ten times (10x) the highest associated blank (after taking sample dilution levels, percent moisture and sample volume into account) are negated and qualified with a (U). For all other compounds, an action level of five times (5x) the highest associated blank concentration is used.

Blank ID	Compound	Conc. ug/L	Action Level ug/L	Qualifier	Affected Samples
TB-20130628	Methylene Chloride	7	70	None	All ND
STORAGE BLANK	ND	-	-	-	-

GC/MS Tuning

- All criteria were met.

Initial Calibration

- The initial calibrations exhibited acceptable %RSD and/or correlation coefficients and mean RRF values.

Continuing Calibration

- The following table presents compounds that exceeded 20 percent deviation (%D) and/or RRF values <0.05 in the continuing calibration (CCAL). A low RRF indicates poor instrument sensitivity for these compounds. Positive results for these compounds in the affected samples are considered estimated and qualified (J). Non-detect results for these compounds in the affected samples are rejected (R) and are unusable for project objectives. A high %D may indicate a potential high or low bias. All results for these compounds in affected samples are considered estimated and qualified (J/UJ).

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
07/02/13	Bromomethane	51.6%	J/UJ	All Samples
	Chloroethane	33.4%		
	Trichlorofluoromethane	38.1%		
	Acetone	63.6%		
	Carbon Disulfide	25.5%		
	Methyl Acetate	22.8%		
	2-Butanone	54.1%		
	Cyclohexane	28.7%		
	Methylcyclohexane	26.5%		
	2-Hexanone	59.7%		
	Dibromochloromethane	20.7%		
	1,2-Dibromo-3-chloropropane	28.4%		
	1,2,4-Trichlorobenzene	50.6%		

Compound Quantitation

- All criteria were met.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Field Duplicate Sample Precision

- Field duplicate samples were not analyzed.

Tentatively Identified Compounds (TICs)

- TICs were not reported.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Very truly yours,
Environmental Data Services, Inc.

Nancy Weaver 8/20/13

Nancy Weaver Date
Senior Chemist

Data Qualifiers

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

UJ = The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.

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

R = The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NC-12 - 201306

1

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79099.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	UJ
75-69-4	Trichlorofluoromethane	5	~~U~~	UJ
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	~~U~~	UJ
75-15-0	Carbon disulfide	5	~~U~~	UJ
79-20-9	Methyl Acetate	5	~~U~~	UJ
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	~~U~~	UJ
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	~~U~~	UJ
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	~~U~~	UJ

AECOM223 V16

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

NC-12

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79099.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~ UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~ UJ

AECOM223 V17

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB - 20130628

2

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79098.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	↓
75-69-4	Trichlorofluoromethane	5	~~U~~	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	~~U~~	UJ
75-15-0	Carbon disulfide	5	~~U~~	↓
79-20-9	Methyl Acetate	5	~~U~~	
75-09-2	Methylene chloride	7		
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	~~U~~	UJ
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	~~U~~	UJ
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	~~U~~	UJ

AECOM223 V24

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

2

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79098.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
106-93-4	1,2-Dibromoethane	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
1330-20-7	Xylene (total)	5	U	
100-42-5	Styrene	5	U	
75-25-2	Bromoform	5	U	
98-82-8	Isopropylbenzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~	UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~	UJ

AECOM223 V25

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 3

STORAGE BLANK

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79097.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q	
75-71-8	Dichlorodifluoromethane	5	U	
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl chloride	5	U	
74-83-9	Bromomethane	5	~~U~~	UJ
75-00-3	Chloroethane	5	~~U~~	↓
75-69-4	Trichlorofluoromethane	5	~~U~~	
75-35-4	1,1-Dichloroethene	5	U	
67-64-1	Acetone	5	~~U~~	UJ
75-15-0	Carbon disulfide	5	~~U~~	↓
79-20-9	Methyl Acetate	5	~~U~~	
75-09-2	Methylene chloride	5	U	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-Butanone	5	~~U~~	UJ
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
110-82-7	Cyclohexane	5	~~U~~	UJ
56-23-5	Carbon tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
108-87-2	Methylcyclohexane	5	~~U~~	UJ
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	5	U	
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-Hexanone	5	~~U~~	UJ
124-48-1	Dibromochloromethane	5	~~U~~	UJ

AECOM223 V20

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 3

STORAGE BLANK

Lab Name: H2M LABS INC Contract: _____

Lab Code: H2M Case No.: AECOM-N SAS No.: _____ SDG No.: AECOM223

Matrix: (soil/water) WATER Lab Sample ID: 1306G37-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: A\A79097.D

Level: (low/med) LOW Date Received: 06/28/13

% Moisture: not dec. Date Analyzed: 07/02/13

GC Column: Rtx-624 ID: .18 (mm) Dilution Factor: 1.00

Soil Extract Volume: _____ (µL) Soil Aliquot Volume _____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	~~U~~ UJ
120-82-1	1,2,4-Trichlorobenzene	5	~~U~~ UJ

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