



July 17, 2014

Ms. Jamie Verrigni
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway – 11th Floor
Albany, New York 12233-7014

RE: Periodic Review Report
Orangeburg Shopping Center, Orangetown, NY
NYSDEC Site Number C344066

Dear Ms. Verrigni:

Enclosed is the *Periodic Review Report* for the above referenced site prepared by Groundwater & Environmental Services, Inc. (GES) on behalf of UB Orangeburg, LLC. The report summarizes work performed at the site from June 25, 2013 through June 27, 2014.

If you have any questions or comments regarding this submittal, please contact Christina Andreotto or Michael DeGloria of GES at (866) 839-5195 at extensions 3862 and 3839 respectively.

Sincerely,

Christina Andreotto
Staff Geologist

Michael DeGloria
Project Manager

- cc: Daniel Logue, UB Orangeburg, LLC
- Stephan Rapaglia, UB Orangeburg, LLC (e-copy)
- Maureen Schuck, New York State Department of Health
- James Candiloro, New York State Department of Environmental Conservation
- Hilton Soniker, Esq., JLJ Management
- Gerald H. Cresap, Jr., P.E., Groundwater & Environmental Services, Inc.

Attachment

PERIODIC REVIEW REPORT
July 2014

Orangeburg (Orangetown) Shopping Center
Rockland County, New York

NYSDEC Site Number: C344066

Prepared for:

UB Orangeburg, LLC
321 Railroad Avenue
Greenwich, Connecticut 06830

Prepared by:



Groundwater & Environmental Services, Inc.
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1.0 EXECUTIVE SUMMARY

This document is required as an element of the remedial program at the Orangeburg (Orangetown) Shopping Center, located in the Town of Orangetown (Orangeburg), County of Rockland, New York (hereinafter referred to as the “site”) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by the New York State Department of Environmental Conservation (NYSDEC). The site remediation activities have been conducted in accordance with the Brownfield Cleanup Agreement (BCA) Index #A3-0563-0906, site #C344066. JLJ Management Company (hereinafter referred to as the “JLJ”) entered into a BCA with the NYSDEC in January of 2007 to remediate a 1.33-acre portion of the approximately 11-acre property containing chlorinated solvent compounds above NYSDEC standards. The subject property was purchased from JLJ by UB Orangeburg, LLC in 2012. On March 28, 2012, the Certificate of Completion was officially transferred from JLJ to UB Orangeburg, LLC.

Overall, the remedial activities outlined in the Site Management Plan (SMP) have been successful. Groundwater concentrations of tetrachloroethene, trichloroethene, Cis-1,2-dichloroethene, Trans-1,2-dichloroethene, 1,1-Dichloroethene, and Vinyl Chloride (constituents of concern) in down gradient wells MW-15A and MW-10 have been reduced to below NYSDEC standards. Concentrations of constituents of concern in the source area have also been reduced, with the exception of vinyl chloride which has increased at several wells. Based on the observed decreases of tetrachloroethene, trichloroethene, Cis-1,2-dichloroethene, Trans-1,2-dichloroethene and 1,1-Dichloroethene and the observed increases of vinyl chloride and ethene, bio-augmented degradation of chlorinated solvent compounds is occurring. Based on data trends, the ability for the remedial program to achieve the remedial objectives for the site appears plausible.

No major non-compliance issues have been identified during the monitoring period.

GES, on behalf of UB Orangeburg, LLC, requests the following changes to the SMP monitoring plan:

- Elimination of the analyses for metals, pesticides, and semi-volatile organic compounds (SVOCs) at all well locations based on concentrations detected historically and currently below the NYSDEC groundwater quality standards (GWQS).
- Elimination of the full list volatile organic compound (VOC) analytical table from the Site Progress Reports; the constituents of concern will remain tabulated, however, based on the detections of all other VOCs at levels at or below the NYSDEC GWQS, the full VOC data table is not warranted.
- Additionally, based on observed decreases of the constituents of concern in the source area, modification of the bio-augmentation application to the MW-5 area (Refer to Section 7.2 for additional details).
- Lastly, GES requests that Site Progress Reports be submitted only during months when field activities have been completed.



2.0 SITE OVERVIEW

The approximate geographical coordinates for the Property are 41 degrees, 2 minutes, 41.6 seconds North (Latitude) by 73 degrees, 57 minutes, 10.4 seconds West (Longitude). The Property is comprised of one (1) parcel (Section, Lot & Block: 74.10-67-1) that covers an area of approximately 11 acres. Included are the following: a Site Location Map (**Figure 1**) for the general Property location, a Site Map (**Figure 2**) showing the current key site features at the subject Property, and a Bio-Augmentation System Well Location Map (**Figure 3**) showing the current locations of active injection and monitoring well points in the vicinity of building #2.

Contamination was first observed at the site after a broken sewer line leaving the former Sparkle Cleaners Dry Cleaners was identified. The first remedial activity consisted of source removal activities and the repair of the sewer line in January of 2009. After completion of the remedial work described in Construction Completion Report #1: Source Removal (CCR-1), some contamination was left in the subsurface at this site, which is hereafter referred to as “remaining contamination.” A Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement (EE) is extinguished in accordance with ECL Article 71, Title 36. Components of the selected remedy consist of a sub-surface depressurization system (SSDS) and a bio-augmented injection gallery.

- □ Because of the residual contaminated subsurface soil and contaminated groundwater, the SSDS was designed to mitigate potential vapor intrusion from residual chlorinated VOC contamination into the southern portion of building #2, which businesses include: former Sparkle Cleaners (currently vacant), former The Deli Spot (currently vacant), and New China House. The SSDS is configured to create a negative pressure (relative to the indoor environment) within the area beneath the concrete floor slabs of the businesses within the southern portion of building #2 thereby minimizing the potential for migration of contaminant vapor into the indoor air of the tenant spaces. The system was installed between February and May 2010, and it was activated in May 2010. The system as originally designed did not achieve the performance standard, and it was subsequently modified. Additional system performance testing was completed in June 2010 and a modified plan prepared and approved by NYSDEC in August 2010. Modifications were implemented between August and September 2010. The system was re-started with additional blowers in place on September 29, 2010, and verified operation with another performance (vacuum response) test. Late in 2010, it was observed that ongoing heating, venting, and air conditioning (HVAC) issues in the building potentially affected system performance. These issues were the result of foundation leaking and back draft issues associated with furnaces and other fans. These issues were resolved in early 2011. The system was re-inspected in March to verify resolution of the issues. In late April 2011, three vapor-monitoring points were replaced in the New China Restaurant and another system check performed. This test verified that the system achieved measured vacuum greater than 0.0025 in-wc across the slab in the three tenant spaces.
- □ Because of the presence of contaminated groundwater and residual soil contamination under building #2, a bioaugmentation treatment system was designed. This treatment promotes in situ microbial degradation of contaminants in saturated soil and groundwater. Addition of a bio-stimulant (molasses) to subsurface soil and groundwater act as an electron donor that stimulates metabolic reduction of chlorinated



VOCs to ethene via microorganisms that have been detected as being present at a site, as have bacteria of the genus *Dehalococcoides* (in MW-5 and MW-6) and *Dehalobacter* (in MW-5). Bioaugmentation injection points and manifold piping were installed after the source removal excavation between February and April 2010. A batch injection tank connects to the manifold via manual gate valves to direct electron donor solution (a 10% molasses solution) to control flow to the injection points. Additional injection points were installed during April and May of 2012 and January of 2014 in accordance to the *Remedial Action Work Plan* (RAWP). Baseline and post-injection sampling (from a network of monitoring wells), monitoring, and laboratory analysis provide the means to monitor treatment effectiveness. The initial round of injections was completed in May, July and November 2010 and monitored. The first round of treatment indicated bioaugmentation was enhancing biodegradation and dechlorination of the contaminants. The results also suggest that additional injections of electron donor solution would enhance treatment.

The active SSDS will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicate that the SSDS is no longer required, a proposal to discontinue the system will be submitted by the property owner to the NYSDEC and NYSDOH.

Bioaugmentation treatment of groundwater will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. This treatment will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant concentrations become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment, and/or control measures will be evaluated.

Conditions that warrant discontinuing the bioaugmentation treatment system include contaminant concentrations in groundwater that: (1) reach levels that are consistently below GWQS, (2) have become asymptotic to a low level over an extended period of time as accepted by the NYSDEC, or (3) the NYSDEC has determined that the bioaugmentation treatment system has reached the limit of its effectiveness. This assessment will be based in part on post-remediation contaminant levels in groundwater collected from monitoring wells located throughout the site. Systems will remain in place and operational until permission to discontinue their use is granted in writing by the NYSDEC.

3.0 EVALUATION OF REMEDY PERFORMANCE AND EFFECTIVENESS

3.1 Sub-Slab Depressurization System Evaluation

Quarterly Operation Maintenance and Monitoring (OM&M) visits to the site have been conducted to assess the effectiveness of the SSDS. OM&M visits included the monitoring and inspection of the following components: Vacuum at each SSD branch (SSD-1 to SSD-8), flow readings at each SSDS branch (SSD-1 to SSD-8) and SSDS blower, visual inspection of fluid levels in each manometer, visual inspections of discharge stack piping and fittings, vacuum at each SSD monitoring point (SSD-MP-1 to



SSD-MP-6 and VP-1 to VP-9), visual inspection of concrete floor slab for presence of new cracks and recent structural changes, and an update of each SSD blower label identifying the date of the OM&M visit. OM&M data sheets generated during the review period are included in **Appendix A**. **Tables 11a** through **11c** represent data collected during each OM&M visit.

3.2 Bioaugmentation System Evaluation

Baseline and post-injection sampling (from a network of monitoring wells), monitoring, and laboratory analysis provide the means to monitor treatment effectiveness. A total of 5 molasses injection events have been completed during this monitoring period (i.e., from July 2013 through June 2014). During these injection events, a total approximate volume of 3,520 gallons of 10% molasses solution has been introduced to the subsurface. Injection volumes for each injection event can be referenced in **Tables 10a** through **10e**.

Overall, a total of 11 injection events have been completed since August 2012. A total approximate volume of 7,700 gallons of 10% molasses solution has been injected over this period.

A review of the data collected during this monitoring period indicates the selected remedial remedy has been effective. Data indicate that reactions associated with the reductive transformation pathway for chlorinated solvents are occurring. Reductions in concentrations of the constituents of concern (COCs) have been noted in monitoring wells MW-5 and MW-8A, while COC concentrations in MW-4 have remained stable over the current monitoring period. MW-5 has historically had the highest concentrations of COCs. Please refer to **Figures 6a, 6b, 6c** and **Table 2** for a summary of the concentrations and trends of the constituents of concerns. As illustrated on **Figure 5** and presented in **Table 4**, bio-parameter levels in monitoring wells MW-3, MW-4 and MW-5 have achieved the optimal geochemical target range for both total organic carbon (TOC) concentration (50 mg/L to 500 mg/L) and pH (6-8) in monitoring wells MW-4 and MW-5.

4.0 INSTITUTIONAL CONTROL & ENGINEERING CONTROL PLAN COMPLIANCE

4.1 Institutional Controls

Institutional Controls (ICs) at the site include compliance with the EE (**Appendix B**). The EE contains the following stipulations: no new drinking water wells can be installed and new business and residences must be connected to city water. The SMP stipulates all engineering controls (ECs) must be operated and maintained as specified in the SMP, all ECs on the controlled property must be inspected at a frequency and in a manner defined in the SMP, groundwater and other environmental monitoring must be performed as defined in this SMP and



data and information pertinent to site management of the control property must be reported at a frequency and in a manner specified in the SMP.

During the monitoring period all ICs have been in compliance with the EE. No new drinking wells have been installed and no new businesses have been built which would require a connection to city water. All ECs have been operated and maintained as specified in the SMP. ECs are inspected in accordance to the required frequency set forth by the SMP. Groundwater and other environmental monitoring have been performed as defined in the SMP. Progress reports summarizing groundwater and other environmental monitoring are submitted to the NYSDEC and NYSDOH on a monthly basis.

4.2 Engineering Controls

The SMP requires that three separate ECs be maintained at the site: the SSDS, the bioaugmentation system and the composite cover system. Maintenance and inspections of the ECs at the site are reported to the NYSDEC and NYDOH on a monthly basis.

Maintenance and inspections of the composite cover system consisting of existing impermeable surfaces (concrete slabs and asphalt paving) was conducted during the monitoring period. Photographs of the composite cover system are included in **Appendix C**.

Exposure to vapor intrusion within the southern portion of building #2 is mitigated by the operation of the SSDS. This system is comprised of extraction piping, sub-slab ventilation blowers and associated appurtenances at former Sparkle Cleaners, the former Deli Spot, and New China House tenant spaces. The SSDS creates a negative pressure which intercepts potential soil vapor from beneath the concrete floor using eight branches (SSD-1 through SSD-8) and transfers extracted vapors using in-line blowers to discharge locations outside the building (above the roof). Thirteen extraction points were installed between the three tenant spaces. Additional extraction points were added to each tenant space after the SSDS was initially installed. Fifteen SSD vacuum monitoring points were also installed within the three tenant spaces and can be measured to verify vacuum beneath the concrete slab. A manometer was installed on the suction side of the in-line blower on each of the SSD branches to provide a visual indicator that the SSDS is operating properly.

Because of the presence of contaminated groundwater and residual soil contamination under building #2, a bioaugmentation treatment system was designed. This treatment promotes in situ microbial degradation of contaminants in saturated soil and groundwater. Addition of a molasses solution to subsurface soil and groundwater acts as an electron donor that stimulates metabolic reduction of chlorinated VOCs to ethene. Bioaugmentation injection points and manifold piping were installed after the source removal excavation between February and April 2010. An additional nine nested bioaugmentation injection points and four additional monitoring wells were installed between April and May of 2012 and January of 2014 in accordance to the RAWP, submitted by Kleinfelder on December 19, 2011. Details regarding the installation of additional monitoring points and nested injection wells can be referenced in the *May 2012 , January 2014 and February 2014 Monthly Progress Report*, submitted to the NYSDEC. IC and EC certifications have been provided in **Appendix D**.



5.0 MONITORING PLAN COMPLIANCE

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the composite cover system, and all affected site media identified in the SMP. Monitoring results and performance evaluation of the ECs are reported to the NYSDEC and NYDOH on a monthly basis.

Components and schedule of the monitoring plan are summarized in **Chart 1** (below).

Chart 1
Monitoring / Inspection Schedule

Monitoring Program	Frequency	Matrix	Analysis
Composite Cover System	Annual (minimum) or during other (more frequent) inspections as time and conditions warrant	Soil	Visual Inspection of Cover
SSDS	Quarterly	Soil Vapor	Negative Pressure
Bioaugmentation system	Bi-monthly molasses injections and pre-/post-injection groundwater samples collected	Groundwater	Total Organic Carbon
Groundwater	Quarterly	Groundwater	Chlorinated VOCs, ethene

5.1 Composite Cover Monitoring Compliance

On June 6, 2013, the composite cover system was inspected by a qualified environmental professional. The composite cover system was determined to be intact and impervious to surface water infiltration. Photographs of the composite cover system are provided in **Appendix C**. Additional inspections occurred during one or more of the following activities: quarterly groundwater sampling, quarterly SSDS OM&Ms, molasses injections, pre-/post- injection groundwater sampling and/or site visits.

5.2 Sub-Slab Depressurization System Monitoring Compliance

SSDS inspections and monitoring were conducted on a quarterly basis during this monitoring period as described in the SMP to evaluate the performance of the system. Data collected during the SSDS OM&M events can be referenced in **Tables 11a** through **11c**.

During the December 18, 2013 OM&M event, SSDS #2, 3, 5, 6 and 7 were turned off in order to complete the SSDS re-piping which was noted in prior Monthly Report submittals. SSDS #1, 4, and 8, continued to operate as normal. Both the Deli Spot and Sparkle Cleaner spaces are currently vacant. The NYSDEC and the NYSDOH were notified of the SSDS shutdown on December 18, 2013 via e-mail. The e-mail correspondence and copy of the Town of Orangetown building permit are included as **Appendix E**.



In June 2014, SSDS re-piping was completed in the former Deli Spot and the Sparkle Cleaners spaces by contractors retained by the property owner; this work was completed in order to improve system aesthetics only and does not include any changes that would affect the overall system design. One vapor monitoring point, VP-6 which was located in the former Sparkle Cleaner tenant space could not be located, and will be replaced. The system was re-started on June 27, 2014.

Based on the data collected during this monitoring period, it appears the SSDS has been effective in mitigating vapor intrusion within the New China House restaurant, which is the only space to have been occupied during the monitoring period. All measured vacuum readings within this space have been recorded greater than 0.0025 inches of water column (in. w.c.) during this monitoring period.

5.3 Bioaugmentation System Monitoring Compliance

Inspections and monitoring of the bioaugmentation system were completed as described in the SMP. A total of 5 molasses injections events and 9 pre-/post-injection sampling events have been completed during the monitoring period. Pre-/post-injection sampling events included the collection of TOC samples and the collection of general groundwater chemistry parameters (pH, conductivity, dissolved oxygen, temperature and oxygen reduction potential). A summary of injection volumes can be referenced in **Tables 10a** through **10e**. A summary of the pre-/post-injection sampling results can be referenced in **Tables 1, 4** and **5**.

Quarterly groundwater monitoring and annual baseline sampling was completed as specified in the SMP. The bioaugmentation system well network (MW-C through MW-F, MW-3, MW-4, MW-5, MW-8A/8B), up-gradient well (MW-7) and down gradient wells (MW-10, MW-13A and MW-15A) were sampled each quarter. Samples were submitted to Test America Laboratories of Nashville, Tennessee (TestAmerica) and Accutest Laboratories of Dayton, New Jersey (Accutest) for the following analysis: VOCs, ethene, TOC, nitrate, iron (total, ferrous and ferric) and sulfate. Analytical data provided by TestAmerica and Accutest has been included as **Appendix F** and is represented in **Tables 2, 3** and **4** and **Figures 4a** through **4f**. Each quarter the Category B laboratory analytical reports provided by TestAmerica and Accutest were submitted to RemVer for review of data quality. Subsequent to the data review, RemVer provided a data usability summary report (DUSR), included with **Appendix G**. Groundwater monitoring logs have been included in **Appendix A** and have served as the inspection form for the groundwater monitoring network.

Once annually, four select samples from an up-gradient well (MW-7), side gradient well (MW-6), down gradient well (MW-10) and centrally located well (MW-5) were submitted for the following additional analysis: PCBs, Pesticides, semi-volatile organic compounds (SVOCs) and Resource and Recovery Act (RCRA) 13 metals, including mercury. Annual baseline sampling was completed in March and April of 2014. Analytical data provided by TestAmerica has been included as **Appendix F**. Results from the annual baseline sampling can be referenced in **Tables 6, 7, 8** and **9**.



5.4 Monitoring and Injection Well Installation Compliance

In accordance with the RAWP, between January 27 and 29, 2014, two monitoring wells (MW-A and MW-B) and three lateral injection wells were installed in the unit formerly occupied by Sparkle Cleaners. GES notified the NYSDEC of the scheduled intrusive work in an e-mail dated January 3, 2014. In addition, GES requested approval for the proposed backfill material to which the NYSDEC provided approval in an e-mail dated January 10, 2014. All correspondences have been included in **Appendix E**.

During all ground-intrusive activities completed between January 27 and 29, 2014, GES provided air monitoring per the approved *Community Air Monitoring Plan* (CAMP). No detections of dust particulates or VOCs were recorded above action levels described in the CAMP. Results of the air monitoring activities are included in **Appendix A**.

During advancement of the soil borings, GES screened continuous soil samples for the presence of VOCs utilizing a photo-ionization detector (PID) calibrated to a 100 parts per million (ppm) isobutylene standard. Two soil samples were collected from each boring and submitted under chain of custody to TestAmerica for analysis of VOCs including methyl-tertiary butyl ether (MTBE) via EPA Method 8260B. Analytical results are summarized on **Table 12** and the laboratory analytical reports are included in **Appendix F**.

In addition, GES personnel oversaw excavation activities, lateral injection well installation, and backfilling activities completed beneath the floor in the unit formerly occupied by Sparkle Cleaners. The locations of the lateral injection wells are depicted on **Figure 3**.

All drill cuttings and excavated soil were placed in a 20-yard roll-off which was temporarily stored on-site behind the unit formerly occupied by Sparkle Cleaners. On February 21, 2014, EP&S of Vermont transported the roll-off to the ESMI waste facility located in Fort Edward, New York for proper disposal. All correspondences related to the management of waste have been included in **Appendix E**.

6.0 OPERATION, MONITORING & MAINTENANCE PLAN COMPLIANCE

The Operation, Monitoring & Maintenance Plans describe the measures necessary to operate, monitor, and maintain the mechanical components of the remedy selected for the site. This section has two specific OM&M plans: one for the SSDS and one for the bioaugmentation treatment system.

Annually, copies of the OM&M forms generated from field activities at the site are placed inside the on-site hazardous communications box. Additionally, a copy of the Sub-Slab Depressurization Operation, Monitoring, and Maintenance Plan, Bioaugmentation System Operation, Maintenance, and Monitoring Plan and manuals provided by the equipment manufacturer are stored in the hazardous communications box for reference.



6.1 Sub-Slab Depressurization OM&M Compliance

SSDS OM&M visits were completed on a quarterly basis as described in the Sub-Slab Depressurization Operation, Monitoring, and Maintenance Plan. Each visit included the following activities to evaluate performance and operation of the system: an inspection for security, vandalism, system damage, operating anomalies, equipment or conveyance malfunction, connection integrity, power outages or environmental effects, vacuum of each SSD branch (SSD-1 to SSD-8), flow reading of each SSD branch (SSD-1 to SSD-8) and SSD blower, visual inspection of fluid levels in each manometer, record vacuum readings using provided manometer from each sub-slab monitoring point and sub-slab vapor extraction well (SSD-MP-1 to SSD-MP-6 and VP-1 to VP-9), visual inspection of discharge stacks piping and fittings, collection of PID readings from each sample port on each stack located in the back of the shopping center (DS-1 through DS-8), and a visual inspection of concrete floor slabs for presence of new cracks and recent structural changes in the building.

All vacuum influence readings were within acceptable limits during each of the OM&M visits, except as described below. Vacuum influence can be referenced in **Tables 11a** through **11c**.

During the December 18, 2013 OM&M event, SSDS #2, 3, 5, 6 and 7 were turned off in order to complete the SSDS re-piping which was noted in prior Monthly Report submittals. SSDS #1, 4, and 8, continued to operate as normal. Both the Deli Spot and Sparkle Cleaner spaces are currently vacant. The NYSDEC and the NYSDOH were notified of the SSDS shutdown on December 18, 2013 via e-mail. The e-mail correspondence is included as **Appendix E**.

In June 2014, SSDS re-piping was completed in the former Deli Spot and the Sparkle Cleaners spaces by contractors retained by the property owner; this work was completed in order to improve system aesthetics and performance only and does not include any changes to the overall system design. One vapor monitoring point, VP-6 which was located in the former Sparkle Cleaner tenant space could not be located, and will be replaced. The system was re-started on June 28, 2014.

6.2 Bioaugmentation System OM&M Compliance

Bioaugmentation System OM&M visits were completed during quarterly sampling events, pre-/post-injection sampling events and molasses injection events as described in the Bioaugmentation System Operation, Maintenance, and Monitoring Plan. Each visit included the following activities to evaluate performance and operation of the system: an inspection for security issues, vandalism, system damage, equipment or conveyance malfunction, connection integrity, or environmental effects, gauging of BAS monitoring well network, collection of general groundwater chemistry parameters, pH adjustment titration for each monitoring point with field measured outside of the target range, visual inspection of piping stub-ups and BAS monitoring well road boxes and well pads and injection road boxes and road pads.

One groundwater titration was performed during this monitoring period during molasses injection activities after the pH in monitoring well MW-3 was observed to be 5.77 standard units, which is outside the target range of 6 to 8. Field titrations were performed in accordance to the SMP to determine the quantity of sodium bicarbonate buffer solution required to increase the groundwater



pH above 6. The buffer solution strength was calculated using the titration data, and assuming a 10 foot (ft) radius of influence and soil porosity of 15%. A total of 297 pounds of sodium bicarbonate has been injected into the aquifer during this monitoring period. Subsequent to the injection of sodium bicarbonate, post-injection sampling results indicated an increase of pH to within the optimal geochemical target range.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Site Management Plan Compliance

During this monitoring period, all requirements set forth in the SMP have been complied with. ICs described in the SMP are in place and in compliance. Monitoring and OM&M of the three ECs (composite cover, SSDS and bioaugmentation system) were conducted during the monitoring period as specified in the SMP. Inspections of the composite cover system were performed at a minimum frequency of once annually. Monitoring and OM&M of the SSDS were completed on a quarterly basis. Monitoring and OM&M of the bioaugmentation system were completed on a quarterly basis during the quarterly groundwater sampling events. Additional monitoring and OM&Ms were also completed during the pre-/post-injection sampling events.

In accordance with the RAWP, between January 27 and 29, 2014, two monitoring wells (MW-A and MW-B) and three lateral injection wells were installed in the unit formerly occupied by Sparkle Cleaners.

7.2 Performance and Effectiveness of Remedy

The SSDS has functioned as required during this monitoring period. Up until the December 18, 2013 OM&M event when SSDS #2 and #3 (associated with the former Deli Spot space), SSDS #5 and #6 (associated with the former Sparkle Cleaners space) and SSDS #7 (associated with the New China House space) were turned off, the vacuum influence was observed to be above 0.0025 in. w.c. in all the monitoring points. After de-activation of the five SSDS blowers noted above, most of the monitoring points in the former Deli Spot space (VP-1, VP-2, VP-3, and SSDS-MP-1) and Sparkle Cleaners space (VP-4, VP-5, VP-6 and SSDS-MP-3) no longer exhibited the required minimum vacuum influence. SSDS-MP-2 and SSDS-MP-4 maintained vacuum influence above the required threshold of 0.0025 in. w.c., most likely due to their close proximity to SSDS blowers #1 and #4, respectively. During the entire period that the SSDS fans remained offline (December 18, 2013 through June 28, 2014), the former Deli Spot and Sparkle Cleaners spaces remained unoccupied.

A total of 11 bioaugmentation injection events have been completed to date with an approximate total of 7,700 gallons of 10% molasses introduced into the subsurface. TOC concentrations are within the optimal geochemical target range in three monitoring wells (MW-3, MW-4 and MW-5). TOC concentrations can be referenced on **Table 4** and are graphically represented on **Figure 5**. **Figure 6a**, **Figure 6b** and **Figure 6c** depict the groundwater concentrations trends of the COCs in monitoring wells MW-4, MW-5 and MW-8B, respectively. Please refer to **Table 2** for a



summary of the concentrations of the COCs for all site monitoring wells. As demonstrated, all three monitoring wells exhibit a decreasing trend in groundwater concentrations since the initiation of the bioaugmentation remedy in August 2012. Additionally, all COCs in monitoring wells MW-4 and MW-8B have been reduced to below 100 ug/L. Based on the most recent groundwater data from May 2014, monitoring well MW-5 exhibits elevated concentrations of cis-1,2-Dichlorethene (389 ug/L). All three monitoring wells also exhibit low ORP levels over the entire monitoring period, ranging from -26.4 to -72.5 millivolts (mv) in MW-4, -41.4 to -135.6 mv in MW-5, and -3.1 to -70.1 mv MW-8B. This indicates that favorable reducing conditions have been maintained during the application of the bioaugmentation remedy within the targeted treatment area.

Since the groundwater COC concentrations in MW-4 and MW-8B are exhibiting continued downward trends and have also been reduced to below 100 ug/L, the benefit of continued application of molasses in the area of these monitoring wells is expected to be limited. Based on the groundwater trends described above, GES recommends that the bioaugmentation application be modified to target the area around MW-5. **Figure 5** indicates that TOC concentrations in MW-5 can remain within the target range of 50 to 500 ug/L for an approximate 4 to 6 months period after injection of the molasses solution. Therefore, the application of the bioaugmentation remedy is proposed to be modified as follows:

- □ Target MW-5 for continued bioremediation by utilizing injection wells IP-3, IP-4, INJ-3 and INJ-4;
- □ Perform molasses injection (using a 10% solution) at a frequency of 4-6 months. This exact frequency will be determined based on the TOC data collected from MW-5;
- □ A total volume of 80 gallons of solution of molasses solution will be injected into each of the injection wells referenced above (320 gallons in total);
- □ Monitoring well MW-5 will be monitored for TOC, pH, DO, ORP, temperature, pH and conductivity to assess performance of the bioaugmentation remedy;
- □ Monitoring well MW-4 will be utilized as a control well, and will also be monitored for the parameters above;
- □ Continue to monitor trends for groundwater COC concentrations in MW-4 and MW-8A.

Groundwater monitoring will be conducted on a quarterly basis to evaluate the effectiveness of the bioaugmentation remedy. The groundwater quality parameters (TOC, pH, DO, ORP, temperature, pH and conductivity) will also be collected during quarterly sampling events for MW-4 and MW-5. These parameters will also be collected within 4 weeks after the completion of each injection event.

*Periodic Review Report
Orangeburg (Orangetown) Shopping Center
NYSDEC Site Number: C344066
July 2014*



Prepared by:

Handwritten signature in black ink, appearing to read 'M. Ghioureliotis'.

7/17/14

Michael Ghioureliotis Date
Project Engineer

Reviewed by:

Handwritten signature in black ink, appearing to read 'Michael DeGloria'.

7/17/14

Michael DeGloria Date
Project Manager

Handwritten signature in black ink, appearing to read 'Christina Andreotto'.

7/17/14

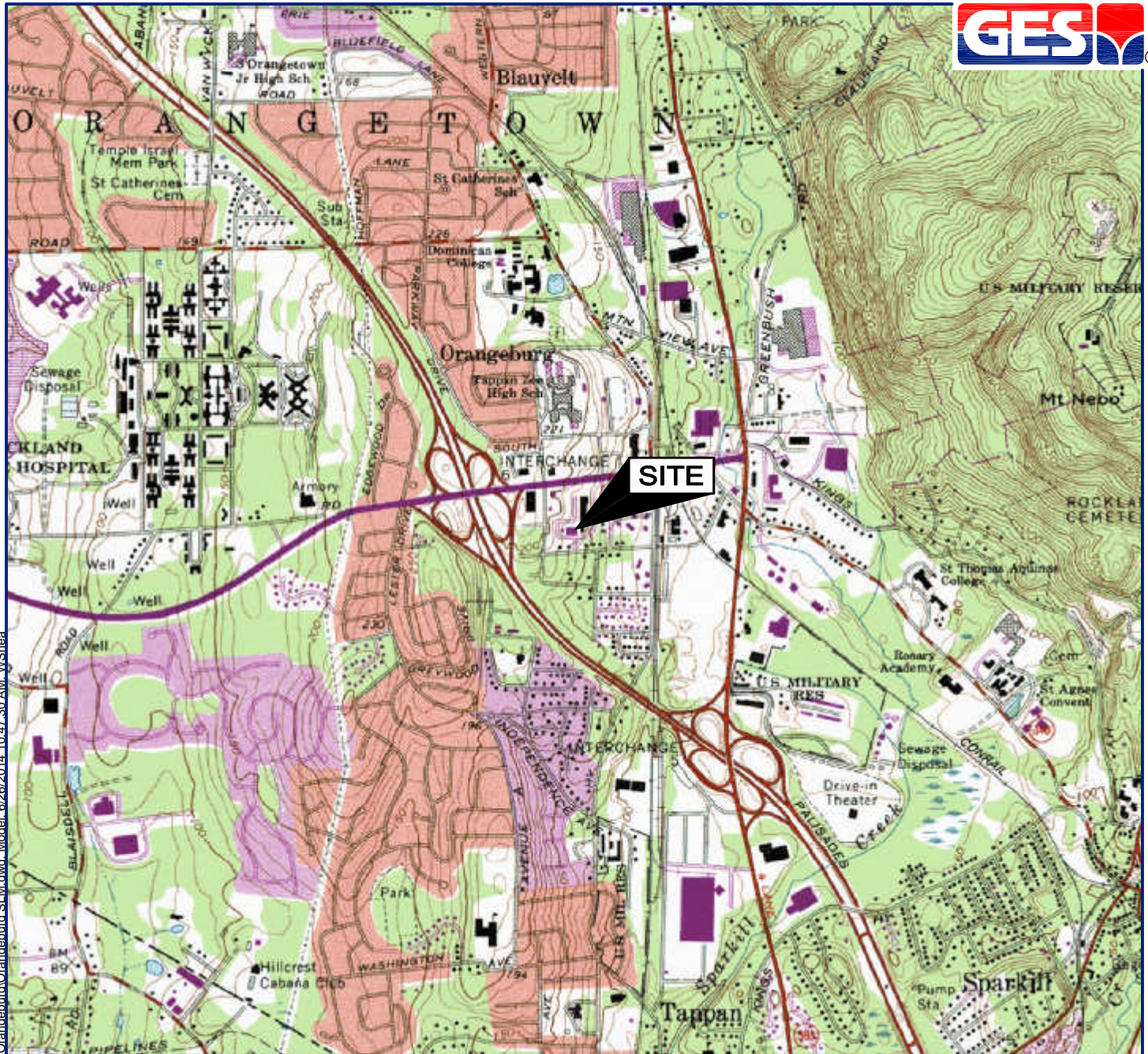
Christina Andreotto Date
Staff Geologist

Handwritten signature in black ink, appearing to read 'Gerald Cresap Jr.'.

7/17/14

Gerald Cresap Jr, P.E. Date
Regional Engineering Manager

FIGURES



SOURCE: USGS 7.5 MINUTE SERIES
 TOPOGRAPHIC QUADRANGLE 1979
 NYACK, NEW YORK
 CONTOUR INTERVAL = 10'



QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	SITE LOCATION MAP		
CHECKED BY: CA			
REVIEWED BY: MD	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK		
NORTH 	Groundwater & Environmental Services, Inc. 16 MT. EBO ROAD SOUTH, SUITE 21, BREWSTER, NEW YORK 10509		
	SCALE IN FEET 	DATE 6-26-14	FIGURE 1

M:\Graphics\1100-Patterson-LHV\Misc\Ursell\Biddle\Properties\Orangeburg\Orangeburg.SLM.dwg - Model_6/26/2014 10:47:30 AM - WShea

LEGEND

- PROPERTY BOUNDARY
- CHAIN LINK FENCE
- ▣ CATCH BASIN
- ⊙(M) UTILITY MANHOLE
- ⊙(P) UTILITY POLE
- ⊙(S) LIGHT POLE
- ⊙(F) FIRE HYDRANT
- ⊙(M) MONITORING WELL
- ⊙(D) DESTROYED MONITORING WELL
- ⊙(SVE) SOIL VAPOR EXTRACTION WELL
- SS--- UNDERGROUND SANITARY SEWER LINE
- OHU--- OVERHEAD UTILITIES



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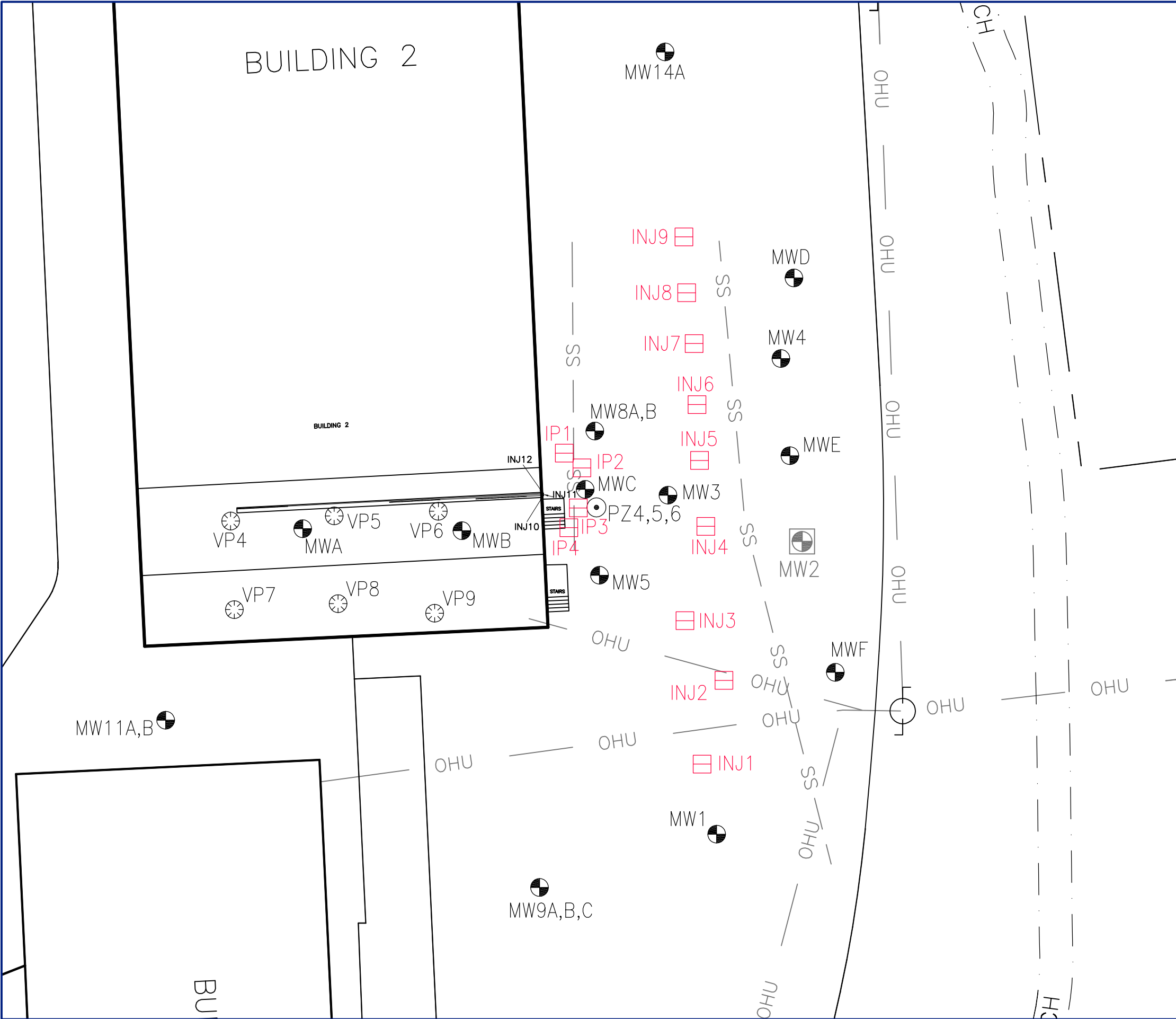
DRAFTED BY: W.G.S. (N.J.)	SITE MAP		
CHECKED BY: CA	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK		
REVIEWED BY: MD	Groundwater & Environmental Services, Inc. 16 MT. EBO ROAD SOUTH, SUITE 21, BREWSTER, NEW YORK 10509		
NORTH 	SCALE IN FEET	DATE	FIGURE
	0 APPROXIMATE 50	6-26-14	2

BUILDING 2

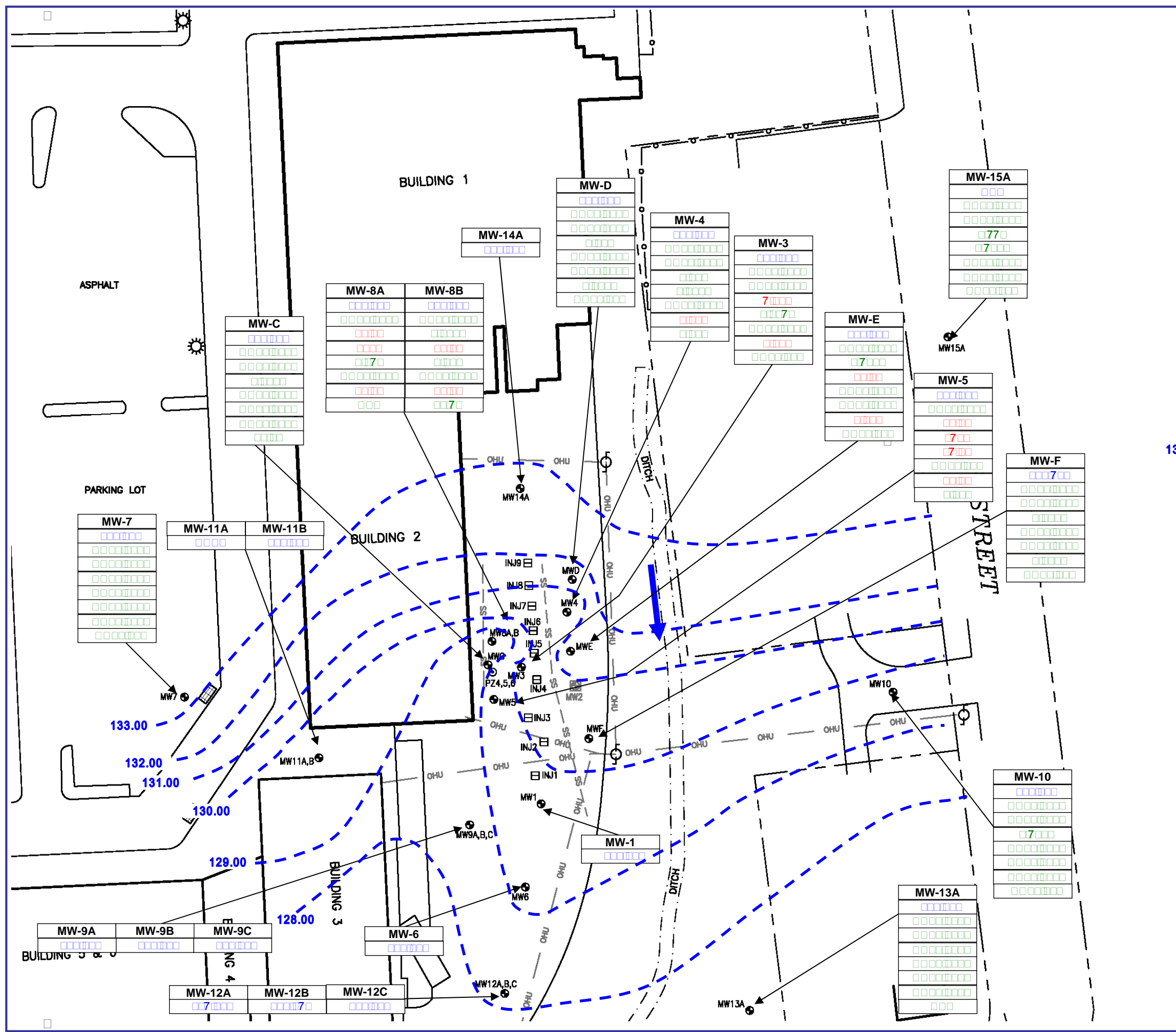
LEGEND

- PROPERTY BOUNDARY
- CHAIN LINK FENCE
- ▤ CATCH BASIN
- ⊙(M) UTILITY MANHOLE
- ⊙(P) UTILITY POLE
- ⊙(L) LIGHT POLE
- ⊙(F) FIRE HYDRANT
- ⊙(MW) MONITORING WELL
- ⊙(MW-D) DESTROYED MONITORING WELL
- ⊙(PZ) PIEZOMETER
- ⊙(SVE) SOIL VAPOR EXTRACTION WELL
- SS--- UNDERGROUND SANITARY SEWER LINE
- OHU--- OVERHEAD UTILITIES

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DRAFTED BY: W.G.S. (N.J.)	BIO-AUGMENTATION SYSTEM WELL LOCATIONS	
CHECKED BY: CA	UB ORANGETOWN, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGETOWN, NEW YORK	
REVIEWED BY: MD		
NORTH 	Groundwater & Environmental Services, Inc. 16 MT. EBO ROAD SOUTH, SUITE 21, BREWSTER, NEW YORK 10509	
SCALE IN FEET 	DATE 6-26-14	FIGURE 3



LEGEND

- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- [] CATCH BASIN
- (M) UTILITY MANHOLE
- (P) UTILITY POLE
- (S) LIGHT POLE
- (F) FIRE HYDRANT
- (MW) MONITORING WELL
- (IW) INJECTION WELL
- (X) DESTROYED MONITORING WELL
- (PZ) PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

133.00

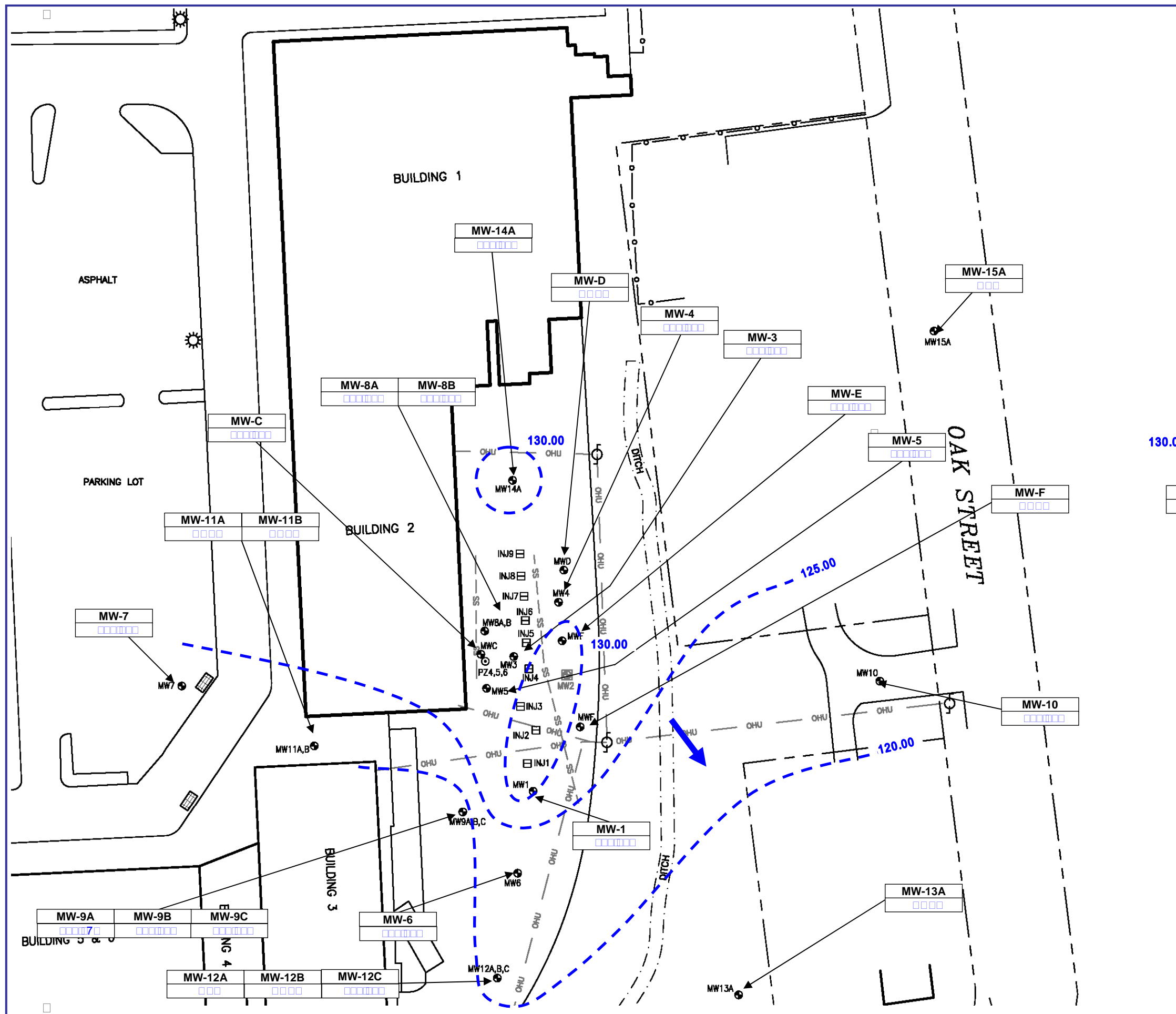
[---]	GROUNDWATER CONTOUR (feet)
[--->]	GROUNDWATER FLOW DIRECTION
[MW-F]	WELL IDENTIFICATION
[7]	GROUNDWATER ELEVATION (feet)
[]	TETRACHLOROETHENE CONCENTRATION (µg/L)
[]	TRICHLOROETHENE CONCENTRATION (µg/L)
[]	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
[]	TRANS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
[]	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
[]	VINYL CHLORIDE CONCENTRATION (µg/L)
[]	ETHENE

NOTES

- ND -Non-Detect
- NA -Not available or not sampled for that parameter
- µg/L -Microgram per liter
- Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

Groundwater elevations from MW-1, MW-8A, MW-9A, MW-9C, MW-12A, MW-12C, MW-C and MW-F were not utilized to contour.

	DEEP AQUIFER CONTOUR JUNE 25, 2013	
	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK	
	Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509	
		4a



LEGEND

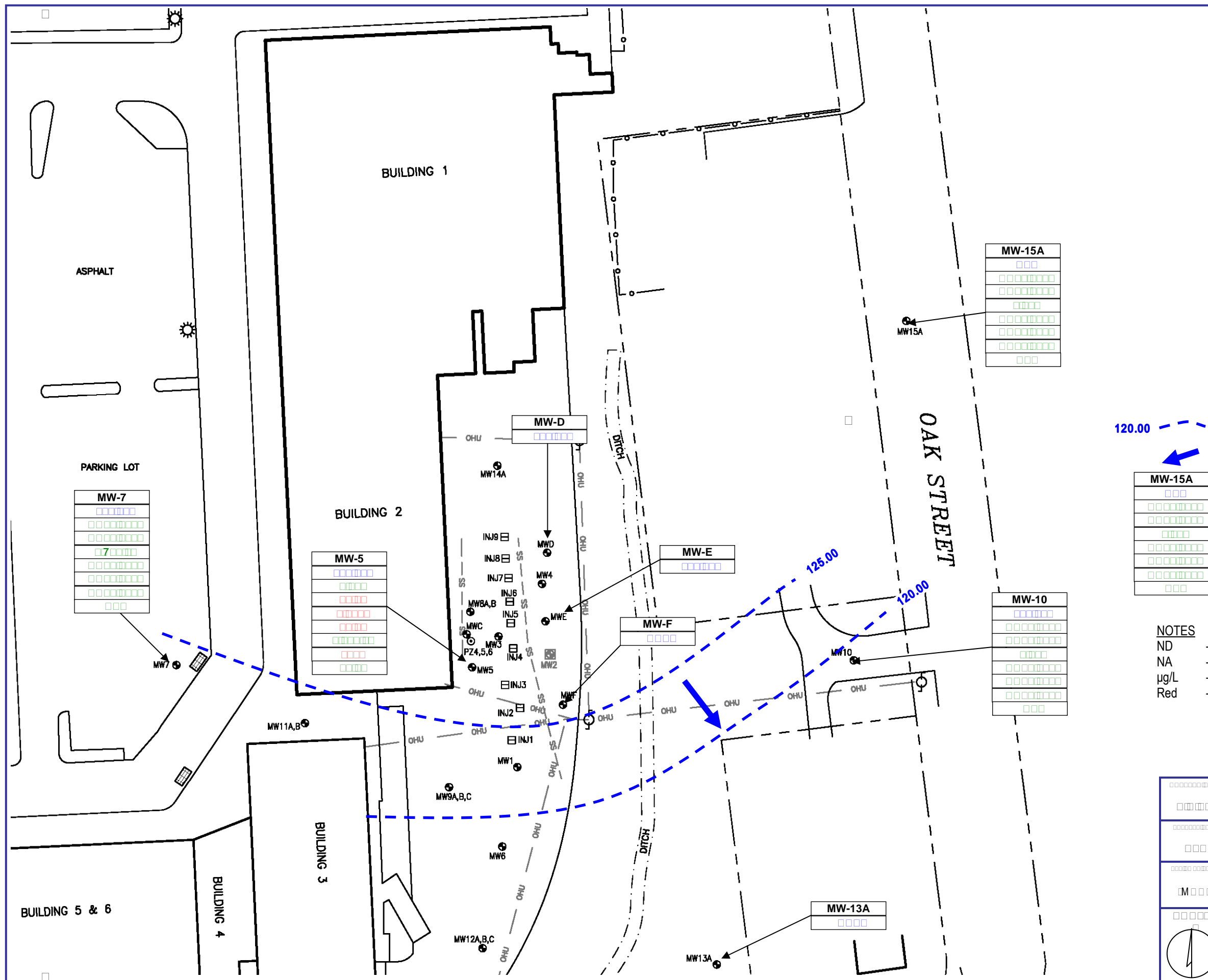
- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- ▭ CATCH BASIN
- ⊙ UTILITY MANHOLE
- ⊙ UTILITY POLE
- ⊙ LIGHT POLE
- ⊙ FIRE HYDRANT
- ⊙ MONITORING WELL
- ▭ INJECTION WELL
- ⊙ DESTROYED MONITORING WELL
- ⊙ PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

	GROUNDWATER CONTOUR (feet)
	HISTORIC GROUNDWATER FLOW DIRECTION
	WELL IDENTIFICATION
	GROUNDWATER ELEVATION (feet)

NOTES

- ND -Non-Detect
- NA -Not available or not sampled for that parameter
- µg/L -Microgram per liter
- Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

	DEEP AQUIFER CONTOUR SEPTEMBER 19, 2013
	UB ORANGETOWN, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGETOWN, NEW YORK
	Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509
	4b



LEGEND

- PROPERTY BOUNDARY
- CHAIN LINK FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- MONITORING WELL
- INJECTION WELL
- DESTROYED MONITORING WELL
- PIEZOMETER
- UNDERGROUND SANITARY SEWER LINE
- OVERHEAD UTILITIES

	GROUNDWATER CONTOUR (feet)
	HISTORIC GROUNDWATER FLOW DIRECTION
	WELL IDENTIFICATION
	GROUNDWATER ELEVATION (feet)
	TETRACHLOROETHENE CONCENTRATION (µg/L)
	TRICHLOROETHENE CONCENTRATION (µg/L)
	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	TRANS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
	VINYL CHLORIDE CONCENTRATION (µg/L)
	ETHENE

- NOTES**
- ND -Non-Detect
 - NA -Not available or not sampled for that parameter
 - µg/L -Microgram per liter
 - Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

	DEEP AQUIFER CONTOUR OCTOBER 14, 2013		
	UB ORANGETOWN, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGETOWN, NEW YORK		
	Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509		
			4c



LEGEND

- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- [] CATCH BASIN
- (M) UTILITY MANHOLE
- (P) UTILITY POLE
- (S) LIGHT POLE
- (F) FIRE HYDRANT
- (MW) MONITORING WELL
- (IW) INJECTION WELL
- (X) DESTROYED MONITORING WELL
- (PZ) PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

130.00	GROUNDWATER CONTOUR (feet)
Blue Arrow	GROUNDWATER FLOW DIRECTION
MW-5	WELL IDENTIFICATION
[]	GROUNDWATER ELEVATION (feet)
[]	TETRACHLOROETHENE CONCENTRATION (µg/L)
[7.7]	TRICHLOROETHENE CONCENTRATION (µg/L)
[]	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
[]	TRANS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
[]	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
[]	VINYL CHLORIDE CONCENTRATION (µg/L)
[]	ETHENE

NOTES

- ND -Non-Detect
- NA -Not available or not sampled for that parameter
- µg/L -Microgram per liter
- Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

Groundwater elevations from MW-8A, MW-9A, MW-12C, MW-C, MW-D, and MW-F were not utilized to contour.

[]	DEEP AQUIFER CONTOUR DECEMBER 11, 2013
[]	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK
[]	Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509
[]	4d



LEGEND

- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- [] CATCH BASIN
- (M) UTILITY MANHOLE
- (U) UTILITY POLE
- (S) LIGHT POLE
- (F) FIRE HYDRANT
- (MW) MONITORING WELL
- (IW) INJECTION WELL
- (X) DESTROYED MONITORING WELL
- (P) PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

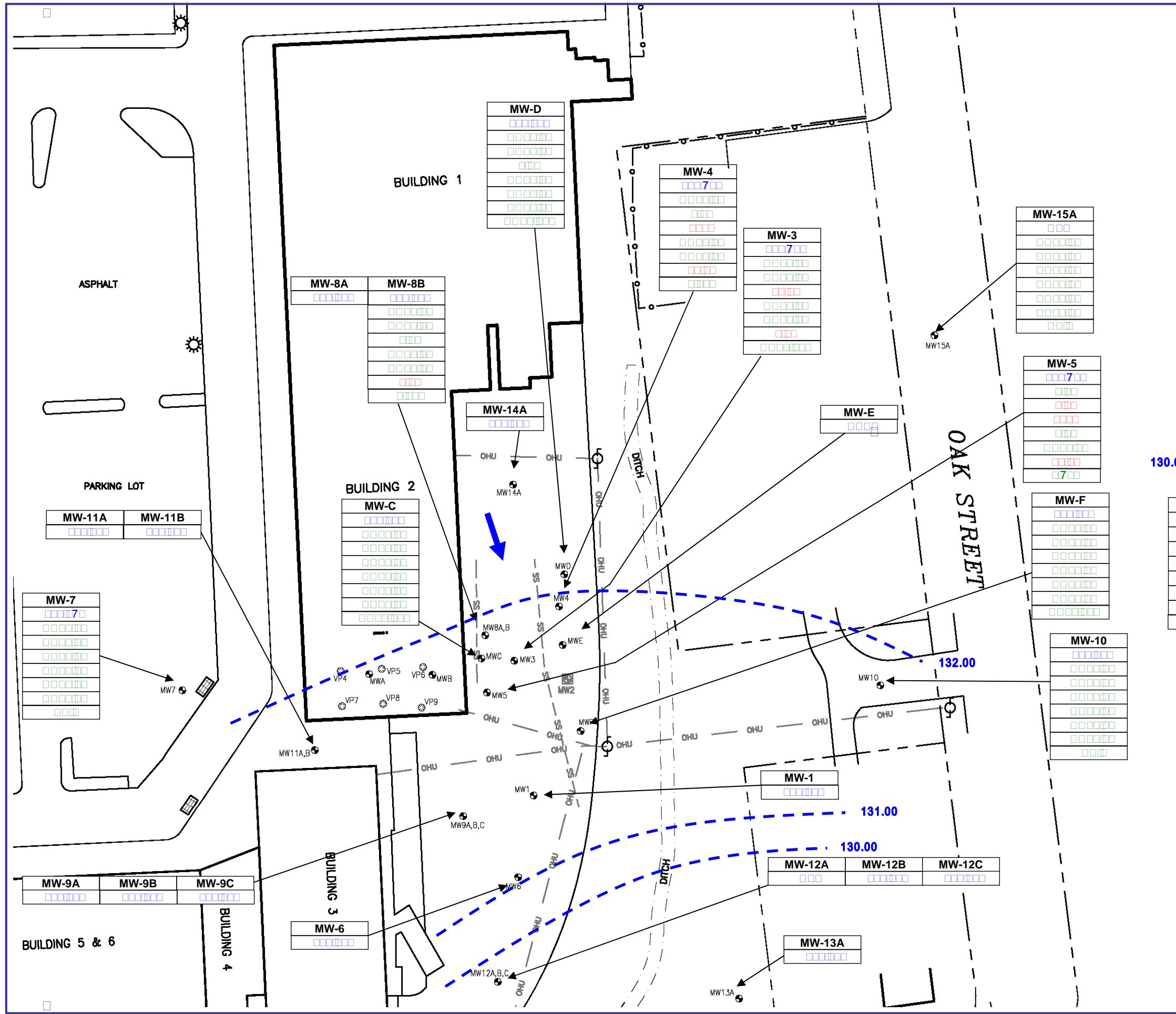
	GROUNDWATER FLOW DIRECTION
	WELL IDENTIFICATION
	GROUNDWATER ELEVATION (feet)
	TETRACHLOROETHENE CONCENTRATION (µg/L)
	TRICHLOROETHENE CONCENTRATION (µg/L)
	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	TRANS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
VINYL CHLORIDE CONCENTRATION (µg/L)	
ETHENE	

NOTES

- ND -Non-Detect
- NA -Not available or not sampled for that parameter
- µg/L -Microgram per liter
- Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

On March 5, 2014, groundwater samples were not collected from MW-3, MW-8A, MW-10, MW-13A, MW-A, MW-B, MW-E, and MW-F due to insufficient volumes of water present and/or in-accessibility at the time of sampling.

	DEEP AQUIFER CONTOUR MARCH 5, 2014
UB ORANGETOWN, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGETOWN, NEW YORK	
Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509	
	4e



LEGEND

- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- [] CATCH BASIN
- (M) UTILITY MANHOLE
- (U) UTILITY POLE
- (S) LIGHT POLE
- (F) FIRE HYDRANT
- (MW) MONITORING WELL
- (IW) INJECTION WELL
- (X) DESTROYED MONITORING WELL
- (P) PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

130.00

	GROUNDWATER CONTOUR (feet)
	GROUNDWATER FLOW DIRECTION
MW-5	WELL IDENTIFICATION
7	GROUNDWATER ELEVATION (feet)
	TETRACHLOROETHENE CONCENTRATION (µg/L)
	TRICHLOROETHENE CONCENTRATION (µg/L)
	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	TRANS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
	VINYL CHLORIDE CONCENTRATION (µg/L)
	ETHENE

NOTES

- ND -Non-Detect
- NA -Not available or not sampled for that parameter
- µg/L -Microgram per liter
- Red -Value exceeds NYSDEC TOGS 1.1.1 GWQS

On May 19, 2014, groundwater samples were not collected from MW-8A, MW-12A, MW-13A, MW-A, MW-B, and MW-E due to insufficient volumes of water present and/or in-accessibility at the time of sampling.

	<p>DEEP AQUIFER CONTOUR MAY 19, 2014</p>
	<p>UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK</p>
<p>Groundwater & Environmental Services, Inc. 16 MOUNT EBO ROAD SOUTH, SUITE 21, BREWSTER, NY 10509</p>	
<p>7</p>	<p>4f</p>

Figure 5

Total Organic Carbon Concentration

Orangetown Shopping Center/Sparkle Cleaners
NYSDEC Site #C344066

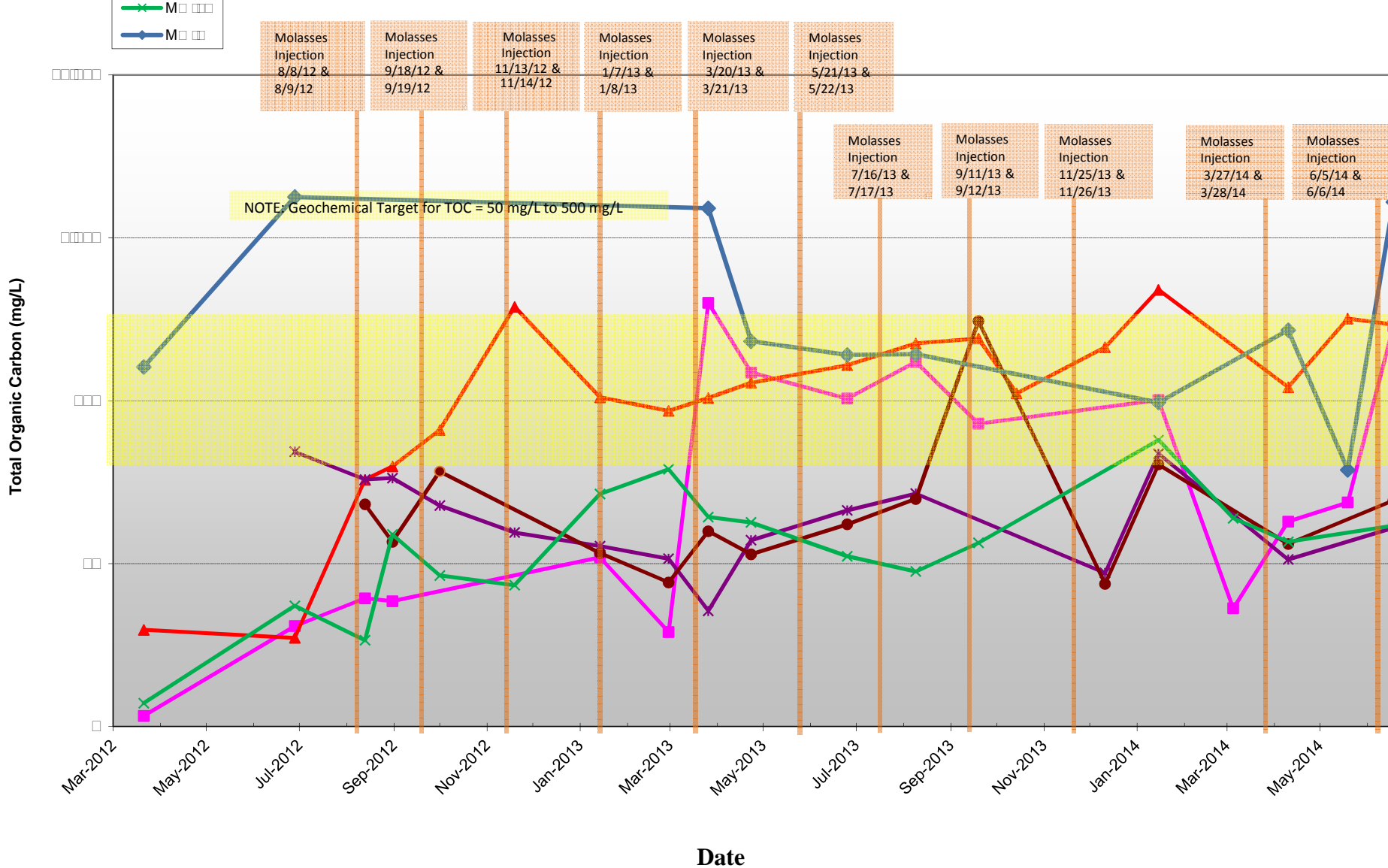


Figure 6a

MW-4
Chlorinated Solvent Reductive Transformation Pathway

Orangetown Shopping Center/Sparkle Cleaners
NYSDEC Site #C344066

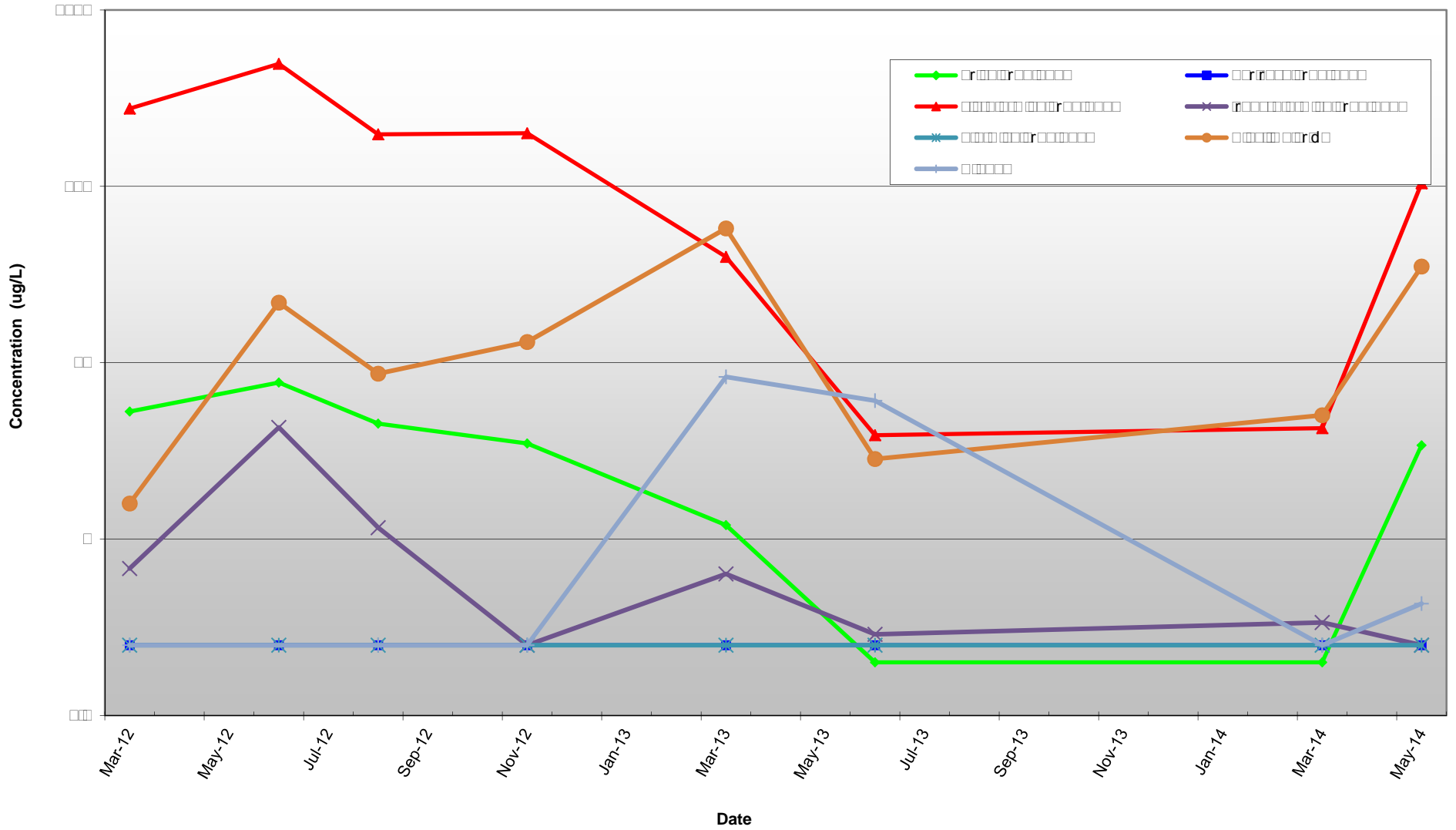


Figure 6b

MW-5 Chlorinated Solvent Reductive Transformation Pathway

Orangetown Shopping Center/Sparkle Cleaners
NYSDEC Site #C344066

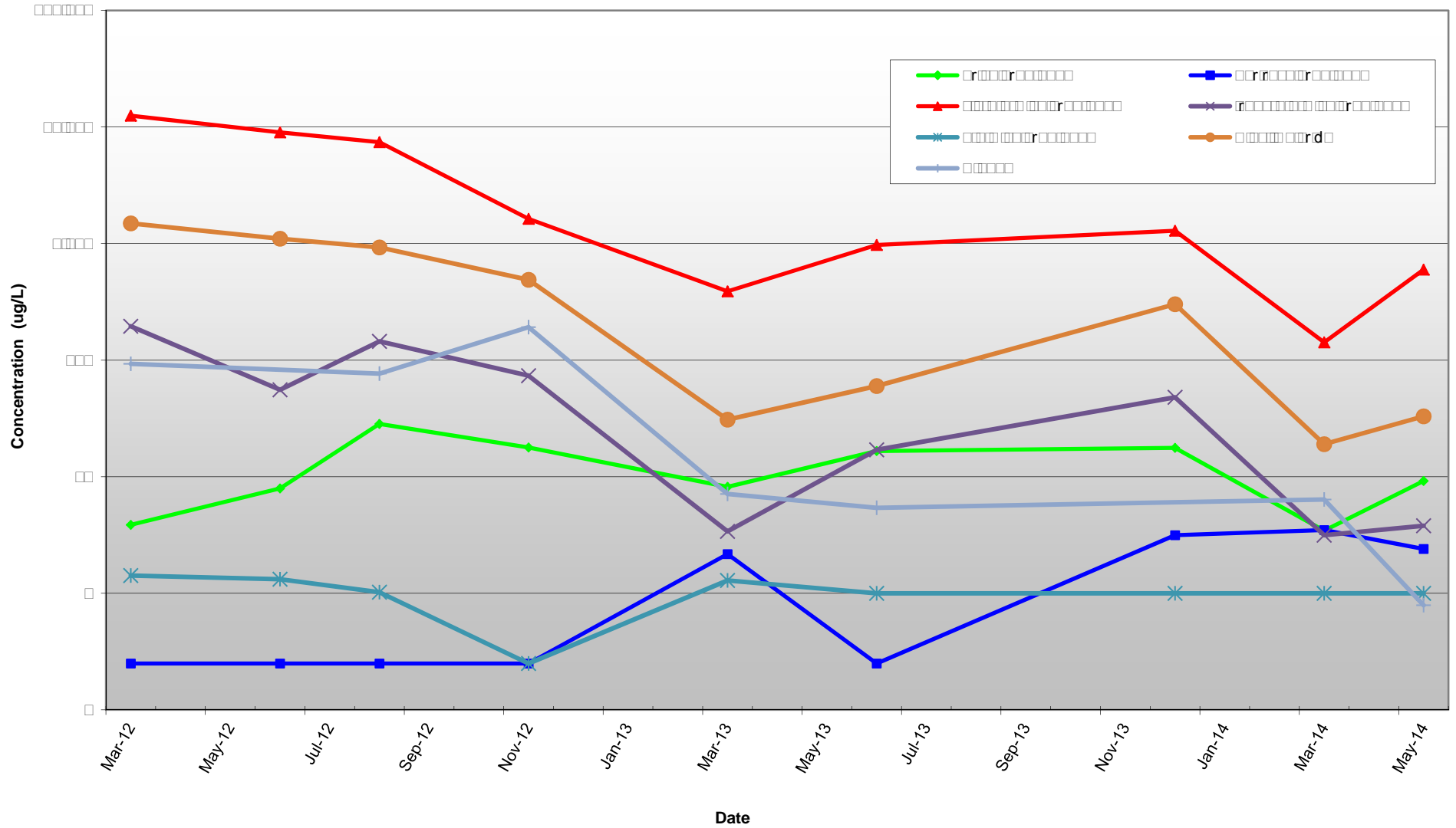
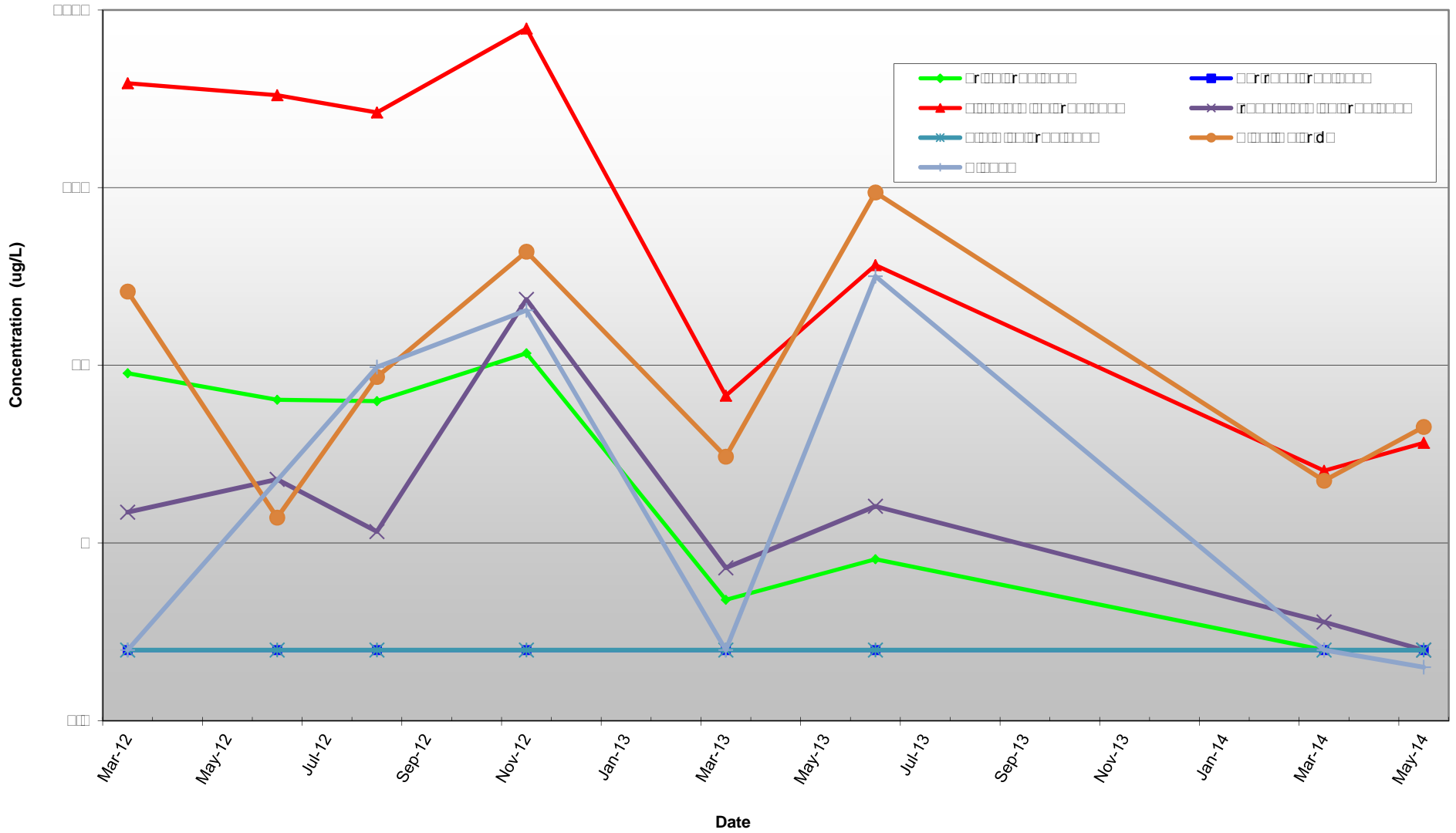


Figure 6c

MW-8B Chlorinated Solvent Reductive Transformation Pathway

Orangetown Shopping Center/Sparkle Cleaners
NYSDEC Site #C344066



TABLES

Monitoring Well	Date	Top of Casing	Depth to Water	GW Elevation	Detector Reading (ppm)
MW-15A	6/29/2012	-	14.20		0
	8/13/2012	-	16.35		0
	11/19/2012	-	16.98		0
	3/26/2013	-	11.40		0
	6/25/2013	-	9.60		NS
	12/11/2013	-	17.05		NS
	3/5/2014	-	15.20		0
	5/19/2014	-	7.26		0
MW-C	6/28/2012	167.18	DRY		0.8
	8/13/2012	167.18	DRY		0
	8/31/2012	167.18	DRY		0
	10/1/2012	167.18	9.35	157.83	0
	11/19/2012	167.18	9.35	157.83	0
	1/14/2013	167.18	5.00	162.18	0
	2/28/2013	167.18	1.55	165.63	0
	3/26/2013	167.18	6.13	161.05	0
	4/23/2013	167.18	4.70	162.48	0
	6/25/2013	167.18	8.10	159.08	NS
	12/11/2013	167.18	6.41	160.77	NS
	1/15/2014	167.18	4.11	163.07	NS
	3/5/2014	167.18	6.20	160.98	0
	4/10/2014	167.18	5.55	161.63	0
	5/19/2014	167.18	6.23	160.95	0
	6/18/2014	167.18	5.91	161.27	0
MW-D	6/28/2012	165.67	34.49	131.18	34.6
	8/13/2012	165.67	34.12	131.55	0
	8/31/2012	165.67	37.25	128.42	0
	10/1/2012	165.67	33.52	132.15	0
	11/19/2012	165.67	31.35	134.32	0
	1/14/2013	165.67	32.55	133.12	0
	2/28/2013	165.67	32.30	133.37	0
	3/26/2013	165.67	34.35	131.32	0
	4/23/2013	165.67	38.10	127.57	32.00
	6/25/2013	165.67	33.68	131.99	NS
	12/11/2013	165.67	36.56	129.11	NS
	1/15/2014	165.67	32.47	133.20	NS
	3/5/2014	165.67	37.91	127.76	0
	4/10/2014	165.67	34.87	130.80	0
	5/19/2014	165.67	33.48	132.19	0
6/18/2014	165.67	33.78	131.89	0	
MW-E	6/28/2012	165.03	-		NS
	8/13/2012	165.03	33.00	132.03	0.4
	8/31/2012	165.03	32.20	132.83	0



Monitoring Well	Date	Top of Casing	Depth to Water	GW Elevation	Detector Reading (ppm)
MW-E Continued	10/1/2012	165.03	34.42	130.61	0
	11/19/2012	165.03	35.32	129.71	0
	1/14/2013	165.03	32.42	132.61	0
	2/28/2013	165.03	29.30	135.73	0
	3/26/2013	165.03	33.59	131.44	0
	4/23/2013	165.03	32.45	132.58	0
	6/25/2013	165.03	33.05	131.98	NS
	12/11/2013	165.03	32.28	132.75	NS
	1/15/2014	165.03			NS
	3/5/2014	165.03	32.45	132.58	0
	4/10/2014	165.03	32.45	132.58	0
	5/19/2014	165.03	DRY		0
	6/18/2014	165.03	31.75	133.28	0
MW-F	6/28/2012	165.79	DRY		0.1
	8/13/2012	165.79	DRY		0
	8/31/2012	165.79	DRY		0
	10/1/2012	165.79	DRY		0
	11/19/2012	165.79	DRY		0
	1/14/2013	165.79	DRY		0
	2/28/2013	165.79	25.54	140.25	0
	3/26/2013	165.79	-		0
	4/23/2013	165.79	31.67	134.12	0
	6/25/2013	165.79	31.00	134.79	NS
	12/11/2013	165.79	29.40	136.39	NS
	1/15/2014	165.79	30.59	135.20	NS
	3/5/2014	165.79	29.34	136.45	0
	4/10/2014	165.79	29.34	136.45	0
5/19/2014	165.79	30.25	135.54	0	
6/18/2014	165.79	30.40	135.39	0	

Notes:

- DRY = No water for sampling
- NA = Not Available or not analyzed for that specific compound
- NP = No Product Detected
- ft = Feet
- ppm = parts per million

Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-1	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-3	3/22/2012	ND<5.00 UJ	ND<5.00 UJ	60.1	ND<5.00 UJ	ND<5.00 UJ	23.4	6.28 B
	6/28/2012	ND<5.00 U	ND<5.00 U	143	ND<5.00 U	ND<5.00 U	47.5	NA
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	0.327 J	2.62	0.269 J	ND<0.250 U	2.26	ND<2.5 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	7.02	0.617 J	ND<0.250 U	3.43	ND<2.5 U
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
4/10/2014	NS	NS	NS	NS	NS	NS	NS	
5/19/2014	ND<1.0	ND<1.0	12.6	ND<1.0	ND<1.0	2.2	ND<0.31	
MW-4	3/21/2012	ND<0.500 U	5.28	276	0.680 J	ND<0.500 U	1.59	ND<2.50 U
	6/28/2012	ND<0.500 U	7.71	495	4.29	ND<0.500 U	21.9	NA
	8/13/2012	ND<1.00 U	4.51	197	1.16	ND<1.00 U	8.66	ND<5 U
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	ND<1.00 U	3.48	200	ND<1.00 U	ND<1.00 U	13.1	ND<5 U
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	1.20	39.8	0.634 J	ND<0.250 U	57.7	8.3
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	3.88	0.288 J	ND<0.250 U	2.84	6.09
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	ND<1.00 U	ND<1.00 U	4.25	0.336 J	ND<1.00 U	5.03	ND<5.00 U
4/10/2014	NS	NS	NS	NS	NS	NS	NS	
5/19/2014	ND<1.0	3.4	104	ND<1.0	ND<1.0	35.1	0.43	
MW-5	3/21/2012	ND<0.500 U	3.86	12,500	195	1.42	1,490	92.9
	6/28/2012	ND<0.500 U	7.93	9,000	55.7	1.32	1,100	NA
	8/13/2012	ND<1.00 U	28.4	7,410	145	1.02	928	76.6
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS



Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-5 Continued	11/19/2012	ND<1.00 U	17.8	1,630	73.6	ND<1.00 U	489	192
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	2.17	8.19	389	3.40	1.29	30.9	7.12
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<2.50 U	16.6	972	17.0	ND<2.50 U	60.0	5.41
	12/11/2013	3.15 J	17.7	1,290	48.0	ND<10.0 U	302	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	3.49 J	3.45 J	142	3.15 J	ND<10.0 U	19.0	6.37
	4/10/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	2.4	9.2	598	3.8	ND<1.0	33.0	0.79	
MW-6	3/22/2012	ND<0.500 U	ND<0.500 U	18.2	ND<0.500 U	ND<0.500 U	11.3	18.2 B
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	1.10	42.4	0.239 J	ND<0.250 U	9.03	ND<2.5 U
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	1.01	ND<5.00 U
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
MW-7	3/21/2012	ND<0.500 U	ND<0.500 U	ND<0.500 U	ND<0.500 U	ND<0.500 U	ND<0.500 U	ND<2.50 U
	6/29/2012	ND<0.500 U	ND<0.500 U	0.820 J	ND<0.500 U	ND<0.500 U	ND<0.500 U	NA
	8/13/2012	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	ND<0.200 U	0.229 J	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	ND<0.210 U	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	3/5/2014	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	NA
MW-8A	3/21/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	1.20	46.2	786	8.66	ND<0.500 U	29.4	NA
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	14.8	358	4.17	ND<0.250 U	59.3	NA
	12/11/2013	ND<1.00 U	ND<1.00 U	7.70	0.300 J	ND<1.00 U	0.665 J	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
3/5/2014	NS	NS	NS	NS	NS	NS	NS	
4/10/2014	NS	NS	NS	NS	NS	NS	NS	
5/19/2014	NS	NS	NS	NS	NS	NS	NS	



Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-10 Continued	8/13/2012	ND<1.00 U	ND<1.00 U	17.2	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	11/19/2012	ND<1.00 U	ND<1.00 U	1.84	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	3/26/2013	ND<0.250 U	ND<0.200 U	1.16	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	6/25/2013	ND<0.250 U	ND<0.200 U	0.798 J	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	12/11/2013	ND<1.00 U	ND<1.00 U	0.667 J	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	NA
	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	NA
MW-11A	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-11B	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-12A	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-12B	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-12C	3/22/2012	NS	NS	NS	NS	NS	NS	NS

Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-12C Continued	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
MW-13A	3/21/2012	NS	NS	NS	NS	NS	NS	NS
	6/29/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	ND<0.210 U	ND<0.230 U	ND<0.250 U	ND<0.180 U	NA
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-14A	3/22/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
MW-15A	6/29/2012	ND<0.500 U	ND<0.500 U	8.40	ND<0.500 U	ND<0.500 U	ND<0.500 U	NA
	8/13/2012	ND<1.00 U	ND<1.00 U	18.3	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	11/19/2012	ND<1.00 U	ND<1.00 U	1.86	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	3/26/2013	ND<0.250 U	ND<0.200 U	2.66	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	6/25/2013	ND<0.250 U	ND<0.200 U	2.77	0.738 J	ND<0.250 U	ND<0.180 U	ND<2.5 U
	12/11/2013	ND<1.00 U	ND<1.00 U	1.07	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	3/5/2014	ND<1.00 U	ND<1.00 U	0.280 J	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	NA
MW-C	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	ND<0.200 U	ND<0.210 U	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	0.261 J	ND<0.230 U	ND<0.250 U	ND<0.180 U	22.1
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS

Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-C Continued	3/5/2014	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5.00 U
	4/10/2014	NS	NS	NS	NS	NS	NS	NS
	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.31
MW-D	6/28/2012	ND<0.500 U	ND<0.500 U	0.960 J	ND<0.500 U	ND<0.500 U	ND<0.500 U	NA
	8/13/2012	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<5 U
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	ND<0.200 U	0.338 J	ND<0.230 U	ND<0.250 U	ND<0.180 U	ND<2.5 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	1.64	ND<0.230 U	ND<0.250 U	0.553 J	ND<2.5 U
	12/11/2013	ND<1.00 U	ND<1.00 U	1.28	ND<1.00 U	ND<1.00 U	0.696 J	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	0.303 J	0.269 J	0.781 J	0.353 J	ND<1.00 U	ND<1.00 U	ND<5.00 U
	4/10/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	ND<1.0	ND<1.0	1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.31	
MW-E	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	ND<1.00 U	ND<1.00 U	7.63	ND<1.00 U	ND<1.00 U	6.75	ND<5 U
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	ND<0.250 U	0.275 J	2.36	ND<0.230 U	ND<0.250 U	1.51	ND<2.5 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	0.780 J	20.9	0.760 J	ND<0.250 U	8.86	ND<2.5 U
	12/11/2013	ND<1.00 U	0.371 J	2.94	0.256 J	ND<1.00 U	1.48	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-F	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	ND<0.250 U	ND<0.200 U	0.535 J	ND<0.230 U	ND<0.250 U	0.384 J	ND<2.5 U
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS



Monitoring Well	Date	Tetrachloroethene (ug/l)	Trichloroethene (ug/l)	cis-1,2-Dichloroethene (ug/l)	trans-1,2-Dichloroethene (ug/l)	1,1-Dichloroethene (ug/l)	Vinyl Chloride (ug/l)	Ethene (ug/l)
NY TOGS 1.1.1 GWQS		5	5	5	5	5	2	NA
MW-F	4/10/2014	NS	NS	NS	NS	NS	NS	NS
Continued	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.31

Notes:

- µg/L = Micrograms/liter
- BDL = Below Detection Limit
- DRY = No water for sampling
- GWQS = Groundwater Quality Standards
- NA = Not Available or not analyzed for that specific compound
- ND = Not detected (# is method detection limit)
- TOGS = Technical and Operational Guidance Series 1.1.1

Monitoring Well	Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)	Isopropyl Benzene (ug/l)	Naphthalene (ug/l)	1,1 Dichloroethane (ug/l)	1,1 Dichloroethene (ug/l)	1,1,1 Trichloroethane (ug/l)	1,1,1,2-Tetrachloroethane (ug/l)	1,1,2,2-Tetrachloroethane (ug/l)	1,1,2-Trichloroethane (ug/l)	1,2,3-Trichlorobenzene (ug/l)	1,2,3-Trichloropropane (ug/l)	1,2,4-Trichlorobenzene (ug/l)
NY TOGS 1.1.1 GWQS		1	5	5	5	10	5	10	5	5	5	NA	5	1	NA	NA	5
MW-F	6/25/2013	ND<0.200 U	ND<0.170 U	ND<0.190 U	ND<0.180 U	ND<0.120 U	ND<0.170 U	ND<0.210 U	ND<0.240 U	ND<0.250 U	ND<0.190 U	ND<0.150 U	ND<0.190 U	ND<0.190 U	ND<0.230 U	ND<0.230 U	ND<0.150 U
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<3.00 U	ND<1.00 U	ND<1.00 U	ND<5.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U
	5/19/2014	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<5.0

Monitoring Well	Date	1,2,4-Trimethylbenzene (ug/l)	1,2-Dibromo-3-chloropropane (ug/l)	1,2-DiBromoethane (ug/l)	1,2-Dichlorobenzene (ug/l)	1,2-DiChloroethane (ug/l)	1,2-Dichloropropane (ug/l)	1,3,5-Trimethylbenzene (ug/l)	1,3-Dichloropropane (ug/l)	2-Butanone (ug/l)	2-Chlorotoluene (ug/l)	2-Hexanone (ug/l)	4-Methyl-2-pentanone (ug/l)	Acetone (ug/l)	Bromobenzene (ug/l)	Bromo-chloro-methane (ug/l)	Bromo-dichloro-methane (ug/l)
NY TOGS 1.1.1 GWQS		5	0.04	0.0006	3	0.6	1	5	NA	50	NA	50	NA	50	NA	NA	50
MW-F	6/25/2013	ND<0.170 U	ND<4.21 U	ND<0.140 U	ND<0.190 U	ND<0.200 U	ND<0.250 U	ND<0.150 U	ND<0.190 U	9.19 J	ND<0.180 U	ND<1.28 U	1.16 J	39.7 J	ND<0.210 U	ND<0.330 U	ND<0.110 U
	12/11/2013	ND<1.00 U	ND<10.0 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<50.0 U	ND<1.00 U	ND<5.00 U	ND<5.00 U	2.71 J	ND<1.00 U	ND<1.00 U	ND<1.00 U
	5/19/2014	ND<2.0	ND<10	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<5.0	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<10	ND<5.0	ND<5.0	ND<1.0

Monitoring Well	Date	Bromoform (ug/l)	Bromo-methane (ug/l)	Carbon disulfide (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-benzene (ug/l)	Chloro-ethane (ug/l)	Chloroform (ug/l)	Chloro-methane (ug/l)	cis-1, 2-Dichloro-ethene (ug/l)	cis-1,3-Dichloro-propene (ug/l)	Dibromo-chloro-methane (ug/l)	Dibromo-methane (ug/l)	Dichloro-difluoro-methane (ug/l)	Hexachloro-butadiene (ug/l)	m-Dichloro-benzene (ug/l)	Methylene Chloride (ug/l)
NY TOGS 1.1.1 GWQS		50	50	60	5	5	5	7	5	5	0.4	50	NA	5	0.5	3	5
MW-F	6/25/2013	ND<0.290 U	ND<0.350 U	0.861 J	ND<0.180 U	ND<0.180 U	ND<0.360 U	ND<0.230 U	ND<0.300 U	0.535 J	ND<0.120 U	ND<0.250 U	ND<0.310 U	ND<0.440 U	ND<0.210 U	ND<0.180 U	ND<0.160 U
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<2.00 U	ND<1.00 U	ND<5.00 U
	5/19/2014	ND<4.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0	ND<2.0

Monitoring Well	Date	n-Butylbenzene (ug/l)	n-propylbenzene (ug/l)	p-Chlorotoluene (ug/l)	p-Dichlorobenzene (ug/l)	p-Isopropyltoluene (ug/l)	sec-Butylbenzene (ug/l)	Styrene (ug/l)	tert-Butylbenzene (ug/l)	Tetrachloroethene (ug/l)	trans-1, 2-Dichloroethene (ug/l)	trans-1,3-Dichloropropene (ug/l)	Trichloroethene (ug/l)	Trichlorofluoromethane (ug/l)	Vinyl Chloride (ug/l)
NY TOGS 1.1.1 GWQS		5	5	NA	3	5	5	50	5	5	5	0.4	5	5	2
MW-F	6/25/2013	ND<0.240 U	ND<0.170 U	ND<0.170 U	ND<0.130 U	ND<0.170 U	ND<0.170 U	ND<0.200 U	ND<0.170 U	ND<0.250 U	ND<0.230 U	ND<0.110 U	ND<0.200 U	ND<0.210 U	0.384 J
	12/11/2013	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U	ND<1.00 U
	5/19/2014	ND<5.0	ND<5.0	ND<5.0	ND<1.0	NA	ND<5.0	ND<5.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0

Notes:

- μg/L = Micrograms per liter (parts per billion)
- NA = Not available/not analyzed for that specific compound
- ND = Not detected (# is method detection limit)
- J = Result is estimated and less than the reporting limit
- UJ = Reporting limit raised due to sample matrix effects
- PV = Acid preservation was indicated on the sample vial.
- M7 = The MS and/or MSD were above the acceptance limits. See Blank Spike LCS
- L1 = Control Duplicate
- B = Analyte was detected in associated method blank
- NYSDEC = New York State Department of Conservation
- TOGS = Technical and Operational Guidance Series 1.1.1
- GWQS = Groundwater Quality Standards or Guidance Values



Monitoring Well	Date	Iron, Ferric (mg/l)	Iron, Ferrous (mg/l)	Iron, Total (mg/l)	Nitrate Nitrogen (mg/l)	Sulfate (mg/l)	Total Organic Carbon (mg/l)	Ethene (mg/l)
NY TOGS 1.1.1 GWQS		NA	NA	NA	NA	NA	NA	NA
MW-3	3/22/2012	NA	NA	NA	ND<0.0500 U	8.94	161	0.00628 B
	6/28/2012	NA	NA	NA	NA	NA	1,780	NA
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	5.60	41.6	47.2	NA	8.01	1520 B	ND<0.0025 U
	4/23/2013	NA	NA	NA	NA	NA	232 B	NA
	6/25/2013	6.50	24.4	30.9	NA	29.4	191	ND<0.0025 U
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NA	NA	NA	NA	NA	97.6	NA
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	NA	NA	NA	NA	NA	271	NA
5/19/2014	8.9	0.52	9.39	ND<0.11	ND<10	37.6	ND<0.00031	
6/18/2014	NA	NA	NA	NA	NA	1,660	NA	
MW-4	3/21/2012	0.0560	ND<50.0 UJ	0.0560	0.993	24.9	1.16	ND<0.00250 U
	6/28/2012	NA	NA	NA	NA	NA	4.13 B	NA
	8/13/2012	NA	7.01	6.97	NA	28.9	NA	ND<0.005 U
	8/31/2012	NA	NA	NA	NA	NA	5.87	NA
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NA	NA	NA	NA	NA	NA	ND<0.005 U
	1/14/2013	NA	NA	NA	NA	NA	10.9	NA
	2/28/2013	NA	NA	NA	NA	NA	3.8	NA
	3/26/2013	0.300	10.6	10.3	NA	12.2	399 B	0.0083
	4/23/2013	NA	NA	NA	NA	NA	149	NA
	6/25/2013	1.70	12.1	13.8	NA	ND<0.6 U	103	0.00609
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NA	NA	NA	NA	NA	101	NA
	3/5/2014	ND<0.100 U	NA	4.03 B	NA	27.4	5.31	ND<0.00500 U
	4/10/2014	NA	NA	NA	NA	NA	18.1	NA
5/19/2014	4.1	ND<0.20	4.23	ND<0.11	10.6	23.7	0.00043	
6/18/2014	NA	NA	NA	NA	NA	287	NA	
MW-5	3/21/2012	2.27	0.253 UJ	2.52	ND<0.0500 U	7.65	3.92	0.0929
	6/28/2012	NA	NA	NA	NA	NA	3.5 B	NA
	8/13/2012	NA	3.37	4.1	NA	10.1	NA	0.0766
	8/31/2012	NA	NA	NA	NA	NA	39.5	NA
	10/1/2012	NA	NA	NA	NA	NA	66.1	NA
	11/19/2012	0.430	6.74	7.17	NA	26.5	377	0.192
	1/14/2013	NA	NA	NA	NA	NA	105	NA
	2/28/2013	NA	NA	NA	NA	NA	86.6	NA
	3/26/2013	4.10	12.5	16.6	NA	15.9	104 B	0.00712
	4/23/2013	NA	NA	NA	NA	NA	129 B	NA
	6/25/2013	0.900	9.03	8.13	NA	1.47	165	0.00541
	12/11/2013	ND<0.100 U	NA	3.75	NA	12.8	213	NA
	1/15/2014	NA	NA	NA	NA	NA	480	NA
	3/5/2014	5.80	NA	16.5 B	NA	1.69	NA	0.00637
	4/10/2014	NA	NA	NA	NA	NA	121	NA
5/19/2014	13.6	4.4	18	ND<0.15	14.0	319	0.00079	
6/18/2014	NA	NA	NA	NA	NA	293	NA	



Monitoring Well	Date	Iron, Ferric (mg/l)	Iron, Ferrous (mg/l)	Iron, Total (mg/l)	Nitrate Nitrogen (mg/l)	Sulfate (mg/l)	Total Organic Carbon (mg/l)	Ethene (mg/l)
NY TOGS 1.1.1 GWQS		NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	4.42	1.21 UJ	5.62	ND<0.0500 U	65.4	7.19	0.0182 B
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	3.31	4.57	7.88	NA	38.1	8.21 B	ND<0.0025 U
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	23.5	NA	30.1 B	NA	149	14.5	ND<0.00500 U
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
MW-7	3/21/2012	0.379	0.182 UJ	0.561	0.759	25.8	6.86	ND<0.00250 U
	6/29/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NA	NA	NA	NA	NA	5.69	ND<0.005 U
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	161	25.3	186	NA	34.3	6.94 B	ND<0.0025 U
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	1.70	0.203	1.9	NA	29.5	7.23	ND<0.0025 U
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NA	NA	55.1 B	NA	NA	NA	NA
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-8A	3/21/2012	NS	NS	NS	NS	NS	NS	NS
	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NA	NA	NA	NA	NA	2.75	NA
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NS	NS	NS	NS	NS	NS	NS
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NS	NS	NS	NS	NS	NS	NS
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
4/10/2014	NA	NA	NA	NA	NA	12.0	NA	
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-8B	3/21/2012	ND<0.0500 U	0.113 UJ	0.0733	0.91	17.5	1.39	ND<0.00250 U
	6/28/2012	NA	NA	NA	NA	NA	5.51	NA
	8/13/2012	NA	3.92	4.27	NA	20.7	NA	0.00978
	8/31/2012	NA	NA	NA	NA	NA	15.1	NA
	10/1/2012	NA	NA	NA	NA	NA	8.45	NA
	11/19/2012	NA	NA	NA	NA	NA	7.37	0.0204
	1/14/2013	NA	NA	NA	NA	NA	26.7	NA
	2/28/2013	NA	NA	NA	NA	NA	37.9	NA
	3/26/2013	1.44	5.91	7.35	NA	1.48	19.3 B	ND<0.0025 U
	4/23/2013	NA	NA	NA	NA	NA	17.9 B	NA
	6/25/2013	ND<0.0800 U	5.74	5.73	NA	1.73	11.1	0.0317
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	1/15/2014	NA	NA	NA	NA	NA	57.3	NA
	3/5/2014	ND<0.100 U	NA	9.28 B	NA	5.68	19.0	ND<0.00500 U
	4/10/2014	NA	NA	NA	NA	NA	13.6	NA
5/19/2014	NA	0.32	NA	NA	NA	NA	0.00020	



Monitoring Well	Date	Iron, Ferric (mg/l)	Iron, Ferrous (mg/l)	Iron, Total (mg/l)	Nitrate Nitrogen (mg/l)	Sulfate (mg/l)	Total Organic Carbon (mg/l)	Ethene (mg/l)
NY TOGS 1.1.1 GWQS		NA	NA	NA	NA	NA	NA	NA
MW-8B	6/18/2014	NA	NA	NA	NA	NA	17.1	NA
MW-10	3/21/2012	0.0631	ND<50.0 UJ	0.0631	2.13	27.6	0.935 UJ	ND<0.00250 U
	6/29/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NA	ND<0.100 U	0.139	NA	24.6	1.56	ND<0.005 U
	11/19/2012	5.18	0.610	5.79	NA	24.3	3.39	ND<0.005 U
	3/26/2013	0.291	ND<0.0800 U	0.291	NA	20.6	1.26 B	ND<0.0025 U
	6/25/2013	0.704	ND<0.0800 U	0.704	NA	24.5	1.13	ND<0.0025 U
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	NS	NS	NS	NS	NS	NS	NS
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
MW-15A	6/29/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NA	22.3	20.4	NA	24.6	3.03	ND<0.005 U
	11/19/2012	NA	NA	NA	NA	NA	NA	ND<0.005 U
	3/26/2013	7.36	0.340	7.7	NA	21.5	1.8 B	ND<0.0025 U
	6/25/2013	25.7	0.912	26.6	NA	21.4	2.26	ND<0.0025 U
	12/11/2013	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
5/19/2014	NS	NS	NS	NS	NS	NS	NS	
MW-C	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NA	NA	NA	NA	NA	9.22	NA
	2/28/2013	NA	NA	NA	NA	NA	5.5	NA
	3/26/2013	4.45	2.13	6.58	NA	5.14	3.87 B	ND<0.0025 U
	4/23/2013	NA	NA	NA	NA	NA	6.91 B	NA
	6/25/2013	NA	NA	NA	NA	NA	30.4	0.0221
	12/11/2013	ND<0.100 U	NA	7.02	NA	20.4	5.59	NA
	1/15/2014	NA	NA	NA	NA	NA	17.8	NA
	3/5/2014	27.1	NA	36.2 B	NA	7.16	4.82	ND<0.00500 U
	4/10/2014	NA	NA	NA	NA	NA	12.8	NS
5/19/2014	12.4	0.46	12.9	ND<0.11	ND<10	17.3	ND<0.00031	
6/18/2014	NA	NA	NA	NA	NA	17.1	NA	
MW-D	6/28/2012	NA	NA	NA	NA	NA	48.6	NA
	8/13/2012	NA	37.3	36.8	NA	7.08	NA	ND<0.005 U
	8/31/2012	NA	NA	NA	NA	NA	33.5	NA
	10/1/2012	NA	NA	NA	NA	NA	22.7	NA
	11/19/2012	NA	NA	NA	NA	NA	15.5	ND<0.005 U
	1/14/2013	NA	NA	NA	NA	NA	12.8	NA
	2/28/2013	NA	NA	NA	NA	NA	10.7	NA
	3/26/2013	114	14.0	128	NA	23.6	5.13 B	ND<0.0025 U
	4/23/2013	NA	NA	NA	NA	NA	13.9 B	NA
	6/25/2013	4.22	14.0	9.78	NA	37.2	21.2	ND<0.0025 U
	12/11/2013	NA	NA	22.0	NA	NA	8.76	NA
	1/15/2014	NA	NA	NA	NA	NA	47.2	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	ND<0.00500 U
	4/10/2014	NA	NA	NA	NA	NA	10.6	NA
5/19/2014	NA	ND<0.20	NA	NA	NA	NA	ND<0.00031	
6/18/2014	NA	NA	NA	NA	NA	16.6	NA	



Monitoring Well	Date	Iron, Ferric (mg/l)	Iron, Ferrous (mg/l)	Iron, Total (mg/l)	Nitrate Nitrogen (mg/l)	Sulfate (mg/l)	Total Organic Carbon (mg/l)	Ethene (mg/l)
NY TOGS 1.1.1 GWQS								
		NA	NA	NA	NA	NA	NA	NA
MW-E	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NA	5.69	71.5	NA	35.9	NA	ND<0.005 U
	8/31/2012	NA	NA	NA	NA	NA	13.6	NA
	10/1/2012	NA	NA	NA	NA	NA	36.8	NA
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NA	NA	NA	NA	NA	11.6	NA
	2/28/2013	NA	NA	NA	NA	NA	7.66	NA
	3/26/2013	NA	NA	NA	NA	NA	15.8 B	ND<0.0025 U
	4/23/2013	0.770	1.72	2.49	NA	18.2	11.4 B	NA
	6/25/2013	87.5	137	49.5 B	NA	5.97	17.4	ND<0.0025 U
	12/11/2013	ND<0.100 U	NA	5.72	NA	63.4	13.5	NA
	1/15/2014	NS	NS	NS	NS	NS	NS	NS
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	NA	NA	NA	NA	NA	13.2	NA
	5/19/2014	NS	NS	NS	NS	NS	NS	NS
6/18/2014	NA	NA	NA	NA	NA	24.4	NA	
MW-F	6/28/2012	NS	NS	NS	NS	NS	NS	NS
	8/13/2012	NS	NS	NS	NS	NS	NS	NS
	8/31/2012	NS	NS	NS	NS	NS	NS	NS
	10/1/2012	NS	NS	NS	NS	NS	NS	NS
	11/19/2012	NS	NS	NS	NS	NS	NS	NS
	1/14/2013	NS	NS	NS	NS	NS	NS	NS
	2/28/2013	NA	NA	NA	NA	NA	5.41	NA
	3/26/2013	NS	NS	NS	NS	NS	NS	NS
	4/23/2013	NS	NS	NS	NS	NS	NS	NS
	6/25/2013	NA	NA	NA	NA	NA	NA	ND<0.0025 U
	12/11/2013	NA	NA	10.2	NA	NA	7.50	NA
	1/15/2014	NA	NA	NA	NA	NA	40.6	NA
	3/5/2014	NS	NS	NS	NS	NS	NS	NS
	4/10/2014	NA	NA	NA	NA	NA	11.3	NA
	5/19/2014	NA	NA	NA	NA	NA	NA	ND<0.00031
6/18/2014	NA	NA	NA	NA	NA	12.5	NA	

Notes:

- mg/L = Milligrams per liter (parts per million)
- µg/L = Micrograms per liter (parts per billion)
- NA = Not available/not analyzed for that specific compound
- ND = Not detected (# is method detection limit)
- UJ = Reporting limit raised due to sample matrix effects
- UJ* = Holding time for this test is immediate
- HF = Field parameter with holding time of 15 minutes
- B1 = Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
- B = Analyte was detected in associated method blank
- NYSDEC = New York State Department of Conservation
- TOGS = Technical and Operational Guidance Series 1.1.1
- GWQS = Groundwater Quality Standards or Guidance Values

Monitoring Well	Date	Arsenic (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Copper (mg/l)	Iron (mg/l)	Lead (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Selenium (mg/l)	Silver (mg/l)	Thallium (mg/l)	Zinc (mg/l)
NY TOGS 1.1.1 GWQS		50	3	10	50	1,000	NA	50	1.4	200	20	100	NA	5,000
MW-5	3/21/2012	ND<0.00500 U	ND<0.00400 U	ND<0.00100 U	0.00670	0.00580 UJ	2.52	ND<0.00500 U	ND<0.000100 U	0.0190	ND<0.00500 U	ND<0.00500 U	ND<0.00500 U	0.0505
	3/26/2013	0.0083 J	ND<0.000400 U	0.765	0.0313	0.465	16.6	0.244	ND<0.00015 U	0.0567	ND<0.004 U	ND<0.0025 U	ND<0.00330 U	0.953
	4/10/2014	0.0035	ND<0.0010	0.0199	ND<0.01	0.0388	NA	ND<0.0030	ND<0.00020	ND<0.01	ND<0.01	ND<0.01	ND<0.0020	0.221
MW-6	3/22/2012	ND<0.00500 U	ND<0.00400 U	ND<0.00100 U	0.0099	0.0063 UJ	5.62	0.0121	ND<0.000100 U	0.0242	0.00580 UJ	ND<0.00500 U	0.0103	0.0386 UJ
	3/26/2013	0.0047 J	0.00110 J	0.0532	0.0195	0.0232	7.88	0.0467	ND<0.00015 U	0.0344	ND<0.004 U	ND<0.0025 U	ND<0.00330 U	0.0803
	3/5/2014	ND<0.100 U	ND<0.0400 U	0.349	0.0400 J	0.451	30.1 B	0.0530	ND<0.000200 U	0.0230 J	ND<0.100 U	ND<0.0500 U	ND<0.100 U	0.124 J
MW-7	3/21/2012	ND<0.00500 U	ND<0.00400 U	ND<0.00100 U	ND<0.00250 U	0.0178	0.561	ND<0.00500 U	ND<0.000100 U	ND<0.00500 U	ND<0.00500 U	ND<0.00500 U	ND<0.00500 U	ND<0.0250 U
	6/25/2013	ND<0.0047 U	ND<0.000300 U	0.0239	0.0027 J	0.0371	1.9	0.0069	ND<0.00015 U	ND<0.0013 U	ND<0.0064 U	ND<0.0013 U	ND<0.00450 U	0.175 B
	3/5/2014	ND<1.00 U	ND<0.400 U	0.330	ND<0.500 U	0.810 J	55.1 B	ND<0.500 U	ND<0.000200 U	ND<1.00 U	ND<1.00 U	ND<0.500 U	ND<1.00 U	1.35 J
MW-10	3/21/2012	ND<0.00500 U	ND<0.00400 U	ND<0.00100 U	ND<0.00250 U	ND<0.00500 U	0.0631	ND<0.00500 U	ND<0.000100 U	ND<0.00500 U	ND<0.00500 U	ND<0.00500 U	ND<0.00500 U	ND<0.0250 U
	3/26/2013	ND<0.004 U	ND<0.000400 U	0.0017	0.0053	ND<0.006 U	0.291	0.0051	ND<0.00015 U	0.0049 J	0.0045 J	ND<0.0025 U	ND<0.00330 U	0.153
	4/10/2014	ND<0.0030	ND<0.0010	ND<0.0030	ND<0.01	ND<0.01	NA	ND<0.0030	ND<0.00020	ND<0.01	ND<0.01	ND<0.01	ND<0.0020	ND<0.02

Notes:

- mg/L = Milligrams per liter (parts per million)
- NA = Not available/not analyzed for that specific compound
- ND = Not detected (# is method detection limit)
- J = Result is estimated and less than the reporting limit
- UJ = Reporting limit raised due to sample matrix effects
- NYSDEC = New York State Department of Conservation
- TOGS = Technical and Operational Guidance Series 1.1.1
- GWQS = Groundwater Quality Standards or Guidance Values
- BOLD** = Results in bold exceed the NYSDEC TOGS 1.1.1 GWQS

Monitoring Well	Date	Aroclor 1016 (ug/l)	Aroclor 1221 (ug/l)	Aroclor 1232 (ug/l)	Aroclor 1242 (ug/l)	Aroclor 1248 (ug/l)	Aroclor 1254 (ug/l)	Aroclor 1260 (ug/l)
NY TOGS 1.1.1 GWQS		0.09	0.09	0.09	0.09	0.09	0.09	0.09
MW-5	3/21/2012	ND<0.25 U	ND<0.25 U	ND<0.25 U	ND<0.25 U	ND<0.25 U	ND<0.25 U	ND<0.25 U
	3/26/2013	ND<3.06 U	ND<16.3 U	ND<4.38 U	ND<4 U	431	ND<0.438 U	ND<0.75 U
	4/23/2013	ND<0.0485 U	ND<0.257 U	ND<0.0693 U	ND<0.0634 U	ND<0.0683 U	ND<0.00693 U	ND<0.0119 U
	4/10/2014	ND<0.051	NA	NA	ND<0.051	ND<0.051	NA	NA
MW-6	3/22/2012	ND<0.24 U	ND<0.24 U	ND<0.24 U	ND<0.24 U	ND<0.24 U	ND<0.24 U	ND<0.24 U
	3/26/2013	ND<0.0458 U	ND<0.243 U	ND<0.0654 U	ND<0.0598 U	ND<0.0645 U	ND<0.00654 U	ND<0.0112 U
	3/5/2014	ND<0.521 U	ND<0.521 U	ND<0.521 U	ND<0.521 U	ND<0.521 U	ND<0.521 U	ND<0.521 U
MW-7	3/21/2012	ND<0.243 U	ND<0.243 U	ND<0.243 U	ND<0.243 U	ND<0.243 U	ND<0.243 U	ND<0.243 U
	4/23/2013	ND<0.048 U	ND<0.255 U	ND<0.0686 U	ND<0.0627 U	0.528	ND<0.00686 U	ND<0.0118 U
	6/25/2013	ND<0.0485 U	ND<0.257 U	ND<0.0693 U	0.22 J	ND<0.0683 U	ND<0.00693 U	ND<0.0119 U
	3/5/2014	ND<0.446 U	ND<0.446 U	ND<0.446 U	ND<0.446 U	ND<0.446 U	ND<0.446 U	ND<0.446 U
MW-10	3/21/2012	ND<0.243 U	ND<0.243 U	ND<0.243 U	2.99	ND<0.243 U	ND<0.243 U	ND<0.243 U
	6/29/2012	ND<0.263 U	ND<0.263 U	ND<0.263 U	ND<0.263 U	ND<0.263 U	ND<0.263 U	ND<0.263 U
	3/26/2013	ND<0.0458 U	ND<0.243 U	ND<0.0654 U	ND<0.0598 U	ND<0.0645 U	ND<0.00654 U	ND<0.0112 U
	4/10/2014	ND<0.050	NA	NA	ND<0.050	ND<0.050	NA	NA

Notes

- µg/L = Micrograms per liter (parts per billion)
- ND = Not detected (# is method detection limit)
- NYSDEC = New York State Department of Conservation
- TOGS = Technical and Operational Guidance Series 1.1.1
- GWQS = Groundwater Quality Standards or Guidance Values



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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	Naphthalene ug/l	1,2,4- Trichlorobenzene ug/l	1,2-Dichlorobenzene ug/l	1-Methylnaphthalene ug/l	2,4,5-Trichlorophenol mg/l	2,4,5-Trichlorophenol ug/l	2,4,6-Trichlorophenol mg/l	2,4,6-Trichlorophenol ug/l	2,4-Dichlorophenol mg/l	2,4-Dichlorophenol ug/l	2,4-Dimethylphenol ug/l
NY TOGS 1.1.1 GWQS		10	5	3		0.001	1	0.001	1	0.005	5	2
MW-5	3/21/2012	ND< 2.50	ND< 0.500	ND< 0.500	ND< 1.00	ND< 0.013	NA	ND< 0.005	NA	ND< 0.005	NA	ND< 5.00
	6/28/2012	ND< 2.50	ND< 0.500	ND< 0.500	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	ND< 250	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	17.6	ND< 0.150	ND< 0.190	11.5	ND< 0.00239	NA	ND< 0.00207	NA	ND< 0.0012	NA	ND< 1.17
	6/25/2013	14.8 J	ND< 1.50	ND< 1.90	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	4.61 J	ND< 10.0	ND< 10.0	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	5.89 B J	ND< 10.0	ND< 10.0	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	1.9	ND< 1.0	ND< 1.0	2.5	NA	ND< 5.0	NA	ND< 5.0	NA	ND< 2.0	ND< 5.0
	5/19/2014	ND< 5.0	ND< 5.0	ND< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	ND< 0.990	ND< 4.95	ND< 4.95	ND< 0.990	ND< 0.0129	NA	ND< 0.00495	NA	ND< 0.00495	NA	ND< 4.95
	3/26/2013	1.23 J	ND< 0.150	ND< 0.190	ND< 0.291	ND< 0.0019	NA	ND< 0.00164	NA	ND< 0.000953	NA	ND< 0.931
	3/5/2014	ND< 5.00	ND< 1.00	ND< 1.00	ND< 1.79	NA	ND< 22.3	NA	ND< 8.93	NA	ND< 8.93	ND< 8.93
MW-7	3/21/2012	ND< 0.990	ND< 4.95	ND< 4.95	ND< 0.990	ND< 0.0129	NA	ND< 0.00495	NA	ND< 0.00495	NA	ND< 4.95
	6/29/2012	ND< 2.50	ND< 0.500	ND< 0.500	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.210	ND< 0.150	ND< 0.190	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	ND< 0.379	ND< 1.05	ND< 1.33	ND< 0.296	ND< 0.00193	NA	ND< 0.00168	NA	ND< 0.000971	NA	ND< 0.949
	6/25/2013	3.22 J	ND< 0.150	ND< 0.190	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	ND< 5.00	ND< 1.00	ND< 1.00	ND< 1.79	NA	ND< 22.3	NA	ND< 8.93	NA	ND< 8.93	ND< 8.93
	5/19/2014	ND< 5.0	ND< 5.0	ND< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	ND< 2.50	ND< 0.500	ND< 0.500	ND< 1.00	ND< 0.013	NA	ND< 0.005	NA	ND< 0.005	NA	ND< 5.00
	6/29/2012	ND< 2.50	ND< 0.500	ND< 0.500	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.210	ND< 0.150	ND< 0.190	ND< 0.291	ND< 0.0019	NA	ND< 0.00164	NA	ND< 0.000953	NA	ND< 0.931
	6/25/2013	0.407 J	ND< 0.150	ND< 0.190	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	ND< 5.00	ND< 1.00	ND< 1.00	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	NA	ND< 5.0	NA	ND< 5.0	NA	ND< 2.0	ND< 5.0
	5/19/2014	ND< 5.0	ND< 5.0	ND< 1.0	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	2,4-Dinitrophenol mg/l	2,4-Dinitrophenol ug/l	2,4-Dinitrotoluene ug/l	2,6-Dinitrotoluene ug/l	2-Chloronaphthalene ug/l	2-Chlorophenol mg/l	2-Chlorophenol ug/l	2-Methylnaphthalene ug/l	2-Methylphenol mg/l	2-Methylphenol ug/l	2-Nitroaniline mg/l
NY TOGS 1.1.1 GWQS		0.01	10	5	5	10	0.001	1		0.001	1	0.005
MW-5	3/21/2012	ND< 0.013	NA	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.005	NA	ND< 1.00	ND< 0.005	NA	ND< 0.013
	6/28/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.00289	NA	ND< 3.92	ND< 2.28	ND< 1.93	ND< 0.00187	NA	18.6	ND< 0.00392	NA	ND< 0.00122
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	NA	ND< 20	ND< 1.0	ND< 1.0	ND< 2.0	NA	ND< 5.0	3.1	NA	ND< 2.0	NA
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	ND< 0.0129	NA	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.00495	NA	ND< 0.990	ND< 0.00495	NA	ND< 0.0129
	3/26/2013	ND< 0.0023	NA	ND< 3.11	ND< 1.81	ND< 1.53	ND< 0.00149	NA	ND< 0.291	ND< 0.00311	NA	ND< 0.000972
	3/5/2014	NA	ND< 22.3	ND< 8.93	ND< 8.93	ND< 8.93	NA	ND< 8.93	ND< 1.79	NA	ND< 8.93	NA
MW-7	3/21/2012	ND< 0.0129	NA	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.00495	NA	ND< 0.990	ND< 0.00495	NA	ND< 0.0129
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	ND< 0.00234	NA	ND< 3.17	ND< 1.85	ND< 1.56	ND< 0.00151	NA	ND< 0.296	ND< 0.00317	NA	ND< 0.00099
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	ND< 22.3	ND< 8.93	ND< 8.93	ND< 8.93	NA	ND< 8.93	ND< 1.79	NA	ND< 8.93	NA
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	ND< 0.013	NA	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.005	NA	ND< 1.00	ND< 0.005	NA	ND< 0.013
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.0023	NA	ND< 3.11	ND< 1.81	ND< 1.53	ND< 0.00149	NA	ND< 0.291	ND< 0.00311	NA	ND< 0.000972
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	NA	ND< 20	ND< 1.0	ND< 1.0	ND< 2.0	NA	ND< 5.0	ND< 1.0	NA	ND< 2.0	NA
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	2-Nitroaniline ug/l	2-Nitrophenol mg/l	2-Nitrophenol ug/l	3,3- Dichlorobenzidine ug/l	3-Nitroaniline mg/l	3-Nitroaniline ug/l	4,6-Dinitro-2-methyl- phenol mg/l	4,6-Dinitro-2-methyl- phenol ug/l	4-Bromo-phenyl phenyl ether ug/l	4-Chloro-3-methyl- phenol mg/l	4-Chloro-3-methyl- phenol ug/l
NY TOGS 1.1.1 GWQS		5	0.001	1	5	0.005	5	0.005	5		0.001	1
MW-5	3/21/2012	NA	ND< 0.005	NA	ND< 5.00	ND< 0.013	NA	ND< 0.013	NA	ND< 5.00	ND< 0.005	NA
	6/28/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	ND< 0.00185	NA	ND< 1.79	ND< 0.00218	NA	ND< 0.00244	NA	ND< 1.61	ND< 0.00392	NA
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 5.0	NA	ND< 5.0	ND< 2.0	NA	ND< 5.0	NA	ND< 20	ND< 2.0	NA	ND< 5.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	NA	ND< 0.00495	NA	ND< 4.95	ND< 0.0129	NA	ND< 0.0129	NA	ND< 4.95	ND< 0.00495	NA
	3/26/2013	NA	ND< 0.00147	NA	ND< 1.42	ND< 0.00173	NA	ND< 0.00193	NA	ND< 1.28	ND< 0.00311	NA
	3/5/2014	ND< 22.3	NA	ND< 8.93	ND< 8.93	NA	ND< 22.3	NA	ND< 22.3	ND< 8.93	NA	ND< 8.93
MW-7	3/21/2012	NA	ND< 0.00495	NA	ND< 4.95	ND< 0.0129	NA	ND< 0.0129	NA	ND< 4.95	ND< 0.00495	NA
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	NA	ND< 0.0015	NA	ND< 1.45	ND< 0.00176	NA	ND< 0.00197	NA	ND< 1.30	ND< 0.00317	NA
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	ND< 22.3	NA	ND< 8.93	ND< 8.93	NA	ND< 22.3	NA	ND< 22.3	ND< 8.93	NA	ND< 8.93
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	NA	ND< 0.005	NA	ND< 5.00	ND< 0.013	NA	ND< 0.013	NA	ND< 5.00	ND< 0.005	NA
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	ND< 0.00147	NA	ND< 1.42	ND< 0.00173	NA	ND< 0.00193	NA	ND< 1.28	ND< 0.00311	NA
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 5.0	NA	ND< 5.0	ND< 2.0	NA	ND< 5.0	NA	ND< 20	ND< 2.0	NA	ND< 5.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	4-Chloro-aniline mg/l	4-Chloro-aniline ug/l	4-Chloro-phenyl- phenylether mg/l	4-Chloro-phenyl- phenylether ug/l	4-Nitro-aniline mg/l	4-Nitro-aniline ug/l	4-Nitro-phenol mg/l	4-Nitro-phenol ug/l	Ace-naphthene ug/l	Ace-naphthylene ug/l	Anthracene ug/l
NY TOGS 1.1.1 GWQS		0.005	5			0.005	5	0.001	1	20		50
MW-5	3/21/2012	ND< 0.005	NA	ND< 0.005	NA	ND< 0.013	NA	ND< 0.005	NA	ND< 1.00	ND< 1.00	ND< 1.00
	6/28/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.00138	NA	ND< 0.00206	NA	ND< 0.00281	NA	ND< 0.00392	NA	ND< 0.431	ND< 0.388	ND< 1.04
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	NA	ND< 5.0	NA	ND< 2.0	NA	ND< 5.0	NA	ND< 10	ND< 1.0	ND< 1.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	ND< 0.00495	NA	ND< 0.00495	NA	ND< 0.0129	NA	ND< 0.00495	NA	ND< 0.990	ND< 0.990	ND< 0.990
	3/26/2013	ND< 0.00109	NA	ND< 0.00164	NA	ND< 0.00223	NA	ND< 0.00311	NA	ND< 0.342	ND< 0.308	ND< 0.825
	3/5/2014	NA	ND< 8.93	NA	ND< 8.93	NA	ND< 22.3	NA	ND< 22.3	ND< 1.79	ND< 1.79	ND< 1.79
MW-7	3/21/2012	ND< 0.00495	NA	ND< 0.00495	NA	ND< 0.0129	NA	ND< 0.00495	NA	ND< 0.990	ND< 0.990	ND< 0.990
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	ND< 0.00111	NA	ND< 0.00167	NA	ND< 0.00228	NA	ND< 0.00317	NA	ND< 0.349	ND< 0.314	ND< 0.841
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	ND< 8.93	NA	ND< 8.93	NA	ND< 22.3	NA	ND< 22.3	ND< 1.79	ND< 1.79	ND< 1.79
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	ND< 0.005	NA	ND< 0.005	NA	ND< 0.013	NA	ND< 0.005	NA	ND< 1.00	ND< 1.00	ND< 1.00
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.00109	NA	ND< 0.00164	NA	ND< 0.00223	NA	ND< 0.00311	NA	ND< 0.342	ND< 0.308	ND< 0.825
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	NA	ND< 5.0	NA	ND< 2.0	NA	ND< 5.0	NA	ND< 10	ND< 1.0	ND< 1.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	Benzo(a) anthracene ug/l	Benzo(a) pyrene ug/l	Benzo(b) fluoranthene ug/l	Benzo(g,h,i) perylene ug/l	Benzo(k) fluoranthene ug/l	Bis (2 - Chloro- ethoxy) methane ug/l	Bis (2-Chloroethyl) ether ug/l	Bis (2-Chloro- isopropyl) ether ug/l	Bis(2-Ethylhexyl) phthalate ug/l	Butyl benzyl phthalate ug/l	Carbazole ug/l
NY TOGS 1.1.1 GWQS		0.002	0	0.002		0.002	5	1		5	50	
MW-5	3/21/2012	ND< 1.00	ND< 1.00	ND< 1.00	ND< 1.00	ND< 1.00	ND< 5.00	NA	ND< 5.00	ND< 5.00	ND< 5.00	ND< 5.00
	6/28/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.381	ND< 0.388	ND< 0.496	ND< 0.338	ND< 0.428	ND< 1.60	ND< 2.31	ND< 1.64	40.1	28.5	ND< 0.352
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 2.0	NA	42.5	38.4	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	ND< 0.990	ND< 0.990	ND< 0.990	ND< 0.990	ND< 0.990	ND< 4.95	NA	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95
	3/26/2013	ND< 0.303	ND< 0.308	ND< 0.394	ND< 0.268	ND< 0.340	ND< 1.27	ND< 1.83	ND< 1.30	ND< 1.93	ND< 1.63	ND< 0.279
	3/5/2014	ND< 1.79	ND< 1.79	ND< 1.79	ND< 1.79	ND< 1.79	ND< 8.93	ND< 8.93	NA	5.76 B J	ND< 8.93	ND< 8.93
MW-7	3/21/2012	ND< 0.990	ND< 0.990	ND< 0.990	ND< 0.990	ND< 0.990	ND< 4.95	NA	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	ND< 0.309	ND< 0.314	1.30 J	1.14 J	0.420 J	ND< 1.30	ND< 1.87	ND< 1.32	ND< 1.96	ND< 1.66	ND< 0.285
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	2.58	6.91	13.6	17.8	4.31	ND< 8.93	ND< 8.93	NA	4.96 B J	ND< 8.93	ND< 8.93
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	ND< 1.00	ND< 1.00	ND< 1.00	ND< 1.00	ND< 1.00	ND< 5.00	NA	ND< 5.00	ND< 5.00	ND< 5.00	ND< 5.00
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 0.303	ND< 0.308	ND< 0.394	ND< 0.268	ND< 0.340	ND< 1.27	ND< 1.83	ND< 1.30	ND< 1.93	ND< 1.63	ND< 0.279
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 2.0	NA	ND< 2.0	ND< 2.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	Chrysene ug/l	Dibenzo(a,h) anthracene ug/l	Dibenzo-furan ug/l	Diethyl phthalate ug/l	Dimethyl-phthalate ug/l	Di-n-Butyl-phthalate mg/l	Di-n-Butyl-phthalate ug/l	Di-n-octyl-phthalate ug/l	Fluor-anthene ug/l	Fluorene ug/l	Hexachloro-benzene ug/l
NY TOGS 1.1.1 GWQS		0.002			50	50	0.05	50	50	50	50	0.04
MW-5	3/21/2012	ND< 1.00	ND< 1.00	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.005	NA	ND< 5.00	ND< 1.00	ND< 1.00	ND< 5.00
	6/28/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 1.28	ND< 0.758	ND< 0.399	ND< 1.91	ND< 2.13	ND< 0.00176	NA	ND< 2.72	ND< 0.408	ND< 0.372	ND< 1.99
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 1.0	ND< 1.0	ND< 5.0	ND< 2.0	ND< 2.0	NA	ND< 2.0	ND< 2.0	ND< 1.0	ND< 1.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	3/22/2012	ND< 0.990	ND< 0.990	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.00495	NA	ND< 4.95	ND< 0.990	ND< 0.990	ND< 4.95
	3/26/2013	ND< 1.02	ND< 0.602	ND< 0.317	ND< 1.51	ND< 1.69	ND< 0.0014	NA	ND< 2.16	ND< 0.324	ND< 0.295	ND< 1.58
	3/5/2014	ND< 1.79	ND< 1.79	ND< 8.93	ND< 8.93	ND< 8.93	NA	ND< 8.93	ND< 8.93	ND< 1.79	ND< 1.79	ND< 8.93
MW-7	3/21/2012	ND< 0.990	ND< 0.990	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.00495	NA	ND< 4.95	ND< 0.990	ND< 0.990	ND< 4.95
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/23/2013	ND< 1.04	ND< 0.613	ND< 0.323	ND< 1.54	ND< 1.72	ND< 0.00143	NA	ND< 2.20	ND< 0.330	ND< 0.301	ND< 1.61
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/5/2014	6.79	2.44	ND< 8.93	ND< 8.93	ND< 8.93	NA	ND< 8.93	ND< 8.93	6.12	ND< 1.79	ND< 8.93
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	3/21/2012	ND< 1.00	ND< 1.00	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.005	NA	ND< 5.00	ND< 1.00	ND< 1.00	ND< 5.00
	6/29/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/26/2013	ND< 1.02	ND< 0.602	ND< 0.317	ND< 1.51	ND< 1.69	ND< 0.0014	NA	ND< 2.16	ND< 0.324	ND< 0.295	ND< 1.58
	6/25/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/10/2014	ND< 1.0	ND< 1.0	ND< 5.0	ND< 2.0	ND< 2.0	NA	ND< 2.0	ND< 2.0	ND< 1.0	ND< 1.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	Hexachloro-butadiene ug/l	Hexachloro-cyclo- pentadiene ug/l	Hexachloro-ethane ug/l	Indeno (1,2,3-cd) pyrene ug/l	Isophorone ug/l	m-Dichloro-benzene ug/l	Nitro-benzene ug/l	N-Nitrosodi-n-propyl- amine ug/l	N-Nitrosodi- phenylamine ug/l	p-Dichloro-benzene ug/l	Pentachloro-phenol mg/l
NY TOGS 1.1.1 GWQS		0.5	5	5	0.002	50	3	0.4		50	3	0.002
MW-5	3/21/2012	ND< 1.00	ND< 5.00	ND< 5.00	ND< 1.00	ND< 5.00	ND< 0.500	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.500	ND< 0.013
	6/28/2012	ND< 1.00	NA	NA	NA	NA	ND< 0.500	NA	NA	NA	ND< 0.500	NA
	8/13/2012	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	11/19/2012	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	3/26/2013	ND< 0.210	ND< 3.92	ND< 3.92	ND< 0.448	ND< 1.46	ND< 0.180	ND< 1.46	ND< 1.67	ND< 1.69	ND< 0.130	ND< 0.00194
	6/25/2013	ND< 2.10	NA	NA	NA	NA	ND< 1.80	NA	NA	NA	ND< 1.30	NA
	12/11/2013	ND< 20.0	NA	NA	NA	NA	ND< 10.0	NA	NA	NA	ND< 10.0	NA
	3/5/2014	ND< 20.0	NA	NA	NA	NA	ND< 10.0	NA	NA	NA	ND< 10.0	NA
	4/10/2014	ND< 1.0	ND< 10	ND< 2.0	ND< 1.0	ND< 2.0	ND< 1.0	ND< 2.0	ND< 2.0	ND< 5.0	ND< 1.0	NA
	5/19/2014	ND< 5.0	NA	NA	NA	NA	ND< 1.0	NA	NA	NA	ND< 1.0	NA
MW-6	3/22/2012	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.990	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.0129
	3/26/2013	ND< 0.210	ND< 3.11	ND< 3.11	ND< 0.356	ND< 1.16	ND< 0.180	ND< 1.16	ND< 1.33	ND< 1.35	ND< 0.130	ND< 0.00154
	3/5/2014	ND< 2.00	ND< 8.93	ND< 8.93	ND< 1.79	ND< 8.93	ND< 1.00	ND< 8.93	ND< 8.93	ND< 8.93	ND< 1.00	NA
MW-7	3/21/2012	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.990	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 4.95	ND< 0.0129
	6/29/2012	ND< 1.00	NA	NA	NA	NA	ND< 0.500	NA	NA	NA	ND< 0.500	NA
	8/13/2012	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	3/26/2013	ND< 0.210	NA	NA	NA	NA	ND< 0.180	NA	NA	NA	ND< 0.130	NA
	4/23/2013	ND< 3.17	ND< 3.17	ND< 3.17	ND< 0.363	ND< 1.18	ND< 1.01	ND< 1.18	ND< 1.35	ND< 1.37	ND< 1.31	ND< 0.00157
	6/25/2013	ND< 0.210	NA	NA	NA	NA	ND< 0.180	NA	NA	NA	ND< 0.130	NA
	12/11/2013	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	3/5/2014	ND< 2.00	ND< 8.93	ND< 8.93	12.7	ND< 8.93	ND< 1.00	ND< 8.93	ND< 8.93	ND< 8.93	ND< 1.00	NA
	5/19/2014	ND< 5.0	NA	NA	NA	NA	ND< 1.0	NA	NA	NA	ND< 1.0	NA
MW-10	3/21/2012	ND< 1.00	ND< 5.00	ND< 5.00	ND< 1.00	ND< 5.00	ND< 0.500	ND< 5.00	ND< 5.00	ND< 5.00	ND< 0.500	ND< 0.013
	6/29/2012	ND< 1.00	NA	NA	NA	NA	ND< 0.500	NA	NA	NA	ND< 0.500	NA
	8/13/2012	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	11/19/2012	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	3/26/2013	ND< 0.210	ND< 3.11	ND< 3.11	ND< 0.356	ND< 1.16	ND< 0.180	ND< 1.16	ND< 1.33	ND< 1.35	ND< 0.130	ND< 0.00154
	6/25/2013	ND< 0.210	NA	NA	NA	NA	ND< 0.180	NA	NA	NA	ND< 0.130	NA
	12/11/2013	ND< 2.00	NA	NA	NA	NA	ND< 1.00	NA	NA	NA	ND< 1.00	NA
	4/10/2014	ND< 1.0	ND< 10	ND< 2.0	ND< 1.0	ND< 2.0	ND< 1.0	ND< 2.0	ND< 2.0	ND< 5.0	ND< 1.0	NA
	5/19/2014	ND< 5.0	NA	NA	NA	NA	ND< 1.0	NA	NA	NA	ND< 1.0	NA

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Table 8 - Semi-Volatile Organic Compounds Table

Monitoring Well	Date	Pentachloro-phenol ug/l	Phen-anthrene ug/l	Phenol mg/l	Phenol ug/l	Pyrene ug/l
NY TOGS 1.1.1 GWQS		2	50	0.002	2	50
MW-5	3/21/2012	NA	ND< 1.00	ND< 0.005	NA	ND< 1.00
	6/28/2012	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA
	3/26/2013	NA	1.59 J	ND< 0.00406	NA	1.19 J
	6/25/2013	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA
	3/5/2014	NA	NA	NA	NA	NA
	4/10/2014	ND< 10	ND< 1.0	NA	6.6	ND< 1.0
5/19/2014	NA	NA	NA	NA	NA	
MW-6	3/22/2012	NA	ND< 0.990	ND< 0.00495	NA	ND< 0.990
	3/26/2013	NA	ND< 0.321	ND< 0.00322	NA	ND< 0.309
	3/5/2014	ND< 22.3	ND< 1.79	NA	ND< 8.93	ND< 1.79
MW-7	3/21/2012	NA	ND< 0.990	ND< 0.00495	NA	ND< 0.990
	6/29/2012	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA
	3/26/2013	NA	NA	NA	NA	NA
	4/23/2013	NA	ND< 0.327	ND< 0.00329	NA	ND< 0.315
	6/25/2013	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA
	3/5/2014	ND< 22.3	1.18 J	NA	ND< 8.93	6.26
	5/19/2014	NA	NA	NA	NA	NA
MW-10	3/21/2012	NA	ND< 1.00	ND< 0.005	NA	ND< 1.00
	6/29/2012	NA	NA	NA	NA	NA
	8/13/2012	NA	NA	NA	NA	NA
	11/19/2012	NA	NA	NA	NA	NA
	3/26/2013	NA	ND< 0.321	ND< 0.00322	NA	ND< 0.309
	6/25/2013	NA	NA	NA	NA	NA
	12/11/2013	NA	NA	NA	NA	NA
	4/10/2014	ND< 10	ND< 1.0	NA	ND< 2.0	ND< 1.0
	5/19/2014	NA	NA	NA	NA	NA

Notes:
 µg/L = Micrograms per liter (parts per billion)
 NA = Not available/not analyzed for that specific compound
 ND = Not detected (# is method detection limit)
 NYSDEC = New York State Department of Conservation
 TOGS = Technical and Operational Guidance Series 1.1.1
 GWQS = Groundwater Quality Standards or Guidance Values



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Table 9 - Pesticides Analytical Results

Monitoring Well	Date	4,4-DDD ug/l	4,4-DDE ug/l	4,4-DDT ug/l	Aldrin ug/l	Alpha Chlordane ug/l	alpha-Endosulfan ug/l	alpha-Hexachloro- cyclohexane ug/l	beta-Endosulfan ug/l
NY TOGS 1.1.1 GWQS		0.3	0.2	0.2	0	0.05		0.01	
MW-5	3/21/2012	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125
	3/26/2013	ND< 0.103	ND< 0.132	ND< 0.119	ND< 0.0787	ND< 0.0707	ND< 0.104	ND< 0.148	ND< 0.0720
	4/10/2014	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010
MW-6	3/22/2012	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J
	3/26/2013	ND< 0.00726	ND< 0.00934	ND< 0.00840	ND< 0.00557	ND< 0.00500	ND< 0.00736	ND< 0.0105	ND< 0.00509
	3/5/2014	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260
MW-7	3/21/2012	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125
	4/23/2013	ND< 0.00770	ND< 0.00990	ND< 0.00890	ND< 0.00590	ND< 0.00530	ND< 0.00780	ND< 0.0111	ND< 0.00540
	3/5/2014	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223
MW-10	3/21/2012	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130
	3/26/2013	ND< 0.00726	ND< 0.00934	ND< 0.00840	ND< 0.00557	ND< 0.00500	ND< 0.00736	ND< 0.0105	ND< 0.00509
	4/10/2014	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010

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Table 9 - Pesticides Analytical Results

Monitoring Well	Date	beta-Hexachloro-cyclohexane ug/l	Chlordane ug/l	delta-Hexachloro-cyclohexane ug/l	Dieldrin ug/l	Endosulfan Sulfate ug/l	Endrin ug/l	Endrin Aldehyde ug/l	Endrin Ketone ug/l
NY TOGS 1.1.1 GWQS		0.04		0.04	0.004		0	5	5
MW-5	3/21/2012	ND< 0.0125	ND< 0.962	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125
	3/26/2013	ND< 0.0933	ND< 2.44	ND< 0.103	ND< 0.0760	ND< 0.0867	ND< 0.0880	ND< 0.116	ND< 0.0867
	4/10/2014	ND< 0.010		ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010
MW-6	3/22/2012	ND< 0.0547J	ND< 4.21J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J
	3/26/2013	ND< 0.00660	ND< 0.173	ND< 0.00726	ND< 0.00538	ND< 0.00613	ND< 0.00623	ND< 0.00821	ND< 0.00613
	3/5/2014	ND< 0.0260		ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260
MW-7	3/21/2012	ND< 0.0125	ND< 0.962	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125
	4/23/2013	ND< 0.00700	ND< 0.183	ND< 0.00770	ND< 0.00570	ND< 0.00650	ND< 0.00660	ND< 0.00870	ND< 0.00650
	3/5/2014	ND< 0.0223		ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223
MW-10	3/21/2012	ND< 0.0130	ND< 1.00	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130
	3/26/2013	ND< 0.00660	ND< 0.173	ND< 0.00726	ND< 0.00538	ND< 0.00613	ND< 0.00623	ND< 0.00821	ND< 0.00613
	4/10/2014	ND< 0.010		ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010

Orangetown Shopping Center/Sparkle Cleaners
 NYSDEC Site # C344066

Table 9 - Pesticides Analytical Results

Monitoring Well	Date	Gamma Chlordane ug/l	gamma-Hexachloro-cyclohexane (lindane) ug/l	Heptachlor ug/l	Heptachlor Epoxide ug/l	Methoxychlor ug/l	Toxaphene ug/l
NY TOGS 1.1.1 GWQS			0.05	0.04	0.03	35	0.06
MW-5	3/21/2012	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.962
	3/26/2013	ND< 0.240	ND< 0.0760	ND< 0.0760	ND< 0.0933	ND< 0.0707	ND< 0.551
	4/10/2014	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.021	ND< 0.26
MW-6	3/22/2012	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 0.0547J	ND< 4.21J
	3/26/2013	ND< 0.0170	ND< 0.00538	ND< 0.00538	ND< 0.00660	ND< 0.00500	ND< 0.0390
	3/5/2014	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 0.0260	ND< 2.08
MW-7	3/21/2012	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.0125	ND< 0.962
	4/23/2013	ND< 0.0180	ND< 0.00570	ND< 0.00570	ND< 0.00700	ND< 0.00530	ND< 0.0413
	3/5/2014	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 0.0223	ND< 1.79
MW-10	3/21/2012	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 0.0130	ND< 1.00
	3/26/2013	ND< 0.0170	ND< 0.00538	ND< 0.00538	ND< 0.00660	ND< 0.00500	ND< 0.0390
	4/10/2014	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.010	ND< 0.020	ND< 0.25

Notes:

- µg/L = Micrograms per liter (parts per billion)
- NA = Not available/not analyzed for that specific compound
- ND = Not detected (# is method detection limit)
- UJ = Reporting limit raised due to sample matrix effects
- NYSDEC = New York State Department of Conservation
- TOGS = Technical and Operational Guidance Series 1.1.1
- GWQS = Groundwater Quality Standards or Guidance Values





Orangeburg Shopping Center/Sparke Cleaners
NYSDEC Site ID: C344066
July 16 & 17, 2013

Table 10a - Molasses Injection Summary Details

Injection Well ID	Injected Solution	Injected Volume (Gallons)
IP-1	10% Molasses	65
IP-2	10% Molasses	65
MW-3	10% Molasses	65
IP-3	10% Molasses	65
IP-4	10% Molasses	65
INJ-1S	NA	0
INJ-1D	10% Molasses	65
INJ-2S	NA	0
INJ-2D	NA	0
INJ-3S	NA	0
INJ-3D	10% Molasses	65
INJ-4S	NA	0
INJ-4D	10% Molasses	65
INJ-5S	NA	0
INJ-5D	10% Molasses	65
INJ-6S	NA	0
INJ-6D	10% Molasses	65
INJ-7S	NA	0
INJ-7D	10% Molasses	65
INJ-8S	NA	0
INJ-8D	NA	0
INJ-9S	NA	0
INJ-9D	NA	0

NA = Not Applicable



Orangetown Shopping Center/Sparke Cleaners
NYSDEC Site ID: C344066
September 11 & 12, 2013

Table 10b - Molasses Injection Summary Details

Injection Well ID	Injected Solution	Injected Volume (Gallons)
IP-1	10% Molasses & NaHCO ₃	65
IP-2	10% Molasses & NaHCO ₃	65
MW-3	10% Molasses & NaHCO ₃	65
IP-3	10% Molasses & NaHCO ₃	65
IP-4	10% Molasses & NaHCO ₃	65
INJ-1S	NA	0
INJ-1D	10% Molasses & NaHCO ₃	65
INJ-2S	NA	0
INJ-2D	NA	0
INJ-3S	NA	0
INJ-3D	10% Molasses & NaHCO ₃	65
INJ-4S	NA	0
INJ-4D	10% Molasses & NaHCO ₃	65
INJ-5S	NA	0
INJ-5D	10% Molasses & NaHCO ₃	65
INJ-6S	NA	0
INJ-6D	10% Molasses & NaHCO ₃	65
INJ-7S	NA	0
INJ-7D	10% Molasses & NaHCO ₃	65
INJ-8S	NA	0
INJ-8D	NA	0
INJ-9S	NA	0
INJ-9D	NA	0

Note: A total of 100 pounds of NaHCO₃ was added to 715 gallons of 10% molasses solution

NA = Not Applicable

lbs = Pounds

NaHCO₃ = Sodium Bicarbonate



Orangetown Shopping Center/Sparke Cleaners
NYSDEC Site ID: C344066
November 25 & 26, 2013

Table 10c - Molasses Injection Summary Details

Injection Well ID	Injected Solution	Injected Volume (Gallons)
IP-1	10% Molasses	65
IP-2	10% Molasses	65
MW-3	10% Molasses	65
IP-3	10% Molasses	65
IP-4	10% Molasses	65
INJ-1S	NA	0
INJ-1D	10% Molasses	65
INJ-2S	NA	0
INJ-2D	NA	0
INJ-3S	NA	0
INJ-3D	10% Molasses	65
INJ-4S	NA	0
INJ-4D	10% Molasses	65
INJ-5S	NA	0
INJ-5D	10% Molasses	65
INJ-6S	NA	0
INJ-6D	10% Molasses	65
INJ-7S	NA	0
INJ-7D	10% Molasses	65
INJ-8S	NA	0
INJ-8D	NA	0
INJ-9S	NA	0
INJ-9D	NA	0

Notes:

NA = Not Applicable

lbs = Pounds



Orangetown Shopping Center/Sparke Cleaners
NYSDEC Site ID: C344066
March 27 & 28, 2014

Table 10d - Molasses Injection Summary Details

Injection Well ID	Injected Solution	Injected Volume (Gallons)
IP-1	10% Molasses	65
IP-2	10% Molasses	65
MW-3	10% Molasses	65
IP-3	10% Molasses	65
IP-4	10% Molasses	65
INJ-1S	NA	0
INJ-1D	10% Molasses	65
INJ-2S	NA	0
INJ-2D	NA	0
INJ-3S	NA	0
INJ-3D	10% Molasses	65
INJ-4S	NA	0
INJ-4D	10% Molasses	65
INJ-5S	NA	0
INJ-5D	10% Molasses	65
INJ-6S	NA	0
INJ-6D	10% Molasses	65
INJ-7S	NA	0
INJ-7D	10% Molasses	65
INJ-8S	NA	0
INJ-8D	NA	0
INJ-9S	NA	0
INJ-9D	NA	0

Notes:

NA = Not Applicable

lbs = Pounds



Orangetown Shopping Center/Sparkle Cleaners
NYSDEC Site ID: C344066
June 5 & 6, 2014

Table 10e - Molasses Injection Summary Details

Injection Well ID	Injected Solution	Injected Volume (Gallons)
IP-1	10% Molasses	60
IP-2	10% Molasses	60
MW-3	10% Molasses	60
IP-3	10% Molasses	60
IP-4	10% Molasses	60
INJ-1S	NA	0
INJ-1D	NA	0
INJ-2S	NA	0
INJ-2D	NA	0
INJ-3S	NA	0
INJ-3D	10% Molasses	60
INJ-4S	NA	0
INJ-4D	10% Molasses	60
INJ-5S	NA	0
INJ-5D	10% Molasses	60
INJ-6S	NA	0
INJ-6D	10% Molasses	60
INJ-7S	NA	0
INJ-7D	10% Molasses	60
INJ-8S	NA	0
INJ-8D	10% Molasses	60
INJ-9S	NA	0
INJ-9D	NA	0

Notes:

NA = Not Applicable

lbs = Pounds

[Faint header text, possibly project name and location]

**Table 11a - Summary of Sub-Slab Depressurization System (SSDS) Performance
Blowers Summary Performance**

Blowers	Vacuum (in WC) 3/27/12	Vacuum (in WC) 6/28/12	Vacuum (in WC) 9/11/12	Vacuum (in WC) 9/20/12	Vacuum (in WC) 11/07/12	Vacuum (in WC) 01/14/13	Vacuum (in WC) 06/13/13	Vacuum (in WC) 09/12/13	Vacuum (in WC) 12/18/13	Vacuum (in WC) 3/28/14	Vacuum (in WC) 6/27/14
Deli Spot											
SSD-B1	2.550	2.390	N/A	2.491	2.700	2.681	2.180	2.921	2.773	2.640	2.519
SSD-B2	1.380	1.334	0.019	0.101	1.550	1.390	0.918	1.327	Offline	Offline	0.090
SSD-B3	1.830	1.681	1.758	1.845	1.860	1.385	1.270	1.698	Offline	Offline	0.090
Sparkle Cleaners											
SSD-B4	1.840	1.871	2.891	2.839	2.450	2.626	2.345	2.208	2.608	2.666	2.242
SSD-B5	0.074	1.310	0.025	0.048	0.550	0.753	0.938	0.775	Offline	Offline	0.022
SSD-B6	0.025	1.219	2.340	2.350	0.650	0.637	0.659	0.670	Offline	Offline	0.702
New China											
SSD-B7	0.075	1.013	0.017	0.021	1.570	0.431	1.075	0.775	Offline	Offline	0.581
SSD-B8	0.690	1.689	0.657	0.712	0.667	0.683	0.654	0.458	0.764	0.875	0.769

Notes:

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**Table 11b - Summary of Sub-Slab Depressurization System (SSDs) Performance
Extraction Wells Summary**

Extraction Wells	Vacuum (in WC) 3/27/12	Vacuum (in WC) 6/28/12	Vacuum (in WC) 9/11/12	Vacuum (in WC) 9/20/12	Vacuum (in WC) 11/07/12	Vacuum (in WC) 01/14/13	Vacuum (in WC) 06/13/13	Vacuum (in WC) 09/12/13	Vacuum (in WC) 12/18/13	Vacuum (in WC) 3/28/14	Vacuum (in WC) 6/27/14
Deli Spot											
SSD-2A	1.400	1.539	1.400	1.500	1.400	1.400	1.267	1.550	Offline	Offline	1.400
SSD-3A	1.800	1.674	1.250	1.400	1.450	1.200	1.228	1.480	Offline	Offline	0.300
SSD-2B	1.200	1.345	1.750	1.780	1.800	1.821	1.800	1.680	Offline	Offline	1.200
SSD-3B	1.700	1.675	1.800	1.800	1.700	1.700	1.793	1.750	Offline	Offline	0.400
Sparkle Cleaners											
SSD-5A	NR*	1.200	1.250	1.210	1.000	1.200	0.764	0.800	Offline	Offline	0.700
SSD-5B	NR*	NR*	1.000	1.050	0.800	1.000	0.775	1.000	Offline	Offline	0.800
SSD-6A	NR*	NR*	1.400	1.490	1.400	1.200	1.685	1.570	Offline	Offline	0.300
SSD-6B	NR*	NR*	1.500	1.600	1.500	1.570	1.700	1.520	Offline	Offline	0.400
New China											
SSD-7A	NR	0.400	0.400	0.400	0.570	0.400	0.499	0.500	Offline	Offline	0.600
SSD-7B	NR	NR	0.500	0.600	1.600	1.560	0.519	0.500	Offline	Offline	0.600

Notes:

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Table 11c - Summary of Sub-Slab Depressurization System (SSDS) Performance
Vapor/Monitoring Points Summary

Table 11c - Summary of Sub-Slab Depressurization System (SSDS) Performance
Vapor/Monitoring Points Summary

Vapor/Monitoring Points	Vacuum (in WC) 3/27/12	Vacuum (in WC) 6/28/12	Vacuum (in WC) 9/11/12	Vacuum (in WC) 9/20/12	Vacuum (in WC) 11/07/12	Vacuum (in WC) 01/14/13	Vacuum (in WC) 06/13/13	Vacuum (in WC) 09/12/13	Vacuum (in WC) 12/18/13	Vacuum (in WC) 3/28/14	Vacuum (in WC) 6/27/14
Deli Spot											
SSD-MP-1	0.060	0.019	0.025	0.019	0.098	0.014	0.013	0.017	0.000	0.045	0.023
VP-1	0.026	0.048	0.043	0.041	0.019	0.011	0.036	0.044	0.000	0.000	0.323
VP-2	0.009	0.513	0.012	0.465	0.246	0.271	0.413	0.429	0.000	0.000	0.322
VP-3	0.138	0.259	0.229	0.231	0.029	0.199	0.083	0.150	0.000	0.001	0.198
SSD-MP-2	0.014	0.020	0.012	0.011	0.017	0.009	0.011	0.011	0.020	0.009	0.024
Sparkle Cleaners											
SSD-MP-3	NR*	NR*	0.015	0.019	0.074	0.053	0.010	0.010	0.000	0.043	0.030
VP-4	NR*	NR*	0.010	0.019	0.850	0.056	0.012	0.011	0.000	NR	0.025
VP-5	NR*	NR*	0.015	0.021	0.085	0.057	0.011	0.010	0.000	0.045	0.026
VP-6	NR*	NR*	0.012	0.015	0.038	0.024	0.012	0.016	0.000	NR	NR
SSD-MP-4	NR*	NR*	0.011	0.010	0.024	0.018	0.014	0.010	0.012	0.035	0.036
New China											
SSD-MP-5	0.000	0.021	0.021	0.021	0.090	0.033	0.009	0.009	0.000	0.011	0.025
VP-7	0.013	0.015	0.024	0.024	0.030	0.034	0.009	0.011	0.000	0.010	0.026
VP-8	0.000	0.020	0.022	0.022	0.032	0.035	0.010	0.013	0.000	0.011	0.026
VP-9	0.001	0.015	0.020	0.020	0.030	0.036	0.009	0.009	0.000	0.013	0.022
SSD-MP-6	0.039	0.019	0.016	0.016	0.064	0.036	0.011	0.011	0.019	0.022	0.026

Notes:

1. All vacuum readings were taken with a digital vacuum gauge.

2. NR* = Not Read.

3. Monitoring points were installed in accordance with the design drawings.

4. The SSDS system was tested and found to be in compliance with the design requirements.



Table 12

SOIL ANALYTICAL DATA

January 27, 2014

Orangetown Shopping Center/Sparkle Cleaners
1-45 Orangetown Shopping Center, Orangeburg, New York
NYSDEC Site #C344066

US EPA Method 8260 Full List*

All Concentrations Reported in Milligrams Per Kilogram (mg/kg)

Sample Identification	MW-A (8-12 ft)	MW-A (20-24 ft)	MW-B (4-8 ft)	MW-B (16-20 ft)	375-6.8 (a) Unrestricted Use SCOs
PID Reading (ppm)	0.0	0.0	14.9	0.0	
Date	1/27/2014	1/27/2014	1/27/2014	1/27/2014	
2-Butanone (MEK)	ND	ND	0.0147	0.00944	0.12
cis-1,2-Dichloroethene	0.00926	0.00695	0.172	0.0967	0.25
Methylene Chloride	ND	ND	0.00122	0.00132	0.05
Tetrachloroethene	0.00104	0.000932	0.0436	0.0250	1.3
trans-1,2-Dichloroethene	ND	ND	0.00395	0.00459	0.19
Trichloroethene	ND	ND	0.0396	0.00427	0.47
1,2,4-Trimethylbenzene	ND	0.00117	ND	ND	3.6
Vinyl Chloride	ND	ND	ND	0.00166	0.02

Notes:

*Only detections reported. For a full list of analytes please reference the attached laboratory analytical report.

EPA = Environmental Protection Agency

ft = Feet

ND = Not detected above reporting limit

NYSDEC = New York State Department of Environmental Conservation

PID = Photo-ionization detector

ppm = Parts per million

SCOs = Soil Cleanup Objectives

J= Estimated value



APPENDIX A

Field Forms



APPENDIX B

Environmental Easement

Rockland County, NY
Paul Piperato County Clerk

1 South Main St Ste 100
New City, NY 10956
Phone Number : (845) 638-5070

Official Receipt : 2011-00049305

Printed On : 10/13/2011 at 11:01:36 AM

By : 76 on INDEX9

Customer :

CLASS ABSTRACT SERVICES INC
72 JERICO TPKE SUITE 3
MINEOLA, NY 11501

Date Recorded : October 04, 2011

Instrument ID

Amount

File Number : 2011-00035889

\$101.00

Transaction : Ease, Rightway, A/Rent

Name(s): JLJ MANAGEMENT CO

To : PEOPLE OF THE STATE OF NEW YORK

Remarks : HAH

Itemized Check Listing

Check Number : 13622

\$101.00

Total Due : \$101.00

Paid by Check : \$101.00

Change Tendered : \$0.00

HAVE A NICE DAY!

Paul Piperato, County Clerk
1 South Main St Ste 100
New City, NY 10956
(845) 638-5070

Rockland County Clerk Recording Cover Sheet

Received From :
CLASS ABSTRACT SERVICES INC
72 JERICHO TPKE SUITE 3
MINEOLA, NY 11501

Return To :
CLASS ABSTRACT SERVICES INC L
72 JERICHO TPKE SUITE 3
MINEOLA, NY 11501

First GRANTOR

JLJ MANAGEMENT CO

First GRANTEE

PEOPLE OF THE STATE OF NEW YORK

Index Type : Land Records
Instr Number : 2011-00035889
Book : Page :

Type of Instrument : Easement
Type of Transaction : Ease, Rightway, A/Rent
Recording Fee : \$101.00

Recording Pages : 11

The Property affected by this instrument is situated in Orangetown, in the County of Rockland, New York

Real Estate Transfer Tax

RETT # : 815
Deed Amount : \$0.00
RETT Amount : \$0.00

State of New York

County of Rockland

I hereby certify that the within and foregoing was recorded in the Clerk's office for Rockland County, New York

On (Recorded Date) : 10/04/2011

At (Recorded Time) : 10:58:00 AM

Total Fees : \$101.00



Doc ID - 023456330011

Paul Piperato, County Clerk



UNOFFICIAL COPY

This sheet constitutes the Clerks endorsement required by Section 319 of Real Property Law of the State of New York

Entered By: HAH Printed On : 10/13/2011 At : 3:11:40PM

County: Rockland

Site No: C 344066

BCA Index No: A3-0563-0906

CLC 4079920

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 16th day of September, 2011, between Owner(s) JLJ Management Co., a New York Partnership, having an office at 197 Trenor Drive, New Rochelle, County of Rockland, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233.

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1-45 Orangetown Shopping Center in the Town of Orangetown, County of Rockland and State of New York, known and designated on the tax map of the County Clerk of Rockland as tax map parcel numbers: Section 74.70 Block 1 Lot 67, being the same as that property conveyed to Grantor by deed dated April 4, 1990 recorded in the Rockland County Clerk's Office in Book 0404 at Page 2555, the Environmental Easement area of which comprising approximately 1.3308 ± acres, and hereinafter more fully described in the Land Title Survey dated April 27, 2011 prepared by Joseph R. Link of Link Land Surveyors P.C., which will be attached to the Site Management Plan. The property description and survey (the "Controlled Property") is set forth in and attached hereto as Schedule A, and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

Environmental Easement Page 1

Sec
74.10
Blk
1
part of lot
67

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Number: A3-0563-0906, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement")

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes, and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that with such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:
(i) are in-place;
(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her 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

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

County: Rockland

Site No: C 344066

BCA Index No: A3-0563-0906

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: C 344066
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recording. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by

County: Rockland

Site No: C 344066

BCA Index No: A3-0563-0906

the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Grantor: **JLJ Management Co., a New York Partnership**

DAFO Realty Corp., its General Partner

By: Hilton Saniker

Print Name: Hilton Saniker

Title: President Date: 9/2/11

ODAF Realty Corp., its General Partner

By: Hilton Saniker

Print Name: Hilton Saniker

Title: President Date: 9/2/11

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Environmental Easement Page 6

County: Rockland

Site No: C 344066

BCA Index No: A3-0563-0906

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF NY)

On the 2nd day of September, in the year 2011, before me, the undersigned, personally appeared Hilton Soniker, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

[Signature]
Notary Public - State of New York

JEROME KAMERMAN
Notary Public, State of New York
No. 02KA7146175
Qualified in Westchester County
Certificate Filed in New York County
Commission Expires October 31, 2015

STATE OF NEW YORK)
) ss:
COUNTY OF NY)

On the 2nd day of September, in the year 2011, before me, the undersigned, personally appeared Hilton Soniker, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

[Signature]
Notary Public - State of New York

JEROME KAMERMAN
Notary Public, State of New York
No. 02KA7146175
Qualified in Westchester County
Certificate Filed in New York County
Commission Expires October 31, 2015

UNOFFICIAL COPY

County: Rockland

Site No: C 344066

BCA Index No: A3-0563-0906

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner.

By: *[Signature]*
Dale A. Desnoyers, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Albany)

On the 16th day of September, in the year 2011, before me, the undersigned, personally appeared Dale Desnoyers, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

[Signature]
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 0108508446
Qualified in Schoharie County,
Commission Expires August 22, 2014

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Environmental Easement Page 8

SCHEDULE "A" ENVIRONMENTAL EASEMENT
PROPERTY DESCRIPTION

1-45 ORANGETOWN SHOPPING CENTER
ORANGETOWN, COUNTY OF ROCKLAND, NY
SECTION: 74.10 BLOCK: 1 LOT: 67

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH IMPROVEMENTS THEREON ERECTED, SITUATED AND LYING AND BEING IN THE TOWN OF ORANGETOWN, COUNTY OF ROCKLAND AND STATE OF NEW YORK.

BEGINNING AT A POINT ON THE WESTERLY SIDE OF OAK STREET WHERE THE SAME IS INTERSECTED BY THE DIVISION LINE BETWEEN LAND NOW OR FORMERLY JLJ MANAGEMENT ON THE SOUTH AND LAND NOW OR FORMERLY SEEBACH ON THE NORTH, SAID POINT ALSO BEING 430.52 FEET SOUTHERLY FROM THE SOUTHERLY END OF A CURVE HAVING A RADIUS OF 36.15 LENGTH OF 56.81 FEET CONNECTING THE SOUTHERLY SIDE OF ORANGEBURG ROAD AND THE WESTERLY SIDE OF OAK STREET.

THENCE RUNNING ALONG THE WESTERLY SIDE OF OAK STREET SOUTH 7°24'00" EAST 60.89 FEET TO THE DIVISION LINE BETWEEN JLJ MANAGEMENT AND LAND NOW OR FORMERLY HOFFMAN;

THENCE ALONG SAID DIVISION LINE SOUTH 82° 36' 00" WEST 100.00 FEET
THENCE CONTINUING ALONG SAID DIVISION LINE AND ALONG THE DIVISION LINE BETWEEN JLJ MANAGEMENT AND LAND NOW OR FORMERLY FARINI SOUTH 7°24'00" EAST 88.00 FEET.

THENCE RUNNING THROUGH LANDS OF JLJ MANAGEMENT THE FOLLOWING FIVE (5) COURSES AND DISTANCES;

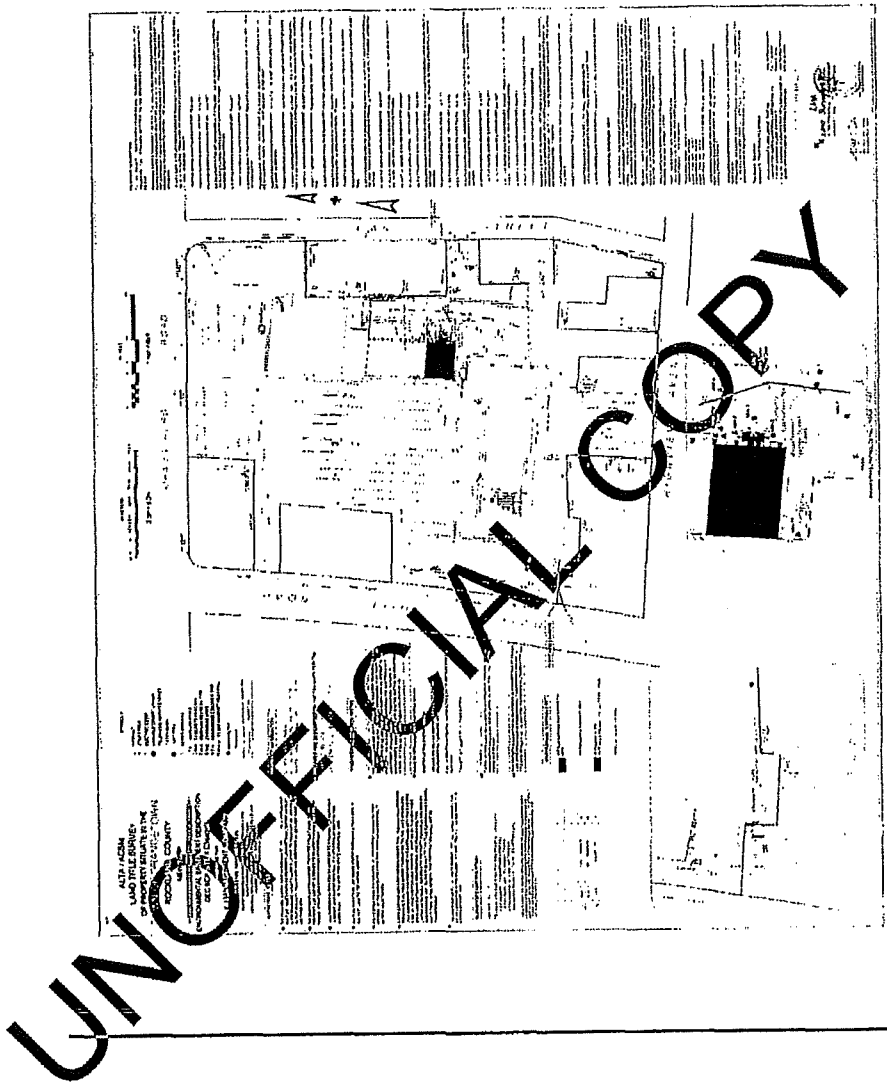
1. SOUTH 82° 36' 00" WEST 168.00 FEET;
2. NORTH 3° 04' 00" WEST 111.00 FEET;
3. SOUTH 87° 02' 00" WEST 56.00 FEET;
4. NORTH 2° 58' 00" WEST 182.10 FEET;
5. NORTH 87° 02' 00" EAST 176.89 FEET TO THE WESTERLY SIDE OF LAND NOW OR FORMERLY UCKER

THENCE RUNNING ALONG LAND OF UCKER AND CONTINUING ALONG LAND OF SEEBACH SOUTH 7° 24' 00" WEST 134.00 FEET AND NORTH 82° 36' 00" EAST 125.00 FEET TO THE POINT AND PLACE OF BEGINNING.

CONTAINING 1.3308 ACRES / 57,970 SQ. FT.

UNOFFICIAL COPY

SURVEY



Environmental Easement Page 10

**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this 16th day of September, 2011, between Owner(s) JLJ Management Co., a New York Partnership, having an office at 197 Trenor Drive, New Rochelle, County of Rockland, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233.

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1-45 Orangetown Shopping Center in the Town of Orangetown, County of Rockland and State of New York, known and designated on the tax map of the County Clerk of Rockland as tax map parcel numbers: Section 74.10 Block 1 Lot 67, being the same as that property conveyed to Grantor by deed dated April 4, 1990 recorded in the Rockland County Clerk's Office in Book 0404 at Page 2555, the Environmental Easement area of which comprising approximately 1.3308 ± acres, and hereinafter more fully described in the Land Title Survey dated April 27, 2011 prepared by Joseph R. Link of Link Land Surveyors P.C., which will be attached to the Site Management Plan. The property description and survey (the "Controlled Property") is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Number: A3-0563-0906, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement")

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP.

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP.

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes, and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:
(i) are in-place;
(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her 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

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: C 344066
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by

the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Grantor: JLJ Management Co., a New York Partnership

DAFO Realty Corp., its General Partner

By: Hilton Souiker

Print Name: Hilton Souiker

Title: President Date: 9/2/11

ODAF Realty Corp., its General Partner

By: Hilton Souiker

Print Name: Hilton Souiker

Title: President Date: 9/2/11

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF NY)

On the 2nd day of September, in the year 2011, before me, the undersigned, personally appeared Hilton Soniker, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Jerome Kamerman
Notary Public - State of New York

JEROME KAMERMAN
Notary Public, State of New York
No. 02KA7146175
Qualified in Westchester County
Certificate Filed in New York County
Commission Expires October 31, 2015

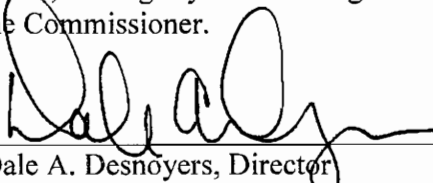
STATE OF NEW YORK)
) ss:
COUNTY OF NY)

On the 2nd day of September, in the year 2011, before me, the undersigned, personally appeared Hilton Soniker, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Jerome Kamerman
Notary Public - State of New York

JEROME KAMERMAN
Notary Public, State of New York
No. 02KA7146175
Qualified in Westchester County
Certificate Filed in New York County
Commission Expires October 31, 2015

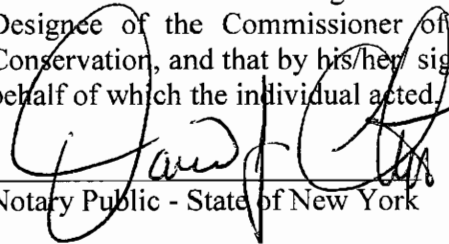
THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner.

By: 
Dale A. Desnoyers, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Albany)

On the 16th day of September, in the year 2011, before me, the undersigned, personally appeared Dale Desnoyers, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.


Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County,
Commission Expires August 22, 2014

SCHEDULE "A" ENVIRONMENTAL EASEMENT
PROPERTY DESCRIPTION

1-45 ORANGETOWN SHOPPING CENTER
ORANGETOWN, COUNTY OF ROCKLAND, NY
SECTION: 74.10 BLOCK: 1 LOT: 67

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH IMPROVEMENTS THEREON ERECTED, SITUATED AND LYING AND BEING IN THE TOWN OF ORANGETOWN, COUNTY OF ROCKLAND AND STATE OF NEW YORK.

BEGINNING AT A POINT ON THE WESTERLY SIDE OF OAK STREET WHERE THE SAME IS INTERSECTED BY THE DIVISION LINE BETWEEN LAND NOW OR FORMERLY JLJ MANAGEMENT ON THE SOUTH AND LAND NOW OR FORMERLY SEEBACH ON THE NORTH, SAID POINT ALSO BEING 430.52 FEET SOUTHERLY FROM THE SOUTHERLY END OF A CURVE HAVING A RADIUS OF 36.15 LENGTH OF 56.81 FEET CONNECTING THE SOUTHERLY SIDE OF ORANGEBURG ROAD AND THE WESTERLY SIDE OF OAK STREET.

THENCE RUNNING ALONG THE WESTERLY SIDE OF OAK STREET SOUTH 7°24'00" EAST 60.89 FEET TO THE DIVISION LINE BETWEEN JLJ MANAGEMENT AND LAND NOW OR FORMERLY HOFFMAN;

THENCE ALONG SAID DIVISION LINE SOUTH 82° 36'00" WEST 100.00 FEET;
THENCE CONTINUING ALONG SAID DIVISION LINE AND ALONG THE DIVISION LINE BETWEEN JLJ MANAGEMENT AND LAND NOW OR FORMERLY FARINI SOUTH 7°24'00" EAST 88.00 FEET.

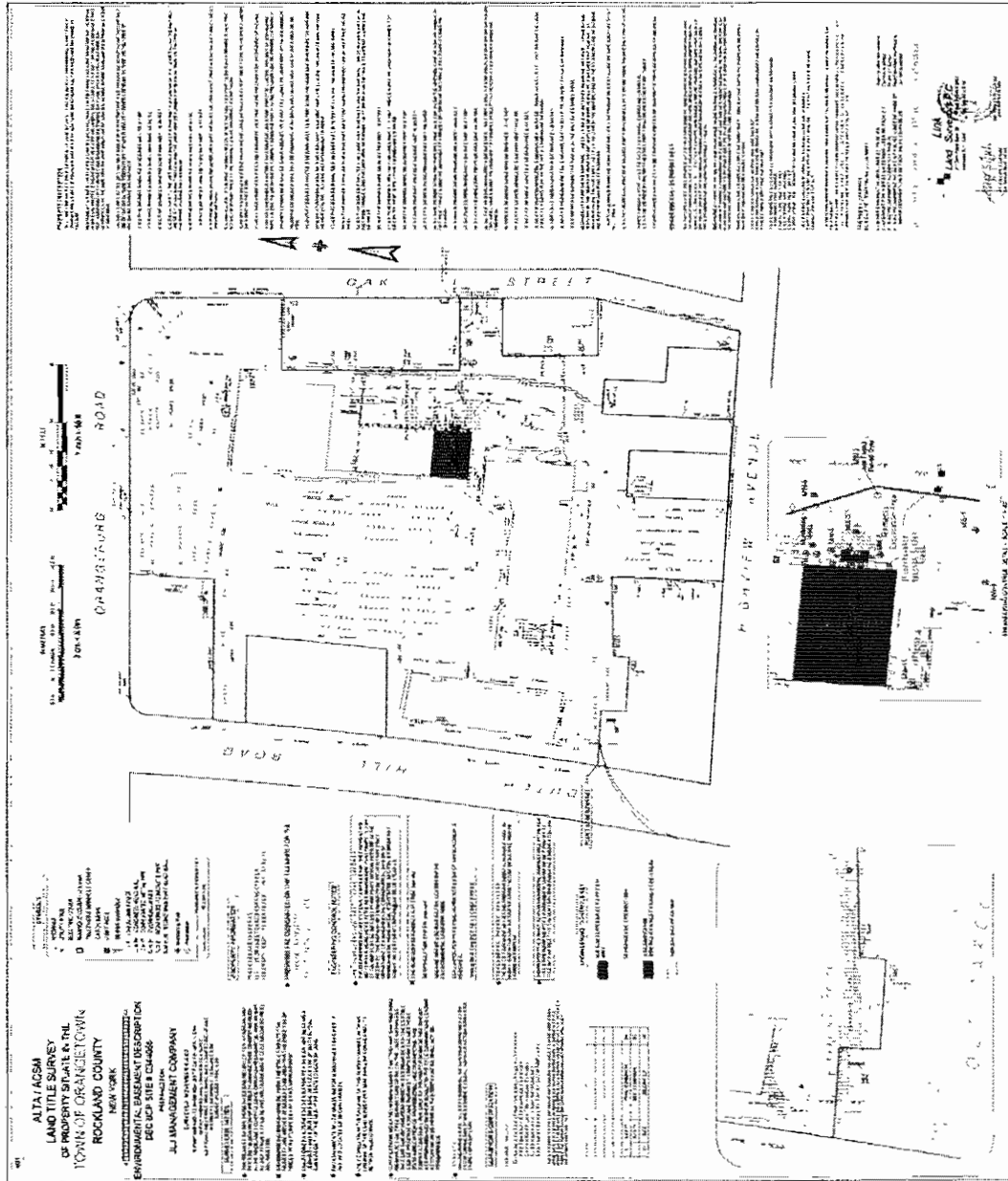
THENCE RUNNING THROUGH LANDS OF JLJ MANAGEMENT THE FOLLOWING FIVE (5) COURSES AND DISTANCES;

1. SOUTH 82° 36' 00" WEST 168.00 FEET;
2. NORTH 3° 04' 00" WEST 111.00 FEET;
3. SOUTH 87° 02' 00" WEST 56.00 FEET;
4. NORTH 2° 58' 00" WEST 182.10 FEET;
5. NORTH 87° 02' 00" EAST 176.89 FEET TO THE WESTERLY SIDE OF LAND NOW OR FORMERLY UCKER

THENCE RUNNING ALONG LAND OF UCKER AND CONTINUING ALONG LAND OF SEEBACH SOUTH 7° 24' 00" WEST 134.00 FEET AND NORTH 82° 36' 00": EAST 125.00 FEET TO THE POINT AND PLACE OF BEGINNING.

CONTAINING 1.3308 ACRES / 57,970 SQ. FT.

SURVEY



APPENDIX C

Photographs



View to the west of the eastern side of the site.



View to the southwest of the eastern side of the site.



View to the west inside the former Deli Spot Location



View of the manometer



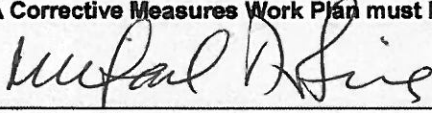
APPENDIX D

EC/IC Certifications



Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



Site Details		Box 1	
Site No.	C344066		
Site Name Orangeburg (Orangetown) Shopping Center			
Site Address: 1-45 Orangetown Shopping Center		Zip Code: 10962	
City/Town: Orangetown			
County: Rockland			
Site Acreage: 1.3			
Reporting Period: June 17, 2013 to June 17, 2014			
		YES	NO
1. Is the information above correct?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.			
5. Is the site currently undergoing development?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Box 2	
		YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Are all ICs/ECs in place and functioning as designed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.			
A Corrective Measures Work Plan must be submitted along with this form to address these issues.			
		7/17/14	
Signature of Owner, Remedial Party or Designated Representative		Date	

		Box 2A
	8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?	YES NO <input type="checkbox"/> <input checked="" type="checkbox"/>
If you answered YES to question 8, Include documentation or evidence that documentation has been previously submitted with this certification form.		
	9. Are the assumptions in the Qualitative Exposure Assessment still valid? (The Qualitative Exposure Assessment must be certified every five years)	<input checked="" type="checkbox"/> <input type="checkbox"/>
If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.		

SITE NO. C344066		Box 3
Description of Institutional Controls		
<u>Parcel</u> 74.10-1-67	<u>Owner</u> JLJ Management Company <i>UB Orangeburg, LLC</i>	<u>Institutional Control</u> Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan O&M Plan IC/EC Plan
The Controlled Property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2) (iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv).		
The use of groundwater underlying the site is restricted as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH, or County DOH.		

		Box 4
Description of Engineering Controls		
<u>Parcel</u> 74.10-1-67	<u>Engineering Control</u> Groundwater Treatment System Vapor Mitigation Cover System	
The site owner will be responsible for the operation and maintenance of the sub-slab depressurization system as discussed in the Site Management Plan.		
The site owner will be responsible for the operation and maintenance of the bio-augmentation system as discussed in the Site Management Plan.		
The site owner will be responsible for the operation and maintenance of the composite cover system as discussed in the Site Management Plan.		

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;

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 complete.

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) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

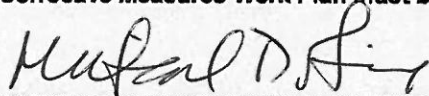
(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

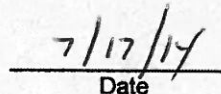
YES NO

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.



Signature of Owner, Remedial Party or Designated Representative



Date

**IC CERTIFICATIONS
SITE NO. C344066**

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1, 2, and 3 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 Michael DeGloria at 16 Mt. Ebo Road South, Suite 21, Brewster, NY 10509
print name print business address

am certifying as Remediation Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.



Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification

7/17/14

Date

IC/EC CERTIFICATIONS

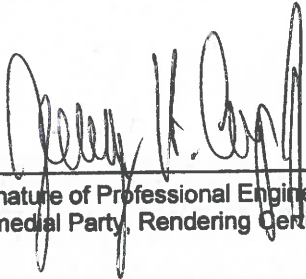
Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 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 Gerald Cresap at GES, 364 Littleton Rd, West Fox, MA
print name print business address

am certifying as a Professional Engineer for the Owner
Owner (Remedial Party)



Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification



7/15/14
Date

APPENDIX E

Correspondences

PERMIT EXPIRES TWO (2) YEARS FROM DATE OF ISSUANCE. TWO SIX (6) MONTH EXTENSIONS
MAY BE GRANTED PRIOR TO EXPIRATION DATE.

TOWN OF ORANGETOWN BUILDING AND ZONING CODE

John Cannon

74.10-1-67

RAO

This PERMIT Notice

To be fastened on a part of building for which it is issued where it may be plainly seen by all persons.

PERMIT No. 41508 has been
issued for this building

This notice shall not be removed from Building to which it is attached and Building shall not be used until a
Certificate of occupancy has been issued by the "Building Inspector"

Date Dec. 4, 2013



DIRECTOR

Office of Building, Zoning
and Planning Administration and Enforcement

Town of Orangetown, Rockland County, New York

Attention is directed to Rockland County Local Law #17, 1974,
pertaining to license requirements.

.....Building Code

.....Zoning Code

Christina Andreotto

From: Michael C. DeGloria
Sent: Wednesday, December 18, 2013 1:27 PM
To: Jamie Verrigni (jlverrig.PO9.Domain9@gw.dec.state.ny.us)
Cc: mer10@health.state.ny.us; Daniel Logue (dlogue@ubproperties.com); Christina Andreotto; Michael C. DeGloria
Subject: Notice of SSDS Shutdown- UB Orangeburg Case #C344066
Attachments: SSDS Site Plan.pdf

Jamie- Please accept this notice of SSDS shutdown at the subject site (Orangetown Shopping Center, Site #344066).

SSDS #2, 3, 5, 6 and 7 have been turned off in order to complete the SSDS re-piping that has been noted in GES' Monthly Report submittals. SSDS #1, 4, and 8, continue to operate.

Please note that both the Deli Spot and Sparkle Cleaner spaces are vacant. Vacuum readings in New China were recorded at 0.01" of water (MP-6).

Once the renovations of the Deli Spot and Sparkle Cleaner spaces are complete, which will include re-piping of the SSDS systems, GES will restart and recertify the SSDS systems.

GES will communicate updates via the Monthly Reports and/or email communications.

Thank you,

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

Michael C. DeGloria

From: Michael C. DeGloria
Sent: Monday, January 13, 2014 10:05 AM
To: Michael C. DeGloria
Cc: Michael C. DeGloria
Subject: Re: Request for Approval to Import Fill Material from Thalle Industries

Michael,

The Department has reviewed the request dated January 3, 2014 and the supplement information provided on January 8, 2014 to import fill material from Thalle Industries. Based on the information provided, the request is hereby approved.

The proposed fill material meets the requirements for material other than soil (i.e., gravel, rock, stone, recycled concrete or recycled brick) as specified in section 5.4(e)5 of DER-10. Therefore, this material may be used as backfill for the lateral injection gallery.

Testing in accordance with DER-10 and approval by the Department is required for any additional material imported to the site.

Jamie

Jamie L. Verrigni
Environmental Engineer
NYS Department of Environmental Conservation Division of Environmental Remediation
Remedial Bureau C, Section A
625 Broadway, 11th Floor
Albany, NY 12233-7014
Phone: (518) 402-9662
Fax: (518) 402-9679

>>> "Michael C. DeGloria" <MDeGloria@gesonline.com> 1/8/2014 4:23 PM >>>
Jamie-

I've attached the Thalle supplied Sieve information for the 3/8th stone that is proposed for use as backfill around the lateral injection gallery. If you need me to incorporate this into my original letter please let me know and I will do so.

Thank you,

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

-----Original Message-----

From: Jamie Verrigni [mailto:jlverrig@gw.dec.state.ny.us]
Sent: Tuesday, January 07, 2014 1:49 PM
To: Michael C. DeGloria
Subject: RE: Notice of Intrusive Work - NYSDEC Site Number C344066 - Orangeburg Shopping Center

Michael,

That is correct that it is the sieve information that is needed.

I can provide a letter regarding the installation of the four wells (MW-A/B shallow and deep). Did you want it addressed to you or Rockland County DOH?

Thanks,
Jamie

>>> "Michael C. DeGloria" <MDeGloria@gesonline.com> 1/7/2014 1:28 PM >>>
Jamie- I'm working on obtaining the requested information for the backfill. If I understand your email correctly, I believe it is the sieve information that is needed.

Also, would you provide a statement on Department letterhead regarding the installation of the four wells (MW-A/B shallow and deep). Rockland County DOH has asked for this as backup to issue their local permit.

Thank you in advance.

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

-----Original Message-----

From: Jamie Verrigni [mailto:jlverrig@gw.dec.state.ny.us]
Sent: Tuesday, January 07, 2014 12:16 PM
To: Michael C. DeGloria
Cc: James Candiloro; mer10@health.state.ny.us
Subject: Re: Notice of Intrusive Work - NYSDEC Site Number C344066 - Orangeburg Shopping Center

Michael,

Thank you for providing notification of the planned intrusive work at the Orangetown Shopping Center. Please note that the Department must approve the proposed backfill material prior to its use at the site. In addition to providing the source of the backfill material, please provide the Department with documentation that the backfill material (i.e., stone) contains less than 10% by weight material that would pass through a size 80 sieve in accordance with 5.4(e)5 of DER-10.

Thanks,

Jamie

Jamie L. Verrigni
Environmental Engineer
NYS Department of Environmental Conservation Division of Environmental Remediation
Remedial Bureau C, Section A
625 Broadway, 11th Floor
Albany, NY 12233-7014
Phone: (518) 402-9662
Fax: (518) 402-9679

>>> "Michael C. DeGloria" <MDeGloria@gesonline.com> 1/3/2014 2:03 PM >>>
Ms. Verrigni-

Please accept this email and letter as notice of planned intrusive work at the Orangetown Shopping Center. Planned work includes the installation of monitoring wells MW-A/B inside the (former) Sparkle Cleaners in addition to the lateral injection gallery starting on or about January 20th. The injection gallery is being completed per the original design plan now that the area is vacant and will be used to supplement the ongoing BAS injections if deemed necessary. A hard copy of this letter is also being mailed to the NYSDEC Division of Environmental Remediation, Bureau of Technical Support.

Upon review, please contact me with any questions and/or comments.

Thank you,

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

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New York State Department of Environmental Conservation

Division of Environmental Remediation

Remedial Bureau C, 11th Floor

625 Broadway, Albany, New York 12233-7014

Phone: (518) 402-9662 • **Fax:** (518) 402-9679

Website: www.dec.ny.gov



Joe Martens
Commissioner

January 13, 2014

Michael DeGloria
Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, NY 12563

RE: Notification of Intrusive Work Schedule
Orangetown Shopping Center
Site ID No. C344066
Town of Orangetown, Rockland County

Dear Mr. DeGloria:

The New York State Department of Environmental Conservation (Department) has received Groundwater and Environmental Services, Inc.'s (GES) January 3, 2014 notification of intrusive work to be conducted at the Orangetown Shopping Center Site. The approved work includes the installation of four monitoring wells (MW-A Shallow, MW-A Deep, MW-B Shallow and MW-B Deep) and the installation of the lateral injection gallery as described in the December 2011 Remedial Action Work Plan (RAWP) and modified in the Department's October 3, 2012 email.

If you have any questions or comments please feel free to contact me at (518) 402-9662.

Sincerely,

Jamie Verrigni
Project Manager
Remedial Bureau C
Division of Environmental Remediation

cc: James Candiloro
Jamie Verrigni
Maureen Schuck - NYSDOH
Michael DeGloria - GES

Michael C. DeGloria

From: Michael C. DeGloria
Sent: Monday, January 07, 2014 12:16 PM
To: Jamie Verrigni
Cc: James Candiloro; Michael C. DeGloria
Subject: Re: Notice of Intrusive Work - NYSDEC Site Number C344066 - Orangeburg Shopping Center

Jamie- Please accept this email as a summary for today's intrusive work at the subject project located in Orangeburg, NY.

Planned work included the advancement of up to four soil borings/monitoring wells inside the former Sparkle Cleaners store. Two monitoring wells (MW-A/B) were proposed to be set in the reported perched water bearing unit in overburden (~20' max) along with two monitoring wells (MW-A (deep) and MW-B (deep) installed to top of bedrock. The addition of the deeper wells was proposed and approved by the Department.

Site conditions, however, dictated the installation of only two monitoring wells set in the approximate original proposed depth of 20'. This is a result of drilling refusal at 20 and 25 feet respectively. Each well was set with the proposed 10' screen zone.

This modification will be explained in an upcoming Monthly Report.

As for the CAMP results, no detections above action levels were recorded. Results will also be provided in an upcoming Monthly Report.

Work is planned to continue tomorrow with updates provided to the Department.

Thank you,

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

-----Original Message-----
From: Jamie Verrigni [<mailto:jlverrig@gw.dec.state.ny.us>]
Sent: Tuesday, January 07, 2014 12:16 PM
To: Michael C. DeGloria
Cc: James Candiloro; mer10@health.state.ny.us
Subject: Re: Notice of Intrusive Work - NYSDEC Site Number C344066 - Orangeburg Shopping Center

Michael,

Thank you for providing notification of the planned intrusive work at the Orangetown Shopping Center. Please note that the Department must approve the proposed backfill

material prior to its use at the site. In addition to providing the source of the backfill material, please provide the Department with documentation that the backfill material (i.e., stone) contains less than 10% by weight material that would pass through a size 80 sieve in accordance with 5.4(e)5 of DER-10.

Thanks,
Jamie

Jamie L. Verrigni
Environmental Engineer
NYS Department of Environmental Conservation Division of Environmental Remediation
Remedial Bureau C, Section A
625 Broadway, 11th Floor
Albany, NY 12233-7014
Phone: (518) 402-9662
Fax: (518) 402-9679

>>> "Michael C. DeGloria" <MDeGloria@gesonline.com> 1/3/2014 2:03 PM >>>
Ms. Verrigni-

Please accept this email and letter as notice of planned intrusive work at the Orangetown Shopping Center. Planned work includes the installation of monitoring wells MW-A/B inside the (former) Sparkle Cleaners in addition to the lateral injection gallery starting on or about January 20th. The injection gallery is being completed per the original design plan now that the area is vacant and will be used to supplement the ongoing BAS injections if deemed necessary. A hard copy of this letter is also being mailed to the NYSDEC Division of Environmental Remediation, Bureau of Technical Support.

Upon review, please contact me with any questions and/or comments.

Thank you,

Michael DeGloria
Project Manager

Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Patterson, New York 12563

Office: 866-839-5195, ext. 3839
Mobile: 845-661-4180
Fax: 845-878-8077

Email: mdegloria@gesonline.com

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February 4, 2014

Ms. Nicole Foley Kraft
Section Chief, UIC Branch
Groundwater Compliance Section
US Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

**Re: Request for Temporary UIC Permit
Environmental Remediation Project
Orangetown Shopping Center
Orangetown, New York
NYSDEC Site Number C344066**

Dear Ms. Kraft:

Groundwater & Environmental Services, Inc. (GES), on behalf of UB Orangeburg, LLC is planning to conduct site remediation activities starting in March, 2014 at the above-referenced facility (the site). The subject site is located within the Orangetown Shopping Center, a portion of which has entered into the New York Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and is referenced as site #C344066.

Remediation activities will be conducted in the area of concern which is located near the southeastern section of Building #2. A Site Map is attached as **Figure 1**. The proposed remediation technology involves the injection of 10% aqueous molasses solution via on-site injection wells and monitoring wells. These injection events will be conducted periodically over a period of two days per event. This work is being conducted for the purposes of environmental remediation of residual subsurface chlorinated hydrocarbon impacts at the site, and is subject to the groundwater protection requirements of the Environmental Protection Agency's (EPA) Underground Injection Control (UIC) program. An inventory of injection wells (EPA form #7520-16) is attached to this letter.

The addition of a bio-stimulant such as molasses into subsurface soil and groundwater has been shown to act as a carbon source that stimulates metabolic reduction of chlorinated VOCs to ethane. These chemical reductions occur via biological pathways associated with bacterial microorganisms such as Dehalococcoides and Dehalobacter. Both of these species have been determined to be present in on-site soil and groundwater.

Over each of the two day remediation events, a total volume of approximately 700 gallons of 10% molasses solution may be injected into injection wells IP-1 through IP-4, injection wells INJ-1 through INJ-9, and monitoring well MW-3. Molasses solution may also be injected into 3 newly installed injection laterals (INJ-10, INJ-11 and INJ-12) located inside the existing on-site building. These wells were installed in January 2014 for the purposes of providing bio-stimulant up-gradient of the area of known residual impacts at the site. A map showing the proposed layout of the injection laterals is provided as **Figure 2**. The total volume proposed is estimated based on previous applications of molasses



solution implemented by Kleinfelder from May 2010 through June 2011 using injection wells IP-1 through IP-4, and monitoring well MW-3.

Following the injection of the molasses solution, GES will obtain measurements for pH, total organic carbon (TOC) and oxidation-reduction potential (ORP) from monitoring wells MW-1, MW-3, MW-4, MW-5, MW-8A, MW-8B, MW-C, MW-D, MW-E and MW-F. GES will review this data to determine the frequency and volume for additional molasses injection events, and to determine if the injection of a sodium bicarbonate solution is necessary. The sodium bicarbonate solution will be injected if the groundwater pH is observed to drop below the optimum range of 6 to 8 standard pH units for microbial activity.

If you have any questions or concerns regarding this site, please contact the undersigned at (866) 839-5195, ext. 3841.

Sincerely,

A handwritten signature in black ink that reads "M. Ghiourelotis".


Michael Ghiourelotis
Project Engineer

A handwritten signature in black ink that reads "Michael DeGloria".

Michael DeGloria
Project Manager

cc: Daniel Logue, UB Orangeburg, LLC
Nathan Walz, New York State Department of Health

Attachments:
Figure 1 - Site Map
Figure 2 – Proposed Lateral Well Configuration Map
EPA Form #7520-16

 <p>INVENTORY OF INJECTION WELLS</p> <p>UNITED STATES ENVIRONMENTAL PROTECTION AGENCY OFFICE OF GROUND WATER AND DRINKING WATER</p> <p><small>(This information is collected under the authority of the Safe Drinking Water Act)</small></p>	<p>1. DATE PREPARED (Year, Month, Day)</p>	<p>2. FACILITY ID NUMBER</p>
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<p>PAPERWORK REDUCTION ACT NOTICE</p> <p>The public reporting burden for this collection of information is estimated at about 0.5 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.</p>	<p>3. TRANSACTION TYPE (Please mark one of the following)</p> <p><input type="checkbox"/> Deletion <input type="checkbox"/> First Time Entry</p> <p><input type="checkbox"/> Entry Change <input type="checkbox"/> Replacement</p>
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4. FACILITY NAME AND LOCATION																							
A. NAME (last, first, and middle initial)			C. LATITUDE			E. TOWNSHIP/RANGE																	
			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:33%;">DEG</th> <th style="width:33%;">MIN</th> <th style="width:33%;">SEC</th> </tr> <tr> <td style="text-align: center;">.</td> <td></td> <td></td> </tr> </table>			DEG	MIN	SEC	.			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">TOWNSHIP</th> <th style="width:25%;">RANGE</th> <th style="width:25%;">SECT</th> <th style="width:25%;">1/4 SECT</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>				TOWNSHIP	RANGE	SECT	1/4 SECT				
DEG	MIN	SEC																					
.																							
TOWNSHIP	RANGE	SECT	1/4 SECT																				
B. STREET ADDRESS/ROUTE NUMBER			D. LONGITUDE																				
			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:33%;">DEG</th> <th style="width:33%;">MIN</th> <th style="width:33%;">SEC</th> </tr> <tr> <td style="text-align: center;">.</td> <td></td> <td></td> </tr> </table>			DEG	MIN	SEC	.														
DEG	MIN	SEC																					
.																							
F. CITY/TOWN		G. STATE	H. ZIP CODE		I. NUMERIC COUNTY CODE		J. INDIAN LAND (mark "x") <input type="checkbox"/> Yes <input type="checkbox"/> No																

5. LEGAL CONTACT:									
A. TYPE (mark "x")		B. NAME (last, first, and middle initial)				C. PHONE (area code and number)			
<input type="checkbox"/> Owner <input type="checkbox"/> Operator						<input type="text"/>			
D. ORGANIZATION			E. STREET/P.O. BOX			I. OWNERSHIP (mark "x")			
						<input type="checkbox"/> PRIVATE <input type="checkbox"/> PUBLIC <input type="checkbox"/> SPECIFY OTHER			
F. CITY/TOWN		G. STATE	H. ZIP CODE		<input type="checkbox"/> STATE		<input type="checkbox"/> FEDERAL		_____

6. WELL INFORMATION:																																	
A. CLASS AND TYPE	B. NUMBER OF WELLS		C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS					COMMENTS (Optional):																								
	COMM	NON-COMM		UC	AC	TA	PA	AN																									
KEY: <table style="width:100%; border: none;"> <tr> <td style="width:33%;">DEG = Degree</td> <td style="width:33%;">COMM = Commercial</td> <td style="width:33%;">NON-COMM = Non-Commercial</td> </tr> <tr> <td>MIN = Minute</td> <td></td> <td></td> </tr> <tr> <td>SEC = Second</td> <td></td> <td></td> </tr> <tr> <td>SECT = Section</td> <td>AC = Active</td> <td></td> </tr> <tr> <td>1/4 SECT = Quarter Section</td> <td>UC = Under Construction</td> <td></td> </tr> <tr> <td></td> <td>TA = Temporarily Abandoned</td> <td></td> </tr> <tr> <td></td> <td>PA = Permanently Abandoned and Approved by State</td> <td></td> </tr> <tr> <td></td> <td>AN = Permanently Abandoned and not Approved by State</td> <td></td> </tr> </table>										DEG = Degree	COMM = Commercial	NON-COMM = Non-Commercial	MIN = Minute			SEC = Second			SECT = Section	AC = Active		1/4 SECT = Quarter Section	UC = Under Construction			TA = Temporarily Abandoned			PA = Permanently Abandoned and Approved by State			AN = Permanently Abandoned and not Approved by State	
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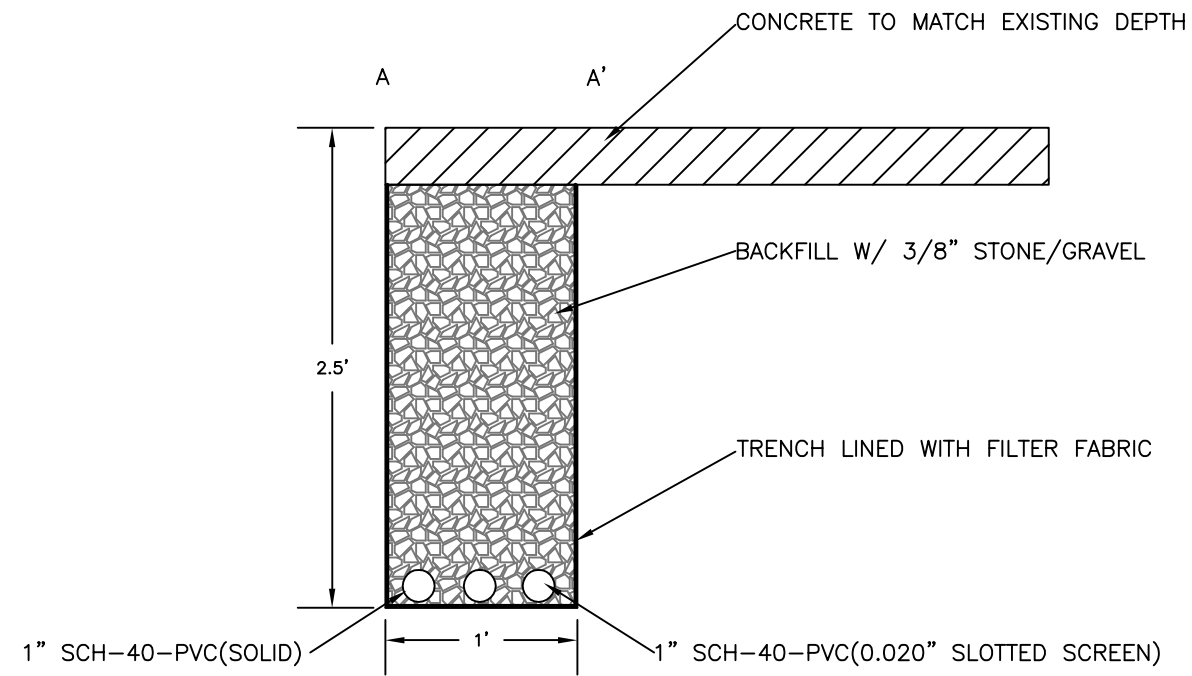
LEGEND

- PROPERTY BOUNDARY
- o- CHAIN LINK FENCE
- [Grid] CATCH BASIN
- (M) UTILITY MANHOLE
- (O) UTILITY POLE
- (Sun) LIGHT POLE
- (F) FIRE HYDRANT
- (W) MONITORING WELL
- (I) INJECTION WELL
- (X) DESTROYED MONITORING WELL
- (P) PIEZOMETER
- SS- UNDERGROUND SANITARY SEWER LINE
- OHU- OVERHEAD UTILITIES

M:\Graphics\100-Patterson-L\HVM\iso\Urstadt Biddle Properties\Orangeburg\Orangeburg SM.dwg, B-50, BSlivestri

DRAFTED BY: B.C.S. (N.J.)	SITE MAP	
CHECKED BY:	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK	
REVIEWED BY:	Groundwater & Environmental Services, Inc. 70 JON BARRETT ROAD, SUITE B, PATTERSON, NY 12563	
NORTH 	SCALE IN FEET	DATE
	0 APPROXIMATE 50	5-22-12
		FIGURE 1

LATERAL WELL CROSS SECTION



LEGEND

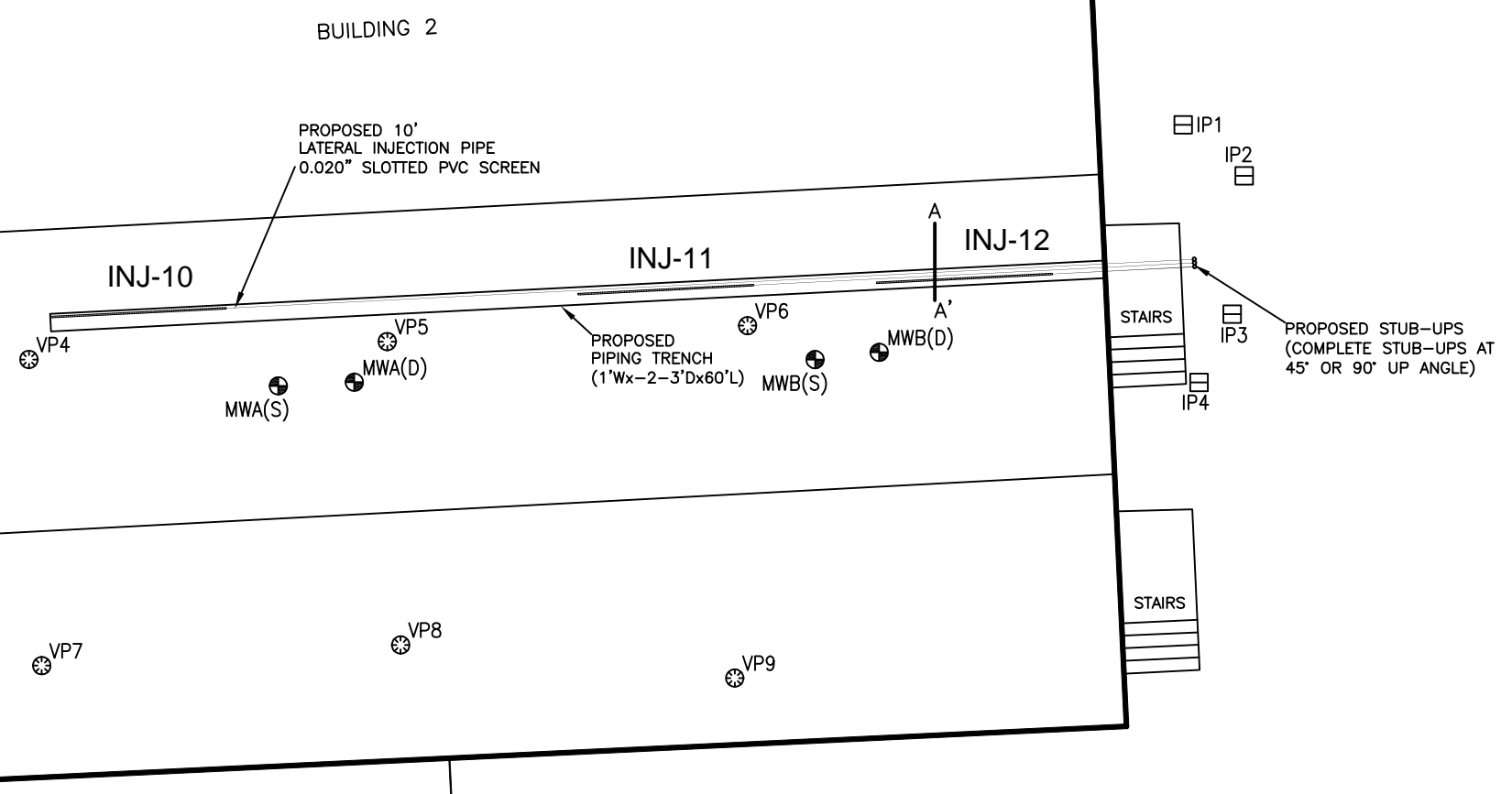
- PROPOSED MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- INJECTION WELL
- 10' LATERAL INJECTION PIPE

NOTES:

- COMMUNITY AIR MONITORING PLAN MUST BE IMPLEMENTED DURING TRENCHING OR DRILLING ACTIVITIES.
- REQUIRED EQUIPMENT: DUST MONITOR CAPABLE OF MEASURING PARTICULATE MATTER LESS THAN 10 MICROMETERS IN SIZE (PM-10) X2, MINIREA PID WITH 11.7 LAMP X2, VENTILATION EQUIPMENT (FANS) LOCATIONS RELATIVE TO WORK ZONE: CONTINUOUS READINGS DOWNWIND FOR VOCs AND PARTICULATES, CONTINUOUS READINGS UPWIND FOR PARTICULATES, START OF DAY AND PERIODIC VOC READINGS UPWIND.
- RESULTS FROM COMMUNITY AIR MONITORING PLAN MUST BE REPORTED TO GES DAILY VIA E-MAIL.
- CONTRACTOR WILL NEED TO SUPPLY OR FABRICATE A LOCKABLE ENCLOSURE FOR STUB-UPS THAT MEETS WITH APPROVAL FROM CLIENT.
- REFERENCES: KLEINFELDER ENGINEERING P.C. *LATERAL INJECTION WELL CONFIGURATION*. BOHEMIA, NEW YORK. KLEINFELDER, 7/18/2011.

PROPOSED MONITORING WELL CONSTRUCTION DETAILS:

EACH MONITORING WELL WILL BE CONSTRUCTED WITH 10 FEET OF 0.040-INCH SLOTTED 1-INCH DIAMETER PVC SCREEN AND 1-INCH DIAMETER SCHEDULE 40 PVC SOLID RISER. SHALLOW MONITORING WELLS [MW-A(S) AND MW-B(S)] WILL HAVE TOTAL DEPTH OF APPROXIMATELY 20 FEET BELOW GRADE (FBG). DEEP MONITORING WELLS [MW-A(D) AND MW-B(D)] WILL BE SET TO THE TOP OF BEDROCK (APPROXIMATELY 35-40 FBG). THE ANNULAR SPACE OF EACH WELL WILL BE FILLED WITH #2 SILICA SAND TO A MINIMUM DEPTH OF 2 FEET ABOVE THE SCREEN. A HYDRATED BENTONITE SEAL WITH A MINIMUM DEPTH OF 1 FOOT WILL BE PLACED ABOVE THE SAND PACK. THE REMAINING ANNULAR SPACE WILL BE FILLED WITH #2 SILICA SAND AND COMPLETED FLUSH TO GRADE WITH A PROTECTIVE WATERTIGHT BOLT-DOWN ROADBOX SET IN CONCRETE.



DRAFTED BY: W.G.S. (N.J.)	PROPOSED LATERAL WELL CONFIGURATION MAP	
CHECKED BY:	UB ORANGEBURG, LLC 1-45 ORANGETOWN SHOPPING CENTER ORANGEBURG, NEW YORK	
REVIEWED BY:	Groundwater & Environmental Services, Inc. 70 JON BARRETT ROAD, SUITE B, PATTERSON, NY 12563	
NORTH 	SCALE IN FEET 0 APPROXIMATE 10	DATE 4-2-13
		FIGURE 2

M:\Graphics\1100-Patterson-LHV\Misc\Urstadt Bldg Properties\Orangeburg\Orangeburg SM.dwg, B-10, WShea



February 6, 2014

Ms. Jamie Verrigni

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway – 11th Floor
Albany, New York 12233-7014

RE: Waste Composite Sample
Orangetown Shopping Center, Orangeburg, NY
NYSDEC Site Number C344066

Dear Ms. Verrigni,

Groundwater and Environmental Services, Inc. (GES) requests New York State Department of Environmental Conservation (NYSDEC) review of the analytical results of the waste characterization sampling performed on the soil generated during the installation of monitoring wells MW-A and MW-B and the lateral injection gallery at the Orangetown Shopping Center site. The installation of the above mentioned monitoring wells and lateral injection gallery was completed on January 29, 2014. The associated soil has been stock piled in a lined and covered roll off pending receipt of analytical results.

Based on these results (attached), and the accompanying letter from ESMI of New York (attached), GES requests approval to manage this soil as non-hazardous solid waste under NYSDEC Solid Waste Permit #5-5330-00038/00019.

If there are any questions or concerns regarding this work, please contact Michael DeGloria at 866-839-5195, extension 3839.

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.

Michael DeGloria
Project Manager

Attachments:

TestAmerica Analytical Report
February 6, 2014, ESMI of New York Correspondence

cc: Daniel Logue, UB Orangeburg, LLC
Stephan Rapaglia, UB Orangeburg, LLC
Nate Walz, New York State Department of Health
George Heitzman, NYSDEC
Charlotte Bethoney, NYSDOH
Hilton Soniker, Esq., JLJ Management

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-45440-1
TestAmerica Sample Delivery Group: Orangetown, NY
Client Project/Site: Orangetown Shopping Center

For:
Groundwater & Environmental Services Inc
70 Jon Barrett Rd
Suite B
Patterson, New York 12563

Attn: Mr. Mike DeGloria

Jennifer Huckaba

Authorized for release by:
2/4/2014 1:47:33 PM

Jennifer Huckaba, Project Manager II
(615)301-5042
jennifer.huckaba@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-45440-1	Waste Composite #1	Solid	01/28/14 14:30	01/30/14 08:10

1

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Case Narrative

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Job ID: 490-45440-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-45440-1

Comments

No additional comments.

Receipt

The sample was received on 1/30/2014 8:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5° C.

Except:

Reported analyte concentrations in the following sample is below 200ug/kg and may be biased low due to the sample not being collected according to 5035-L/5035A-L low-level specifications: Waste Composite #1 (490-45440-1). The sample was collected in soil jars. The sample was preserved in the laboratory.

GC/MS VOA

Method(s) 8260C: Surrogate recovery for the following sample was outside control limits: Waste Composite #1 (490-45440-1). Evidence of matrix interference is present; therefore, re-analysis was not performed.

Method(s) 8260C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 138475. See LCS/LCSD.

No other analytical or quality issues were noted.

GC VOA

Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with batch 139137.

No other analytical or quality issues were noted.

GC Semi VOA

Method(s) 8015D: The method blank for batch 138836 contained C10-C28 above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

No other analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

Definitions/Glossary

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.
*	Surrogate exceeds the control limit

GC VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
B	The analyte was found in an associated blank, as well as in the sample.
J	Indicates an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Client Sample ID: Waste Composite #1

Lab Sample ID: 490-45440-1

Date Collected: 01/28/14 14:30

Matrix: Solid

Date Received: 01/30/14 08:10

Percent Solids: 90.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0417	U	0.0521	0.0417	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Benzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Bromobenzene	0.000751	U	0.00209	0.000751	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Bromoform	0.000574	U	0.00209	0.000574	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Bromomethane	0.00125	U	0.00209	0.00125	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
2-Butanone (MEK)	0.00532	U	0.0521	0.00532	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Carbon disulfide	0.00375	U	0.00521	0.00375	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Carbon tetrachloride	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chlorobenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chlorobromomethane	0.000574	U	0.00209	0.000574	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chlorodibromomethane	0.000355	U	0.00209	0.000355	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chloroethane	0.00198	U	0.00521	0.00198	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chloroform	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Chloromethane	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
2-Chlorotoluene	0.000928	U	0.00209	0.000928	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
4-Chlorotoluene	0.000876	U	0.00209	0.000876	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
cis-1,2-Dichloroethene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
cis-1,3-Dichloropropene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2-Dibromo-3-Chloropropane	0.000730	U	0.00521	0.000730	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Dibromomethane	0.000584	U	0.00209	0.000584	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2-Dichlorobenzene	0.000355	U	0.00209	0.000355	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,3-Dichlorobenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,4-Dichlorobenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Dichlorobromomethane	0.000574	U	0.00209	0.000574	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Dichlorodifluoromethane	0.00104	U	0.00209	0.00104	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1-Dichloroethane	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2-Dichloroethane	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1-Dichloroethene	0.000594	U	0.00209	0.000594	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2-Dichloropropane	0.000980	U	0.00209	0.000980	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,3-Dichloropropane	0.000980	U	0.00209	0.000980	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
2,2-Dichloropropane	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1-Dichloropropene	0.000532	U	0.00209	0.000532	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Ethylbenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Ethylene Dibromide	0.00104	U	0.00209	0.00104	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Hexachlorobutadiene	0.00119	U	0.00521	0.00119	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
2-Hexanone	0.0174	U	0.0521	0.0174	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Isopropylbenzene	0.000428	U	0.00209	0.000428	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
4-Isopropyltoluene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Methylene Chloride	0.000897	U	0.0104	0.000897	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
4-Methyl-2-pentanone (MIBK)	0.0177	U	0.0521	0.0177	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Methyl tert-butyl ether	0.00100	U	0.00209	0.00100	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Naphthalene	0.00177	U	0.00521	0.00177	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
n-Butylbenzene	0.00102	U	0.00209	0.00102	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
N-Propylbenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
sec-Butylbenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Styrene	0.00115	U	0.00209	0.00115	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
tert-Butylbenzene	0.000939	U	0.00209	0.000939	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1,1,2-Tetrachloroethane	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1,2,2-Tetrachloroethane	0.00104	U	0.00209	0.00104	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1

TestAmerica Nashville

Client Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Client Sample ID: Waste Composite #1

Lab Sample ID: 490-45440-1

Date Collected: 01/28/14 14:30

Matrix: Solid

Date Received: 01/30/14 08:10

Percent Solids: 90.9

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	0.000761	U	0.00209	0.000761	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Toluene	0.000772	U	0.00209	0.000772	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
trans-1,2-Dichloroethene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
trans-1,3-Dichloropropene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2,3-Trichlorobenzene	0.000396	U	0.00209	0.000396	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2,4-Trichlorobenzene	0.000699	U	0.00209	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1,1-Trichloroethane	0.000959	U	0.00209	0.000959	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,1,2-Trichloroethane	0.00146	U	0.00521	0.00146	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Trichloroethene	0.00100	U	0.00209	0.00100	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Trichlorofluoromethane	0.00104	U	0.00209	0.00104	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2,3-Trichloropropane	0.000574	U	0.00209	0.000574	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,2,4-Trimethylbenzene	0.00104	U	0.00209	0.00104	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
1,3,5-Trimethylbenzene	0.000782	U	0.00209	0.000782	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Vinyl chloride	0.00115	U	0.00209	0.00115	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1
Xylenes, Total	0.000699	U	0.00521	0.000699	mg/Kg	☼	01/30/14 12:43	01/30/14 16:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130	01/30/14 12:43	01/30/14 16:13	1
Dibromofluoromethane (Surr)	138 *		70 - 130	01/30/14 12:43	01/30/14 16:13	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130	01/30/14 12:43	01/30/14 16:13	1
Toluene-d8 (Surr)	84		70 - 130	01/30/14 12:43	01/30/14 16:13	1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	2.97	U	5.93	2.97	mg/Kg	☼	01/30/14 14:04	02/03/14 15:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	86		50 - 150	01/30/14 14:04	02/03/14 15:51	1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C28	3.59	J B	5.42	1.52	mg/Kg	☼	01/31/14 11:44	02/01/14 17:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	61		50 - 150	01/31/14 11:44	02/01/14 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	90.9		0.100	0.100	%			01/31/14 11:17	1

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 490-138475/7

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	0.0400	U	0.0500	0.0400	mg/Kg			01/30/14 13:14	1
Benzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Bromobenzene	0.000720	U	0.00200	0.000720	mg/Kg			01/30/14 13:14	1
Bromoform	0.000550	U	0.00200	0.000550	mg/Kg			01/30/14 13:14	1
Bromomethane	0.00120	U	0.00200	0.00120	mg/Kg			01/30/14 13:14	1
2-Butanone (MEK)	0.00510	U	0.0500	0.00510	mg/Kg			01/30/14 13:14	1
Carbon disulfide	0.00360	U	0.00500	0.00360	mg/Kg			01/30/14 13:14	1
Carbon tetrachloride	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Chlorobenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Chlorobromomethane	0.000550	U	0.00200	0.000550	mg/Kg			01/30/14 13:14	1
Chlorodibromomethane	0.000340	U	0.00200	0.000340	mg/Kg			01/30/14 13:14	1
Chloroethane	0.00190	U	0.00500	0.00190	mg/Kg			01/30/14 13:14	1
Chloroform	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Chloromethane	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
2-Chlorotoluene	0.000890	U	0.00200	0.000890	mg/Kg			01/30/14 13:14	1
4-Chlorotoluene	0.000840	U	0.00200	0.000840	mg/Kg			01/30/14 13:14	1
cis-1,2-Dichloroethene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
cis-1,3-Dichloropropene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,2-Dibromo-3-Chloropropane	0.000700	U	0.00500	0.000700	mg/Kg			01/30/14 13:14	1
Dibromomethane	0.000560	U	0.00200	0.000560	mg/Kg			01/30/14 13:14	1
1,2-Dichlorobenzene	0.000340	U	0.00200	0.000340	mg/Kg			01/30/14 13:14	1
1,3-Dichlorobenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,4-Dichlorobenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Dichlorobromomethane	0.000550	U	0.00200	0.000550	mg/Kg			01/30/14 13:14	1
Dichlorodifluoromethane	0.00100	U	0.00200	0.00100	mg/Kg			01/30/14 13:14	1
1,1-Dichloroethane	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,2-Dichloroethane	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,1-Dichloroethene	0.000570	U	0.00200	0.000570	mg/Kg			01/30/14 13:14	1
1,2-Dichloropropane	0.000940	U	0.00200	0.000940	mg/Kg			01/30/14 13:14	1
1,3-Dichloropropane	0.000940	U	0.00200	0.000940	mg/Kg			01/30/14 13:14	1
2,2-Dichloropropane	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,1-Dichloropropene	0.000510	U	0.00200	0.000510	mg/Kg			01/30/14 13:14	1
Ethylbenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Ethylene Dibromide	0.00100	U	0.00200	0.00100	mg/Kg			01/30/14 13:14	1
Hexachlorobutadiene	0.00114	U	0.00500	0.00114	mg/Kg			01/30/14 13:14	1
2-Hexanone	0.0167	U	0.0500	0.0167	mg/Kg			01/30/14 13:14	1
Isopropylbenzene	0.000410	U	0.00200	0.000410	mg/Kg			01/30/14 13:14	1
4-Isopropyltoluene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Methylene Chloride	0.000860	U	0.0100	0.000860	mg/Kg			01/30/14 13:14	1
4-Methyl-2-pentanone (MIBK)	0.0170	U	0.0500	0.0170	mg/Kg			01/30/14 13:14	1
Methyl tert-butyl ether	0.000960	U	0.00200	0.000960	mg/Kg			01/30/14 13:14	1
Naphthalene	0.00170	U	0.00500	0.00170	mg/Kg			01/30/14 13:14	1
n-Butylbenzene	0.000980	U	0.00200	0.000980	mg/Kg			01/30/14 13:14	1
N-Propylbenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
sec-Butylbenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
Styrene	0.00110	U	0.00200	0.00110	mg/Kg			01/30/14 13:14	1
tert-Butylbenzene	0.000900	U	0.00200	0.000900	mg/Kg			01/30/14 13:14	1
1,1,1,2-Tetrachloroethane	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1

TestAmerica Nashville

QC Sample Results

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 490-138475/7

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	0.00100	U	0.00200	0.00100	mg/Kg			01/30/14 13:14	1
Tetrachloroethene	0.000730	U	0.00200	0.000730	mg/Kg			01/30/14 13:14	1
Toluene	0.000740	U	0.00200	0.000740	mg/Kg			01/30/14 13:14	1
trans-1,2-Dichloroethene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
trans-1,3-Dichloropropene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,2,3-Trichlorobenzene	0.000380	U	0.00200	0.000380	mg/Kg			01/30/14 13:14	1
1,2,4-Trichlorobenzene	0.000670	U	0.00200	0.000670	mg/Kg			01/30/14 13:14	1
1,1,1-Trichloroethane	0.000920	U	0.00200	0.000920	mg/Kg			01/30/14 13:14	1
1,1,2-Trichloroethane	0.00140	U	0.00500	0.00140	mg/Kg			01/30/14 13:14	1
Trichloroethene	0.000960	U	0.00200	0.000960	mg/Kg			01/30/14 13:14	1
Trichlorofluoromethane	0.00100	U	0.00200	0.00100	mg/Kg			01/30/14 13:14	1
1,2,3-Trichloropropane	0.000550	U	0.00200	0.000550	mg/Kg			01/30/14 13:14	1
1,2,4-Trimethylbenzene	0.00100	U	0.00200	0.00100	mg/Kg			01/30/14 13:14	1
1,3,5-Trimethylbenzene	0.000750	U	0.00200	0.000750	mg/Kg			01/30/14 13:14	1
Vinyl chloride	0.00110	U	0.00200	0.00110	mg/Kg			01/30/14 13:14	1
Xylenes, Total	0.000670	U	0.00500	0.000670	mg/Kg			01/30/14 13:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130		01/30/14 13:14	1
Dibromofluoromethane (Surr)	108		70 - 130		01/30/14 13:14	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130		01/30/14 13:14	1
Toluene-d8 (Surr)	87		70 - 130		01/30/14 13:14	1

Lab Sample ID: LCS 490-138475/3

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	0.250	0.2143		mg/Kg		86	51 - 149
Benzene	0.0500	0.04775		mg/Kg		96	75 - 127
Bromobenzene	0.0500	0.04227		mg/Kg		85	75 - 130
Bromoform	0.0500	0.04773		mg/Kg		95	36 - 150
Bromomethane	0.0500	0.05002		mg/Kg		100	43 - 142
2-Butanone (MEK)	0.250	0.1866		mg/Kg		75	61 - 132
Carbon disulfide	0.0500	0.05416		mg/Kg		108	74 - 135
Carbon tetrachloride	0.0500	0.04827		mg/Kg		97	70 - 141
Chlorobenzene	0.0500	0.04784		mg/Kg		96	84 - 125
Chlorobromomethane	0.0500	0.05496		mg/Kg		110	70 - 132
Chlorodibromomethane	0.0500	0.04588		mg/Kg		92	66 - 134
Chloroethane	0.0500	0.05315		mg/Kg		106	53 - 144
Chloroform	0.0500	0.04486		mg/Kg		90	76 - 130
Chloromethane	0.0500	0.06128		mg/Kg		123	23 - 150
2-Chlorotoluene	0.0500	0.04218		mg/Kg		84	78 - 132
4-Chlorotoluene	0.0500	0.04089		mg/Kg		82	77 - 138
cis-1,2-Dichloroethene	0.0500	0.04675		mg/Kg		93	75 - 125
cis-1,3-Dichloropropene	0.0500	0.04401		mg/Kg		88	73 - 148
1,2-Dibromo-3-Chloropropane	0.0500	0.06768		mg/Kg		135	49 - 142
Dibromomethane	0.0500	0.05646		mg/Kg		113	71 - 130

TestAmerica Nashville

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 490-138475/3

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	0.0500	0.04596		mg/Kg		92	80 - 134
1,3-Dichlorobenzene	0.0500	0.04381		mg/Kg		88	79 - 137
1,4-Dichlorobenzene	0.0500	0.04438		mg/Kg		89	77 - 139
Dichlorobromomethane	0.0500	0.04944		mg/Kg		99	68 - 135
Dichlorodifluoromethane	0.0500	0.06149		mg/Kg		123	12 - 144
1,1-Dichloroethane	0.0500	0.04929		mg/Kg		99	75 - 124
1,2-Dichloroethane	0.0500	0.04695		mg/Kg		94	65 - 134
1,1-Dichloroethene	0.0500	0.04964		mg/Kg		99	75 - 131
1,2-Dichloropropane	0.0500	0.05233		mg/Kg		105	69 - 120
1,3-Dichloropropane	0.0500	0.05001		mg/Kg		100	78 - 126
2,2-Dichloropropane	0.0500	0.04210		mg/Kg		84	68 - 145
1,1-Dichloropropene	0.0500	0.04886		mg/Kg		98	79 - 127
Ethylbenzene	0.0500	0.04575		mg/Kg		92	80 - 134
Ethylene Dibromide	0.0500	0.04568		mg/Kg		91	80 - 135
Hexachlorobutadiene	0.0500	0.04372		mg/Kg		87	65 - 148
2-Hexanone	0.250	0.2395		mg/Kg		96	57 - 148
Isopropylbenzene	0.0500	0.04450		mg/Kg		89	80 - 150
4-Isopropyltoluene	0.0500	0.04379		mg/Kg		88	77 - 141
Methylene Chloride	0.0500	0.05223		mg/Kg		104	68 - 144
4-Methyl-2-pentanone (MIBK)	0.250	0.1984		mg/Kg		79	59 - 138
Methyl tert-butyl ether	0.0500	0.03771		mg/Kg		75	70 - 136
Naphthalene	0.0500	0.04772		mg/Kg		95	69 - 150
n-Butylbenzene	0.0500	0.04616		mg/Kg		92	72 - 152
N-Propylbenzene	0.0500	0.04398		mg/Kg		88	75 - 137
sec-Butylbenzene	0.0500	0.04279		mg/Kg		86	79 - 141
Styrene	0.0500	0.04792		mg/Kg		96	82 - 137
tert-Butylbenzene	0.0500	0.04297		mg/Kg		86	80 - 132
1,1,1,2-Tetrachloroethane	0.0500	0.04488		mg/Kg		90	80 - 136
1,1,1,2,2-Tetrachloroethane	0.0500	0.05185		mg/Kg		104	66 - 134
Tetrachloroethene	0.0500	0.04550		mg/Kg		91	78 - 140
Toluene	0.0500	0.04722		mg/Kg		94	80 - 132
trans-1,2-Dichloroethene	0.0500	0.04659		mg/Kg		93	76 - 128
trans-1,3-Dichloropropene	0.0500	0.04475		mg/Kg		90	62 - 139
1,2,3-Trichlorobenzene	0.0500	0.04591		mg/Kg		92	70 - 150
1,2,4-Trichlorobenzene	0.0500	0.04423		mg/Kg		88	62 - 150
1,1,1-Trichloroethane	0.0500	0.04340		mg/Kg		87	72 - 140
1,1,2-Trichloroethane	0.0500	0.04505		mg/Kg		90	78 - 128
Trichloroethene	0.0500	0.04678		mg/Kg		94	77 - 127
Trichlorofluoromethane	0.0500	0.04678		mg/Kg		94	50 - 140
1,2,3-Trichloropropane	0.0500	0.04075		mg/Kg		82	65 - 139
1,2,4-Trimethylbenzene	0.0500	0.04133		mg/Kg		83	77 - 139
1,3,5-Trimethylbenzene	0.0500	0.04180		mg/Kg		84	78 - 138
Vinyl chloride	0.0500	0.05903		mg/Kg		118	47 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	87		70 - 130
Dibromofluoromethane (Surr)	117		70 - 130
1,2-Dichloroethane-d4 (Surr)	91		70 - 130

TestAmerica Nashville

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 490-138475/3

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	94		70 - 130

Lab Sample ID: LCSD 490-138475/4

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD	Limit
							Limits		
Acetone	0.250	0.2561		mg/Kg		102	51 - 149	18	50
Benzene	0.0500	0.04701		mg/Kg		94	75 - 127	2	50
Bromobenzene	0.0500	0.03872		mg/Kg		77	75 - 130	9	50
Bromoform	0.0500	0.04620		mg/Kg		92	36 - 150	3	50
Bromomethane	0.0500	0.04373		mg/Kg		87	43 - 142	13	50
2-Butanone (MEK)	0.250	0.2589		mg/Kg		104	61 - 132	32	50
Carbon disulfide	0.0500	0.05870		mg/Kg		117	74 - 135	8	50
Carbon tetrachloride	0.0500	0.04494		mg/Kg		90	70 - 141	7	50
Chlorobenzene	0.0500	0.04640		mg/Kg		93	84 - 125	3	50
Chlorobromomethane	0.0500	0.05881		mg/Kg		118	70 - 132	7	50
Chlorodibromomethane	0.0500	0.04541		mg/Kg		91	66 - 134	1	50
Chloroethane	0.0500	0.05851		mg/Kg		117	53 - 144	10	50
Chloroform	0.0500	0.04858		mg/Kg		97	76 - 130	8	49
Chloromethane	0.0500	0.06144		mg/Kg		123	23 - 150	0	50
2-Chlorotoluene	0.0500	0.03918		mg/Kg		78	78 - 132	7	50
4-Chlorotoluene	0.0500	0.04141		mg/Kg		83	77 - 138	1	50
cis-1,2-Dichloroethene	0.0500	0.05149		mg/Kg		103	75 - 125	10	50
cis-1,3-Dichloropropene	0.0500	0.03742		mg/Kg		75	73 - 148	16	50
1,2-Dibromo-3-Chloropropane	0.0500	0.06437		mg/Kg		129	49 - 142	5	50
Dibromomethane	0.0500	0.05218		mg/Kg		104	71 - 130	8	50
1,2-Dichlorobenzene	0.0500	0.04630		mg/Kg		93	80 - 134	1	50
1,3-Dichlorobenzene	0.0500	0.04402		mg/Kg		88	79 - 137	0	50
1,4-Dichlorobenzene	0.0500	0.04335		mg/Kg		87	77 - 139	2	50
Dichlorobromomethane	0.0500	0.04665		mg/Kg		93	68 - 135	6	50
Dichlorodifluoromethane	0.0500	0.06289		mg/Kg		126	12 - 144	2	50
1,1-Dichloroethane	0.0500	0.05293		mg/Kg		106	75 - 124	7	50
1,2-Dichloroethane	0.0500	0.04685		mg/Kg		94	65 - 134	0	50
1,1-Dichloroethene	0.0500	0.05567		mg/Kg		111	75 - 131	11	50
1,2-Dichloropropane	0.0500	0.04466		mg/Kg		89	69 - 120	16	50
1,3-Dichloropropane	0.0500	0.04875		mg/Kg		97	78 - 126	3	42
2,2-Dichloropropane	0.0500	0.04342		mg/Kg		87	68 - 145	3	50
1,1-Dichloropropene	0.0500	0.04356		mg/Kg		87	79 - 127	11	50
Ethylbenzene	0.0500	0.04433		mg/Kg		89	80 - 134	3	50
Ethylene Dibromide	0.0500	0.04723		mg/Kg		94	80 - 135	3	50
Hexachlorobutadiene	0.0500	0.04176		mg/Kg		84	65 - 148	5	50
2-Hexanone	0.250	0.2390		mg/Kg		96	57 - 148	0	50
Isopropylbenzene	0.0500	0.04542		mg/Kg		91	80 - 150	2	50
4-Isopropyltoluene	0.0500	0.04438		mg/Kg		89	77 - 141	1	50
Methylene Chloride	0.0500	0.05351		mg/Kg		107	68 - 144	2	50
4-Methyl-2-pentanone (MIBK)	0.250	0.1871		mg/Kg		75	59 - 138	6	50
Methyl tert-butyl ether	0.0500	0.03582		mg/Kg		72	70 - 136	5	50

TestAmerica Nashville

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 490-138475/4

Matrix: Solid

Analysis Batch: 138475

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	0.0500	0.05034		mg/Kg		101	69 - 150	5	50
n-Butylbenzene	0.0500	0.04464		mg/Kg		89	72 - 152	3	50
N-Propylbenzene	0.0500	0.04250		mg/Kg		85	75 - 137	3	50
sec-Butylbenzene	0.0500	0.04400		mg/Kg		88	79 - 141	3	50
Styrene	0.0500	0.04889		mg/Kg		98	82 - 137	2	50
tert-Butylbenzene	0.0500	0.04066		mg/Kg		81	80 - 132	6	50
1,1,1,2-Tetrachloroethane	0.0500	0.04296		mg/Kg		86	80 - 136	4	50
1,1,1,2,2-Tetrachloroethane	0.0500	0.04841		mg/Kg		97	66 - 134	7	50
Tetrachloroethene	0.0500	0.04337		mg/Kg		87	78 - 140	5	50
Toluene	0.0500	0.04372		mg/Kg		87	80 - 132	8	50
trans-1,2-Dichloroethene	0.0500	0.04733		mg/Kg		95	76 - 128	2	50
trans-1,3-Dichloropropene	0.0500	0.03805		mg/Kg		76	62 - 139	16	50
1,2,3-Trichlorobenzene	0.0500	0.04539		mg/Kg		91	70 - 150	1	50
1,2,4-Trichlorobenzene	0.0500	0.04320		mg/Kg		86	62 - 150	2	50
1,1,1-Trichloroethane	0.0500	0.04111		mg/Kg		82	72 - 140	5	50
1,1,2-Trichloroethane	0.0500	0.04275		mg/Kg		85	78 - 128	5	50
Trichloroethene	0.0500	0.03892		mg/Kg		78	77 - 127	18	50
Trichlorofluoromethane	0.0500	0.04779		mg/Kg		96	50 - 140	2	50
1,2,3-Trichloropropane	0.0500	0.03938		mg/Kg		79	65 - 139	3	50
1,2,4-Trimethylbenzene	0.0500	0.04036		mg/Kg		81	77 - 139	2	50
1,3,5-Trimethylbenzene	0.0500	0.04049		mg/Kg		81	78 - 138	3	50
Vinyl chloride	0.0500	0.05838		mg/Kg		117	47 - 136	1	50

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
Dibromofluoromethane (Surr)	113		70 - 130
1,2-Dichloroethane-d4 (Surr)	90		70 - 130
Toluene-d8 (Surr)	91		70 - 130

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 490-139137/8

Matrix: Solid

Analysis Batch: 139137

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C6-C10	2.50	U	5.00	2.50	mg/Kg			02/03/14 09:32	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	99		50 - 150		02/03/14 09:32	1

Lab Sample ID: LCS 490-139137/6

Matrix: Solid

Analysis Batch: 139137

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C6-C10	10.0	10.69		mg/Kg		107	70 - 130

TestAmerica Nashville

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8015D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCS 490-139137/6
Matrix: Solid
Analysis Batch: 139137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	113		50 - 150

Lab Sample ID: LCSD 490-139137/28
Matrix: Solid
Analysis Batch: 139137

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C6-C10	10.0	9.319		mg/Kg		93	70 - 130	14	21

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	92		50 - 150

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 490-138836/1-A
Matrix: Solid
Analysis Batch: 138949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 138836

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C10-C28	1.712	J	5.00	1.40	mg/Kg		01/31/14 11:44	02/01/14 16:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	64		50 - 150	01/31/14 11:44	02/01/14 16:35	1

Lab Sample ID: LCS 490-138836/2-A
Matrix: Solid
Analysis Batch: 138949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 138836

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C28	40.0	26.54		mg/Kg		66	54 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	73		50 - 150

Lab Sample ID: 490-45440-1 MS
Matrix: Solid
Analysis Batch: 138949

Client Sample ID: Waste Composite #1
Prep Type: Total/NA
Prep Batch: 138836

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C10-C28	3.59	J B	43.0	21.25		mg/Kg	☼	41	10 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl	61		50 - 150

QC Sample Results

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 490-45440-1 MSD

Matrix: Solid

Analysis Batch: 138949

Client Sample ID: Waste Composite #1

Prep Type: Total/NA

Prep Batch: 138836

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C10-C28	3.59	J B	44.0	25.95		mg/Kg	☼	51	10 - 142	20	47
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
<i>o-Terphenyl</i>	66		50 - 150								

Method: Moisture - Percent Moisture

Lab Sample ID: 490-45490-B-1 DU

Matrix: Solid

Analysis Batch: 138819

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	94.0		93.6		%		0.5	20

QC Association Summary

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

GC/MS VOA

Analysis Batch: 138475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	8260C	138589
LCS 490-138475/3	Lab Control Sample	Total/NA	Solid	8260C	
LCS 490-138475/4	Lab Control Sample Dup	Total/NA	Solid	8260C	
MB 490-138475/7	Method Blank	Total/NA	Solid	8260C	

Prep Batch: 138589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	5030C	

GC VOA

Prep Batch: 138588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	5030C	

Analysis Batch: 139137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	8015D	138588
LCS 490-139137/6	Lab Control Sample	Total/NA	Solid	8015D	
LCS 490-139137/28	Lab Control Sample Dup	Total/NA	Solid	8015D	
MB 490-139137/8	Method Blank	Total/NA	Solid	8015D	

GC Semi VOA

Prep Batch: 138836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	3550C	
490-45440-1 MS	Waste Composite #1	Total/NA	Solid	3550C	
490-45440-1 MSD	Waste Composite #1	Total/NA	Solid	3550C	
LCS 490-138836/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 490-138836/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 138949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	8015D	138836
490-45440-1 MS	Waste Composite #1	Total/NA	Solid	8015D	138836
490-45440-1 MSD	Waste Composite #1	Total/NA	Solid	8015D	138836
LCS 490-138836/2-A	Lab Control Sample	Total/NA	Solid	8015D	138836
MB 490-138836/1-A	Method Blank	Total/NA	Solid	8015D	138836

General Chemistry

Analysis Batch: 138819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-45440-1	Waste Composite #1	Total/NA	Solid	Moisture	
490-45490-B-1 DU	Duplicate	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Groundwater & Environmental Services Inc
 Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
 SDG: Orangetown, NY

Client Sample ID: Waste Composite #1

Lab Sample ID: 490-45440-1

Date Collected: 01/28/14 14:30

Matrix: Solid

Date Received: 01/30/14 08:10

Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			5.75 g	5.0 mL	138589	01/30/14 12:43	JLP	TAL NSH
Total/NA	Analysis	8260C		1	5.75 g	5.0 mL	138475	01/30/14 16:13	SNR	TAL NSH
Total/NA	Prep	5030C			5.06 g	5.0 mL	138588	01/30/14 14:04	JLP	TAL NSH
Total/NA	Analysis	8015D		1	5.06 g	5.0 mL	139137	02/03/14 15:51	AMC	TAL NSH
Total/NA	Prep	3550C			25.36 g	1.00 mL	138836	01/31/14 11:44	LP	TAL NSH
Total/NA	Analysis	8015D		1	25.36 g	1.00 mL	138949	02/01/14 17:06	GMH	TAL NSH
Total/NA	Analysis	Moisture		1			138819	01/31/14 11:17	JJS	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



Method Summary

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL NSH
8015D	Gasoline Range Organics (GRO) (GC)	SW846	TAL NSH
8015D	Diesel Range Organics (DRO) (GC)	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177



Certification Summary

Client: Groundwater & Environmental Services Inc
Project/Site: Orangetown Shopping Center

TestAmerica Job ID: 490-45440-1
SDG: Orangetown, NY

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	11342	04-01-14

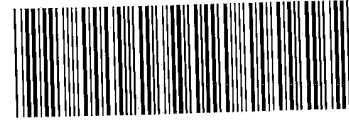
The following analytes are included in this report, but are not certified under this certification:

Analysis Method	Prep Method	Matrix	Analyte
8260C		Solid	1,2,3-Trichlorobenzene
8260C	5030C	Solid	1,2,3-Trichlorobenzene

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Solids

COOLER RECEIPT FORM



490-45440 Chain of Custody

Cooler Received/Opened On 1/30/2014 @ 0810

1. Tracking # 0540 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID 12080142

2. Temperature of rep. sample or temp blank when opened: 3.5 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) AJH

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (initial) AJH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) AJH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) AJH

I certify that I attached a label with the unique LIMS number to each container (initial) AJH

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# _____

Chain of Custody Record

Client Information Client Contact: Mike DeGloria Company: Groundwater & Environmental Services Inc Address: 70 Jon Barrett Rd Suite B City: Patterson State, Zip: NY, 12563 Phone: 866-859-5195 Email: MDeGloria@gesonline.com Project Name: 1-45 Orangeburg Shopping Center Site: Orangetown, NY		Lab PVI: Huckaba, Jennifer E-Mail: jennifer.huckaba@testamericainc.com		Carrier Tracking No(s): Page 1 of 1 Job #
Due Date Requested: TAT Requested (days): RUSH 4-5 DAY TAT 3-DAY TAT PO #: Purchase Order not required (Bill direct to GES) WO #: Project #: 49002256 SSOW#		Analysis Requested Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MSD (Yes or No) <input checked="" type="checkbox"/> 8260 Full List VOCs <input checked="" type="checkbox"/> TPH-DRO <input checked="" type="checkbox"/> TPH-GRO <input checked="" type="checkbox"/>		
Sample Identification Sample Date: 1-28-14 Sample Time: 1430 Sample Type (C=Comp, G=grab): C Matrix (W=water, S=solid, O=soil, BT=Tissue, A=Air): S Preservation Code:		Total Number of Containers: Special Instructions/Note: Loc: 490 45440		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested: I, II, IV, Other (specify): Provide report within 2 weeks of sample receipt-EQUIS-EDD. must be provided and e-mailed to mdegloria@gesonline.com + eandretto@gesonline.com. ges@gesonline.com within 2 weeks of sample receipt-EDD Name: Orangetown-Shopping Center (tab-report number)-20454-EQEDD-air (CA)		Special Instructions/QC Requirements: 1102323--08290		
Empty Kit Relinquished by: Relinquished by: Co. Andreatto Bar. Rozell. Relinquished by:		Method of Shipment: Date/Time: 1/28/14 1430 Date/Time: 1/29/14 1630 Date/Time:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Received by: OFES Company: OFES Date/Time: 1/28/14 1430 Received by: Adam Huskey Company: OFES Date/Time: 1/30/14 8:10 Received by: Company:		
Cooler Temperature(s) °C and Other Remarks: 3.5		Cooler Temperature(s) °C and Other Remarks:		



Login Sample Receipt Checklist

Client: Groundwater & Environmental Services Inc

Job Number: 490-45440-1
SDG Number: Orangetown, NY

Login Number: 45440
List Number: 1
Creator: Huskey, Adam

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ESMI of New York
304 Towpath Road, Fort Edward, New York, 12828
800.511.3764 Phone 518.747.1181 Fax

February 6, 2014

Christina Andreotto
Groundwater & Environmental Services, Inc.
70 Jon Barrett Road, Suite B
Patterson, New York 12563

Re: ESMI of New York
DEC Facility ID:58Z01
DEC Solid Waste Permit #: 5-5330-00038/00019

Subject: Orangeburg (Site ID c344066) Soil Acceptance

Dear Ms. Andreotto:

ESMI of New York (ESMI) is a Low Temperature Thermal Desorption facility permitted to accept soils contaminated with hydrocarbons and solvents such as Tetrachloroethylene (PCE) provided the soil is not deemed to be a characteristic hazardous waste. Soils contaminated by listed organic hazardous waste, such as PCE, and "contained-out" by the New York State Department of Environmental Conservation (NYSDEC) may be transported to ESMI for thermal treatment.

ESMI received 7.43 tons of Non-hazardous soil from this same Orangeburg Site in June 2012. This soil was laboratory profiled and accepted for delivery to ESMI based on a "contained-in determination" letter from Jamie Verrigni, Project Manager, NYSDEC dated May 22, 2012. This letter is attached.

ESMI received the recent composite sample results of soil tested for TPH-DRO, TPH-GRO, and VOCs by method 8260. If a NYSDEC representative approves of the handling of this newly excavated soil as non-hazardous solid waste, ESMI can accept it for treatment.

Please do not hesitate to contact me if you require anything further.
Sincerely,

A handwritten signature in blue ink, appearing to read "Peter C. Hansen".

Peter C. Hansen
Compliance Manager – ESMI of New York



We purchase green power in amounts that meet EPA's requirements.

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • Fax: (518) 402-9679
Website: www.dec.ny.gov



May 22, 2012

Michael DeGloria
Groundwater & Environmental Services, Inc.
Lower Hudson Valley
70 Jon Barrett Road, Suite B
Patterson, NY 12563

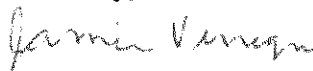
RE: Orangetown Shopping Center
Site ID No. C344066
Town of Orangetown, Rockland County
Waste Composite Sample

Dear Mr. DeGloria

The New York State Department of Environmental Conservation (Department) has reviewed the analytical results of the waste characterization sampling performed for the soil generated as part of the well installation process at the Orangetown Shopping Center site (Site) dated May 18, 2012. Based on the results provided the soil may be handled and disposed of as non-hazardous solid waste, to be disposed of at a facility permitted under 6 NYCRR Part 360.

Please note, this does not mean the soil is acceptable for unrestricted use. If you have any questions or concerns please do not hesitate to contact me at (518) 402-9662.

Sincerely,



Jamie Verrigni
Project Manager
Remedial Bureau C
Division of Environmental Remediation

ec: George Heitzman
Jamie Verrigni
Charlotte Bethoney – NYSDOH
Nate Walz – NYSDOH
Dan Logue – UB Orangeburg, LLC
Michael DeGloria – GES
Michael Nahmias – GES

New York State Department of Environmental Conservation

Division of Environmental Remediation

Remedial Bureau C, 11th Floor

625 Broadway, Albany, New York 12233-7014

Phone: (518) 402-9662 • Fax: (518) 402-9679

Website: www.dec.ny.gov



Joe Martens
Commissioner

February 12, 2014

Michael DeGloria
Groundwater & Environmental Services, Inc.
70 Jon Barrett Road
Robin Hill Corp Park, Suite B
Patterson, NY 12563

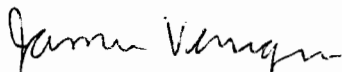
RE: Orangetown Shopping Center
Site ID No. C344066
Town of Orangetown, Rockland County
Waste Composite Sample

Dear Mr. DeGloria:

The New York State Department of Environmental Conservation (Department) has reviewed the analytical results of the waste characterization sampling performed for the soil generated during installation of monitoring wells MW-A and MW-B and the lateral injection gallery at the Orangetown Shopping Center site (Site) dated February 6, 2014. Based on the results provided the soil may be handled and disposed of as a non-hazardous solid waste, to be disposed of at a facility permitted under 6 NYCRR Part 360.

If you have any questions or comments please feel free to contact me at (518) 402-9662 or jlverrig@gw.dec.state.ny.us.

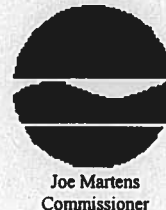
Sincerely,



Jamie Verrigni
Project Manager
Remedial Bureau C
Division of Environmental Remediation

ec: James Candiloro
Jamie Verrigni
Maureen Schuck – NYSDOH
Nate Walz – NYSDOH
Michael DeGloria – GES – MdeGloria@gesonline.com

New York State Department of Environmental Conservation
Division of Environmental Remediation, 11th Floor
625 Broadway, Albany, New York 12233
Phone: (518) 402-9553 Fax: (518) 402-9577
Website: www.dec.ny.gov



5/6/2014

Dan Logue
UB Orangeburg, LLC
Urstadt Biddle Properties Inc
321 Railroad Avenue
Greenwich, CT 06830

Re: Reminder Notice: Site Management Periodic Review Report and IC/EC Certification Submittal

Site Name: Orangeburg (Orangetown) Shopping Center

Site No.: C344066

Site Address: 1-45 Orangetown Shopping Center
Orangetown, NY 10962

Dear Dan Logue:

This letter serves as a reminder that sites in active Site Management (SM) require the submittal of a periodic progress report. This report, referred to as the Periodic Review Report (PRR), must document the implementation of, and compliance with, site specific SM requirements. Section 6.3(b) of DER-10 *Technical Guidance for Site Investigation and Remediation* (available online at <http://www.dec.ny.gov/regulations/67386.html>) provides guidance regarding the information that must be included in the PRR. Further, if the site is comprised of multiple parcels, then you as the Certifying Party must arrange to submit one PRR for all parcels that comprise the site. The PRR must be received by the Department no later than **July 17, 2014**. Guidance on the content of a PRR is enclosed.

Site Management is defined in regulation (6 NYCRR 375-1.2(at)) and in Chapter 6 of DER-10. Depending on when the remedial program for your site was completed, SM may be governed by multiple documents (e.g., Operation, Maintenance, and Monitoring Plan; Soil Management Plan) or one comprehensive Site Management Plan.

A Site Management Plan (SMP) may contain one or all of the following elements, as applicable to the site: a plan to maintain institutional controls and/or engineering controls ("IC/EC Plan"); a plan for monitoring the performance and effectiveness of the selected remedy ("Monitoring Plan"); and/or a plan for the operation and maintenance of the selected remedy ("O&M Plan"). Additionally, the technical requirements for SM are stated in the decision document (e.g., Record of Decision) and, in some cases, the legal agreement directing the remediation of the site (e.g., order on consent, voluntary agreement, etc.).

When you submit the PRR (by the due date above), include the enclosed forms documenting that all SM requirements are being met. The Institutional Controls (ICs) portion of the form (Box 6) must be signed by you or your designated representative. The Engineering Controls (ECs) portion of the form (Box 7) must be signed by a Professional Engineer (PE). If you cannot certify that all SM requirements are being met, you must submit a Corrective Measures Work Plan that identifies the actions to be taken to restore compliance. The work plan must include a schedule to be approved by the Department. The Periodic Review process will not be considered complete until all necessary corrective measures are completed and all required controls are certified. Instructions for completing the certifications are enclosed.

All site-related documents and data, including the PRR, are to be submitted in electronic format to the Department of Environmental Conservation. The Department will not approve the PRR unless all documents and data generated in support of that report have been submitted in accordance with the electronic submissions protocol. In addition, the certification forms are required to be submitted in both paper and electronic formats.

Information on the format of the data submissions can be found at:
<http://www.dec.ny.gov/regulations/2586.html>

The signed certification forms should be sent to Jamie Verrigni, Project Manager, at the following address:

New York State Department of Environmental Conservation
Division of Environmental Remediation, BURC
625 Broadway
Albany, NY 12233-7014

Phone number: 518-402-9662. E-mail: jlvverrig@gw.dec.state.ny.us

The contact information above is also provided so that you may notify the project manager about upcoming inspections, or for any other questions or concerns that may arise in regard to the site.

Enclosures

PRR General Guidance
Certification Form Instructions
Certification Forms

ec: w/ enclosures

Jamie Verrigni, Project Manager
James Candiloro, Section Chief
Edward Moore, Hazardous Waste Remediation Engineer, Region 3

Enclosure 1

Certification Instructions

I. Verification of Site Details (Box 1 and Box 2):

Answer the three questions in the Verification of Site Details Section. The Owner and/or Qualified Environmental Professional (QEP) may include handwritten changes and/or other supporting documentation, as necessary.

II. Certification of Institutional Controls/ Engineering Controls (IC/ECs)(Boxes 3, 4, and 5)

1.1.1. Review the listed IC/ECs, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party should petition the Department separately to request approval to remove the control.

2. In Box 5, complete certifications for all Plan components, as applicable, by checking the corresponding checkbox.

3. If you cannot certify "YES" for each Control listed in Box 3 & Box 4, sign and date the form in Box 5. Attach supporting documentation that explains why the **Certification** cannot be rendered, as well as a plan of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is completed.

If the Department concurs with the explanation, the proposed corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Department's Project Manager. Once the corrective measures are complete, a new Periodic Review Report (with IC/EC Certification) must be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 6 and Box 7):

If you certified "YES" for each Control, please complete and sign the IC/EC Certifications page as follows:

- For the Institutional Controls on the use of the property, the certification statement in Box 6 shall be completed and may be made by the property owner or designated representative.
- For the Engineering Controls, the certification statement in Box 7 must be completed by a Professional Engineer or Qualified Environmental Professional, as noted on the form.



Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



	Site Details	Box 1	
Site No.	C344066		
Site Name Orangetown (Orangetown) Shopping Center			
Site Address: 1-45 Orangetown Shopping Center		Zip Code: 10962	
City/Town: Orangetown			
County: Rockland			
Site Acreage: 1.3			
Reporting Period: June 17, 2013 to June 17, 2014			
		YES	NO
1.	Is the information above correct?	<input type="checkbox"/>	<input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2.	Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	<input type="checkbox"/>	<input type="checkbox"/>
3.	Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11 (d))?	<input type="checkbox"/>	<input type="checkbox"/>
4.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	<input type="checkbox"/>	<input type="checkbox"/>
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.			
5.	Is the site currently undergoing development?	<input type="checkbox"/>	<input type="checkbox"/>
		Box 2	
		YES	NO
6.	Is the current site use consistent with the use(s) listed below? Commercial and Industrial	<input type="checkbox"/>	<input type="checkbox"/>
7.	Are all ICs/ECs in place and functioning as designed?	<input type="checkbox"/>	<input type="checkbox"/>
IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.			
A Corrective Measures Work Plan must be submitted along with this form to address these issues.			
Signature of Owner, Remedial Party or Designated Representative		Date	

Box 2A

8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid? YES NO

If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.

9. Are the assumptions in the Qualitative Exposure Assessment still valid? YES NO
(The Qualitative Exposure Assessment must be certified every five years)

If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.

Box 3

SITE NO. C344066

Description of Institutional Controls

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
74.10-1-67	JLJ Management Company	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan O&M Plan IC/EC Plan

The Controlled Property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv).

The use of groundwater underlying the site is restricted as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH, or County DOH.

Box 4

Description of Engineering Controls

<u>Parcel</u>	<u>Engineering Control</u>
74.10-1-67	Groundwater Treatment System Vapor Mitigation Cover System

The site owner will be responsible for the operation and maintenance of the sub-slab depressurization system as discussed in the Site Management Plan.

The site owner will be responsible for the operation and maintenance of the bio-augmentation system as discussed in the Site Management Plan.

The site owner will be responsible for the operation and maintenance of the composite cover system as discussed in the Site Management Plan.

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;

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 complete.

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) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

**IC CERTIFICATIONS
SITE NO. C344066**

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1, 2, and 3 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 _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification

Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 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 _____ at _____,
print name print business address

am certifying as a Professional Engineer for the _____
(Owner or Remedial Party)

Signature of Professional Engineer, for the Owner or
Remedial Party, Rendering Certification

Stamp
(Required for PE)

Date

Enclosure 3
Periodic Review Report (PRR) General Guidance

- I. Executive Summary: (1/2-page or less)
 - A. Provide a brief summary of site, nature and extent of contamination, and remedial history.
 - B. Effectiveness of the Remedial Program - Provide overall conclusions regarding;
 1. progress made during the reporting period toward meeting the remedial objectives for the site
 2. the ultimate ability of the remedial program to achieve the remedial objectives for the site.
 - C. Compliance
 1. Identify any areas of non-compliance regarding the major elements of the Site Management Plan (SMP, i.e., the Institutional/Engineering Control (IC/EC) Plan, the Monitoring Plan, and the Operation & Maintenance (O&M) Plan).
 2. Propose steps to be taken and a schedule to correct any areas of non-compliance.
 - D. Recommendations
 1. recommend whether any changes to the SMP are needed
 2. recommend any changes to the frequency for submittal of PRRs (increase, decrease)
 3. recommend whether the requirements for discontinuing site management have been met.

- II. Site Overview (one page or less)
 - A. Describe the site location, boundaries (figure), significant features, surrounding area, and the nature and extent of contamination prior to site remediation.
 - B. Describe the chronology of the main features of the remedial program for the site, the components of the selected remedy, cleanup goals, site closure criteria, and any significant changes to the selected remedy that have been made since remedy selection.

- III. Evaluate Remedy Performance, Effectiveness, and Protectiveness
Using tables, graphs, charts and bulleted text to the extent practicable, describe the effectiveness of the remedy in achieving the remedial goals for the site. Base findings, recommendations, and conclusions on objective data. Evaluations and should be presented simply and concisely.

- IV. IC/EC Plan Compliance Report (if applicable)
 - A. IC/EC Requirements and Compliance
 1. Describe each control, its objective, and how performance of the control is evaluated.
 2. Summarize the status of each goal (whether it is fully in place and its effectiveness).
 3. Corrective Measures: describe steps proposed to address any deficiencies in ICECs.
 4. Conclusions and recommendations for changes.
 - B. IC/EC Certification
 1. The certification must be complete (even if there are IC/EC deficiencies), and certified by the appropriate party as set forth in a Department-approved certification form(s).

- V. Monitoring Plan Compliance Report (if applicable)
 - A. Components of the Monitoring Plan (tabular presentations preferred) - Describe the requirements of the monitoring plan by media (i.e., soil, groundwater, sediment, etc.) and by any remedial technologies being used at the site.
 - B. Summary of Monitoring Completed During Reporting Period - Describe the monitoring tasks actually completed during this PRR reporting period. Tables and/or figures should be used to show all data.
 - C. Comparisons with Remedial Objectives - Compare the results of all monitoring with the remedial objectives for the site. Include trend analyses where possible.
 - D. Monitoring Deficiencies - Describe any ways in which monitoring did not fully comply with the monitoring plan.
 - E. Conclusions and Recommendations for Changes - Provide overall conclusions regarding the monitoring completed and the resulting evaluations regarding remedial effectiveness.

- VI. Operation & Maintenance (O&M) Plan Compliance Report (if applicable)
 - A. Components of O&M Plan - Describe the requirements of the O&M plan including required activities, frequencies, recordkeeping, etc.
 - B. Summary of O&M Completed During Reporting Period - Describe the O&M tasks actually completed during this PRR reporting period.
 - C. Evaluation of Remedial Systems - Based upon the results of the O&M activities completed, evaluated the ability of each component of the remedy subject to O&M requirements to perform as

designed/expected.

- D. O&M Deficiencies - Identify any deficiencies in complying with the O&M plan during this PRR reporting period.
- E. Conclusions and Recommendations for Improvements - Provide an overall conclusion regarding O&M for the site and identify any suggested improvements requiring changes in the O&M Plan.

VII. Overall PRR Conclusions and Recommendations

- A. Compliance with SMP - For each component of the SMP (i.e., IC/EC, monitoring, O&M), summarize;
 - 1. whether all requirements of each plan were met during the reporting period
 - 2. any requirements not met
 - 3. proposed plans and a schedule for coming into full compliance.
- B. Performance and Effectiveness of the Remedy - Based upon your evaluation of the components of the SMP, form conclusions about the performance of each component and the ability of the remedy to achieve the remedial objectives for the site.
- C. Future PRR Submittals
 - 1. Recommend, with supporting justification, whether the frequency of the submittal of PRRs should be changed (either increased or decreased).
 - 2. If the requirements for site closure have been achieved, contact the Departments Project Manager for the site to determine what, if any, additional documentation is needed to support a decision to discontinue site management.

VIII. Additional Guidance

Additional guidance regarding the preparation and submittal of an acceptable PRR can be obtained from the Departments Project Manager for the site.



APPENDIX F

Test America Category B Laboratory Analytical Reports
(Included on CD in Analytical Laboratory Data folder)



APPENDIX G

Data Usability Summary Reports (DUSRs)

Quality Assessment Data Usability Summary Report

RemVer Project #2012GE01 Client Project # 11022323-05-206			
Site:	Orangetown Shopping Center	Site #:	C344066
Client:	GES, Inc.	Site Owner:	UB Orangeburg, LLC (UBO)
Sample Delivery Group (SDG)	490-29640-1 & 490-29792-1		
Sample Matrix:	<input type="checkbox"/> Drinking water	<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface water
	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Air
	<input type="checkbox"/> Biota (tissue, type: _____)		<input type="checkbox"/> Other: _____

Introduction

RemVer performed a data quality assessment (DQA) on the analytical data reported in Sample Delivery Groups (SDGs) 29640 and 29792 for groundwater samples (all samples the same thus treated as a single SDG). The DQA evaluated the performance of the analytical procedures and the quality of the resulting data. RemVer followed the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable. At the end of this report is a narrative discussion of sample results qualified during the DQA. Table 1 describes qualification flags applied to the data either by Test America or during the DQA process.

Reported Methods

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Method 1311 TCLP <input type="checkbox"/> Method 1312 SPLP <input checked="" type="checkbox"/> Method 6010A, B & C/6020 Trace Metals <input type="checkbox"/> Method 7000 Metals <input type="checkbox"/> Method 7196 Hexavalent Chromium (other: _____) <input checked="" type="checkbox"/> Method 7470A or 7471 Mercury <input type="checkbox"/> Method 8021 Volatile Organic Compounds (VOCs) GC <input type="checkbox"/> Method 8081B Pesticides <input checked="" type="checkbox"/> Method 8082 PCBs <input type="checkbox"/> Method 8151 Chlorinated Herbicides <input checked="" type="checkbox"/> Method 8260B VOCs GC/MS <input type="checkbox"/> Method 8270C Semi-VOCs (sVOCs) GC/MS <input type="checkbox"/> Method 9010/9012/9014 Cyanides (_____) | <ul style="list-style-type: none"> <input type="checkbox"/> Method TO-13A PAHs (air) <input type="checkbox"/> Method TO-14A / -15 VOCs (air, summa) (_____) <input type="checkbox"/> Method TO-17 VOCs (air, sorbent) <input type="checkbox"/> Extractable Petroleum Hydrocarbons (EPH) <input type="checkbox"/> Volatile Petroleum Hydrocarbons (VPH) Method <input type="checkbox"/> EPH-total <input checked="" type="checkbox"/> Other Methods: <ul style="list-style-type: none"> Method 9060A Total Organic Carbon Method MCAWW 300.0 Anions (IC) Method RSK-175 Dissolved Gases Method SM3500 Iron – Ferric Method SM3500Fe D Iron – Ferrous |
|--|--|

Quality Control Requirements Summary

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Duplicate <input checked="" type="checkbox"/> Matrix Spike [MS] / Matrix Spike Duplicate [MSD] <input checked="" type="checkbox"/> Trip Blank(s) <input checked="" type="checkbox"/> Equipment, Method, &/or Rinsate Blank | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Other Field QC: Field notes regarding sampling <input type="checkbox"/> Special QAPP Requirements: _____ |
|---|---|

Intended Use of Data under Review

The client collected groundwater samples on June 25, 2013 at the referenced New York State Brownfields site. The site is under a Site Management Plan (SMP) that requires several kinds of monitoring. This sampling effort was part of quarterly groundwater monitoring (see §3.3 of Kleinfelder, 2011).

Significant Data Usability Issues Identified For SDGs: 29640 & 29792

Estimated results are acceptable for use. No results were rejected.

Several samples had either the common laboratory contaminants of Acetone, 2-Butanone, or Carbon Disulfide. In almost all cases, these results were not 10X greater than their comparative blank samples. The detection of Tetrahydrofuran in Sample MW-3 was greater than 10X the blank, but not a site contaminant of concern. This sample had other common laboratory contaminants associated with it (Acetone, 2-Butanone, and Carbon Disulfide). This sample also had preservation issues (discussed previously) that may have contributed to the occurrence of these analytes above their respective RLs. RemVer recommends considering these particular analytical results suspect and unlikely to be due to site-specific conditions.

All Samples (SDG 29792)

VOC results above the method limit (MDL) but below the reporting limit (RL) resulted in a UJ or J flag as appropriate.

The Trip, Field, and Equipment Blanks had several different issues requiring either B or UJ/J flagging as appropriate.

Samples had either a Chloroform or Xylene issue requiring a B flag.

Certain VOC batches had Lab Control Sample (LCS) issues requiring UJ/J flagging for either Bromomethane or the following group of analytes: Vinyl Chloride, Chloroethane, Dichlorodifluoromethane, and Trichlorofluoromethane

All Samples (SDG 29640)

All Ferrous Iron results were qualified (UJ or J) due to a holding violation. Because the Ferric Iron results are derivatives (via calculation) of the ferrous results, they too were qualified.

#6 MW-7

The laboratory did not run MS/MSD samples for PCBs due to lack of sample, requiring qualifying these results as UJ or J.

29792-12 MW-E & #-14 Duplicate

VOCs generally fell within normal limits of precision, with the exception of the laboratory contaminant Acetone.

Please refer to the Lab Results and Data Usability Narrative section for further detail.

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Notebook pages + Summary sheets
Field meteorological data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Associated sampling location and plan included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See RAP/QAPP
Associated drilling logs available, reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Identification of QC samples in notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampling instrument decontamination records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Sampling instrument calibration logs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Chain of custody included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	With analytical report
Notes include communication logs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any corrective action (CA) reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
Any electronic data deliverables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Attachment #4
Sampling Report (by Field Team Leader)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Lab Report Contents

Laboratory: Test America

SDG Reports: #29640 & #29792

- | | |
|---|---|
| <input checked="" type="checkbox"/> SDG Narrative | <input checked="" type="checkbox"/> Spike recoveries |
| <input checked="" type="checkbox"/> Contract Lab Sample Information Sheets | <input checked="" type="checkbox"/> Duplicate results |
| <input checked="" type="checkbox"/> Data Package Summary Forms | <input checked="" type="checkbox"/> Confirmation (lab check/QC) samples |
| <input checked="" type="checkbox"/> Chain-of-Custody (COC) Forms | <input checked="" type="checkbox"/> Internal standard area & retention time summary |
| <input checked="" type="checkbox"/> Test Results (no tentatively identified compounds [TICs]) | <input checked="" type="checkbox"/> Chromatograms |
| <input checked="" type="checkbox"/> Calibration standards | <input checked="" type="checkbox"/> Raw data files |
| <input checked="" type="checkbox"/> Surrogate recoveries | <input checked="" type="checkbox"/> Other specific information |
| <input checked="" type="checkbox"/> Blank results | |

These SDGs reported on the following samples:

Sample ID	SDG#	SDG#	Matrix	Sampled	Received (SDG#29792)	Received (SDG#29640)
MW-3	29792-1	29640-1	Water	06/25/13	06/27/13	06/26/13
MW-4	29792-2	29640-2	Water	06/25/13	06/27/13	06/26/13
MW-5	29792-3	29640-3	Water	06/25/13	06/27/13	06/26/13
MW-8A	29792-4	N/A	Water	06/25/13	06/27/13	
MW-8B	29792-5	29640-4	Water	06/25/13	06/27/13	06/26/13
MW-7	29792-6	29640-5	Water	06/25/13	06/27/13	06/26/13
MW-10	29792-7	29640-6	Water	06/25/13	06/27/13	06/26/13
MW-13A	29792-8	N/A	Water	06/25/13	06/27/13	
MW-15A	29792-9	29640-7	Water	06/25/13	06/27/13	06/26/13
MW-C	29792-10	N/A	Water	06/25/13	06/27/13	
MW-D	29792-11	29640-9	Water	06/25/13	06/27/13	06/26/13
MW-E	29792-12	29640-10	Water	06/25/13	06/27/13	06/26/13
MW-F	29792-13	N/A	Water	06/25/13	06/27/13	
Duplicate	29792-14	N/A	Water	06/25/13	06/27/13	
Field Blank	29792-15	N/A	Water	06/25/13	06/27/13	
Equipment Blank	29792-16	N/A	Water	06/25/13	06/27/13	
Trip Blank	29792-17	N/A	Water	06/25/13	06/27/13	

RemVer

These SDGs included the following samples with their particular analyses:

29792:	VOCs	Ethene	PCBs	29640:	Nitrate	Sulfate	Metals	Iron	Ferrous	Ferric	TOC
#-1 MW-3	X	X		#-1 MW-3	X	X		X	X	X	X
#-2 MW-4	X	X		#-2 MW-4	X	X		X	X	X	X
#-3 MW-5	X	X		#-3 MW-5	X	X		X	X	X	X
#-3MS MW-5	X	X		#-4 MW-8B †	X	X		X	X	X	X
#-3MSD MW-5	X	X		#-5 MW-7	X	X	X	X	X	X	X
#-4 MW-8A *	X			#-6 MW-10 ‡	X	X		X	X	X	X
#-5 MW-8B	X	X		#-7 MW-15A	X	X		X	X	X	X
#-6 MW-7	X	X	X	#-8 -----							
#-7 MW-10	X	X		#-9- MW-D §	X	X		X	X	X	X
#-8 MW-13A *	X			#-10 MW-E	X	X		X	X	X	X
#-9- MW-15A	X	X		-----							
#-10 MW-C	X	X		† #4 MW-8B used for Ferrous MS/MSD							
#-11 MW-D	X	X		‡ #6 MW-10 used for TOC MS							
#-12 MW-E	X	X		§ #9 MW-D used for Nitrate/Sulfate MS							
#-13 MW-F	X	X									
#-14 FD Dup (#-12)	X										
#-15 FB Field Blank	X										
#-16 EB Equip. Blank	X										
#-17 TB Trip Blank	X										

* Insufficient sample for all analytes

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	Complete (Y/N)	Comments
#29640 & #29792	Y	No

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	Hold Times (Y/N)	Preservation (Y/N)	Exception Comment
#29640	N	Y	Hold time for ferrous analysis missed, FLAG Two Coolers, only one Trip Blank, FLAG Some VOAs w/ headspace, FLAG
#29792	Y	N	

Do all QC data fall within the protocol required limits and specifications? (1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, (9) and sample data									
SDG	1	2	3	4	5	6	7	8	9
#29640	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
#29792	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
The narrative section, below, discusses these deficiencies in detail, see Attachment 2 as well.									

Have all of the data been generated using established and agreed upon analytical protocols?		
Laboratory Report	Protocols (Y/N)	Exception Comment
#29640 & #29792	Y	None

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Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	Confirmation (Y/N)	Exception Comment
#29640 & #29792	Y	None

Have the correct data qualifiers been used and are they consistent with the most current guidance?		
Laboratory Report	Qualifiers (Y/N)	Comment
#29640 & #29792	Y	The laboratory applied its appropriate qualifiers. To prepare the DUSR it was necessary to apply additional qualifications or adjust qualifications to certain results as shown in Attachments 3 and 4.

Have any quality control (QC) exceedances been specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	QC Exceedances Documented (Y/N)	Comment
#29640 & #29792	Y	Several data qualifications were applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The groundwater samples under review came from a one-day collection period on June 25, 2013. A review of the field notes provided the following information pertaining to data usability.

Groundwater Monitoring Well	Comments
MW-3	Bailer purge/sample, resulting in 3.1-gallon purge, effervescent upon preservation
MW-4	Bailer purge/sample, resulting in 5.2-gallon purge, effervescent upon preservation
MW-5	Bailer purge/sample, resulting in 3.8-gallon purge, MS/MSD sample (#3)
MW-7	Bailer purge/sample, resulting in 4.0-gallon purge
MW-8A	Bailer purge/sample, resulting in 0.1-gallon purge, only sufficient sample for VOCs due to slow recharge
MW-8B	Bailer purge/sample, resulting in 1.0-gallon purge, slow recharge
MW-10	Bailer purge/sample, resulting in 25-gallon purge, slow recharge
MW-13A	Bailer purge/sample, resulting in 0.1-gallon purge, only sufficient sample for VOCs due to slow recharge
MW-15A	Bailer purge/sample, resulting in 1.0-gallon purge
MW-C	Bailer purge/sample, resulting in 0.5-gallon purge
MW-D	Bailer purge/sample, resulting in 0.75-gallon purge
MW-E	Bailer purge/sample, resulting in 1.2-gallon purge, slow recharge Duplicate sample (#-14) came from this well
MW-F	Bailer purge/sample, resulting in 0.1-gallon purge, only sufficient sample for VOCs & gases due to slow recharge

Laboratory Report Inspection

The laboratory produced two reports SDGs 490-29640-1 and 490-29792-1 with the required data and information. The narrative discussion and analytical parameter listings had several errors requiring additional review of the analytical detail to verify and validate data.

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Chain of Custody (COC) Evaluation

GES produced two, two-page COCs (one per SDG) for the referenced fieldwork.

Sample Preservation & Holding Time Evaluation

Laboratory received one cooler with samples on 6/26/2013 @ 08:15 (designated as SDG-29640) in good condition, properly preserved, and, where required, on ice. The temperatures of the coolers at receipt time were 1.3° C. The laboratory also received two coolers (Tracking #9825 & #9814) with samples on 6/27/2013 @08:20 (designated as SDG-29792) in good condition, properly preserved and, where required, on ice. The temperatures of the coolers at receipt time were 3.4° C (#9825) and 3.6° C (#9814). The laboratory met all holding times and preservation requirements, with the following exceptions:

- Sample 29792-1 (MW-3, in cooler #9825) had several VOA-vials with headspace in 2 of 3 vials, which is a significant quality violation for analysis of VOCs. Client requested analysis. RemVer qualified (UJ/J) all VOC results for this sample accordingly.
- Ferrous Iron (SDG 29640)—the analytical method for this analyte requires a 15-minute holding time in the field. Because all samples designated for this analysis missed the hold time, RemVer qualified the resulting data as estimated (“UJ or J”) (see Attachment 2 and 3).
- Ferric Iron (SDG 29640)—because this analyte is derived by calculation (from the ferrous iron results) all ferric results were similarly qualified (see Attachment 2 and 3).

Blank Evaluation

The single Trip Blank had no detectable VOC analytes (above their respective reporting limits), with the exception of Methylene Chloride. Methylene Chloride was detectable above the method detection limit (MDL) but below the Reporting Limit (RL). RemVer flagged this analyte as UJ in the blank, but not in other samples.

The Equipment Blank had two detectable VOC analytes (above their respective reporting limits). This blank had detectable concentrations of Toluene and 1,2,4-Trimethylbenzene. For this reason, RemVer flagged these two analytes as B in the Blank samples and J only if detected above the RL in the other samples. This blank also had Acetone, 2-Butanone (MEK), Naphthalene, and Xylenes detectable above the method detection limit (MDL) but below the Reporting Limit (RL). RemVer flagged these analytes as UJ in their respective blank, but not in other samples.

Like the Equipment Blank, the Field Blank had two detectable analytes (above their respective reporting limits): Toluene and 1,2,4-Trimethylbenzene. For this reason, RemVer flagged these two analytes as B in the Blank samples and J only if detected above the RL in the other samples. This blank also had Acetone, Naphthalene, and Xylenes detectable above the method detection limit (MDL) but below the Reporting Limit (RL). RemVer flagged these analytes as UJ in their respective blank, but not in other samples.

All laboratory Method Blanks had conforming parameters and all analytes below their respective reporting limits, with the following exception.

- VOCs: Chloroform detected above the MDL but below the RL in batch 90045; therefore, B flag required for Samples 29792-5 (MW-8B), -6 (MW-7), -7 (MW-10), -15 (FB), -16 (EB), -17 (TB), and -5MS/MSD (MW-8B MS/MSD). Xylenes detected above the MDL

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but below the RL in batch 90834; therefore, B flag required for Samples 29792-1 (MW-3), -2 (MW-4), and -3 (MW-5).

- Metals: Total Iron and Zinc detected above the MDL but below the RL in the respective blanks; therefore, B flag required for Sample 29640-10 (MW-E) for Iron and Sample 29640-5 (MW-7) for Zinc.

Laboratory Control Samples

Most LCS performed within the acceptable range for their particular analyses, with the following exception.

- The LCS of Batch 90046 were beyond control limits (biased-high) for Bromomethane requiring that associated samples receive a UJ/J flag, namely: 29792-8 (MW-13A), -9 (MW-15A), -10 (MW-C), -11 (MW-D), -12 (MW-E), -13 (MW-F), and -14 (Dup).
- The LCS of Batch 90834 had % RPD beyond control limits (poor precision) for Vinyl Chloride, Chloroethane, Dichlorodifluoromethane, and Trichlorofluoromethane requiring that associated samples receive a UJ/J flag, namely: 29792-1 (MW-3), -2 (MW-4), -3 (MW-5), -3MS (MW-5MS/MSD), and -4 (MW-8A).
- The post-digestion spike percent recovery for Total Iron in Batch 89620 was beyond control limits (biased-high). This required a J-flag for Sample 29640-10 (MW-E).

Surrogates

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for all analytes. The surrogates performed within their applicable ranges.

Site-Specific Matrix Spikes and Matrix Spike Duplicates

The matrix spike/matrix spike duplicate (MS/MSD) QA criteria were met in most analyses, but certain variances mandated qualifying flags regardless of whether the LCS/LCS data supported the evaluation of acceptable precision.

- Recoveries for Batch 90834 were outside control limits (biased-high) for 1,2-Dibromo-3-Chloropropane. The associated LCS performed acceptably. As this analyte was not a site-related chemical of concern and not detected above the RL, RemVer did not flag the analytical result.
- Insufficient sample volume was available to perform MS/MSD associated with batch 90089. Flag the PCB results as UJ or J for samples MW-7 (29792-6).

Other QC Data (Elevated Reporting Limits or Matrix Interferences)

Some samples had elevated RLs for certain analytes as discussed below, all others performed within the method/QAPP requirements.

- For VOC analytes only, if the reported value was less than the RL but greater than the MDL, then a flag of UJ was set instead of a value of U.
- Samples MW-5 (29792-3, -3MS, & -3MSD) and MW-8A (29792-4) required dilution prior to VOC analysis due to foaming, requiring the reporting limits to be adjusted accordingly. Due to the NYSDEC criteria for this analyte, the results for this sample were flagged UJ or J.

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- Sample MW-3 (29640-1) required dilution prior to **Sulfate** and **Nitrate** analysis due to an acidic matrix, resulting in elevated RLs. Due to the NYSDEC criteria for this analyte, the results for this sample were flagged UJ or J.
- Samples MW-3 (29640-1), MW-4 (-2), MW-5 (-3), MW-8B (-4), MW-D (-9), and MW-E (-10) required dilution prior to **Ferrous Iron** analysis; this required appropriate adjustment of the reporting limits, but no flag was necessary.
- Due to matrix interferences, the **Ferrous Iron** results obtained for the following samples were higher than the total iron results resulting in a positive bias: MW-5 (29640-3), MW-8B (-4), MW-D (-9), and MW-E (-10). Therefore, these results were qualified as UJ/J.
- **Ferric Iron** is a derivative (calculated) measurement (from total iron and ferrous iron), and qualifying flags were required per the relevant parent data.
- Certain samples required dilution prior to **Total Organic Carbon** analysis: MW-3 (29640-1), MW-4 (-2), and MW-5 (-3) required dilution prior to analysis. While the dilution required the reporting limits to be adjusted, no flag was necessary.

Duplicates

GES collected a field replicate of MW-E (compare sample #12 and #14). All VOC analytes met the RPD performance criteria of <20%, with the exception of Acetone (a possible laboratory contaminant, see below).

Tentatively Identified Compounds (TICs)

This SDG had no analysis of TICs.

Sample Result and Usability Evaluation

Due to certain sample issues or laboratory performance, some results were qualified; however, the data are usable. No data received an R (rejected) flag.

Several samples had either the common laboratory contaminants of Acetone, 2-Butanone, or Carbon Disulfide. In almost all cases, these results were not 10X greater than their comparative blank samples. The detection of Tetrahydrofuran in Sample MW-3 was greater than 10X the blank, but not a site contaminant of concern. This sample had other common laboratory contaminants associated with it (Acetone, 2-Butanone, and Carbon Disulfide). This sample also had preservation issues (discussed previously) that may have contributed to the occurrence of these analytes above their respective RLs. RemVer recommends considering these particular analytical results suspect and unlikely to be due to site-specific conditions.

Estimation of the Total Iron concentration used Inductively Coupled Plasma (ICP), whereas estimation of Ferrous Iron used the Phenanthroline Method (SM3500). Using the analytically estimated Total and Ferrous Iron concentrations, Test America calculated the concentration of Ferric Iron by difference. Any qualifier flags associated with analytic results automatically attach to the calculated results.

RemVer modified Test America's laboratory electronic data reports (Excel files 490-29640-1_Ges & 490-29792-1_Ges) by adding quality flags, highlighted in yellow (see the attached separate file: Orangetown_2013Q2_DUSR.xls [EXCEL file]).

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References

- Kleinfelder, 2011, *Site Management Plan, Orangetown Shopping Center, 1-45 Orangetown Shopping Center, Orangeburg, NY, NYSDEC Site #C344066*, Final, 21-November, 250p
- NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p
- NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p
- USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p
- USEPA, 2010, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-51, USEPA-540-R-10-011, Office of Superfund Remediation and Technology Innovation: Washington, DC, January, 110p
- USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>, accessed April 2012

Tables

1. Qualifier Flags

Attachments

1. Data Usability Reviewer Qualifications
2. DQA Detail Worksheet
3. DQA Non-Conformance Summary Workheet
4. Separate EXCEL File: Orangetown_2013Q2_DUSR.xls [NOTE: RemVer modified this Test America product by adding quality flags, which are in yellow highlight.]

Prepared by: Kurt A. Frantzen, PhD, CHMM
August 5, 2013



GES PO# 212603

Table 1
Qualifier Flags

Qualifier	Quality Implication
U	Analyte analyzed for, but not detected above the sample's reported quantitation limit
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J -	Sample likely to have a low bias
UJ	Analyte not detected above the sample quantitation limit; the associated quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (<i>i.e.</i> , dilutions or re-analyses), the most technically acceptable result is considered acceptable.
B EB TB BB	An analyte identified in method blank (B), aqueous equipment (EB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (<i>see below</i>).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.

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Attachment 1

Data Usability Reviewer: Kurt A. Frantzen, PhD, CHMM

Experience

2013-Present	d/b/a RemVer	Owner
2011	RemVer, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVer, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington	1985-1986
PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Registrations

Certified Hazardous Materials Manager, since 2007, #14143

Professional Affiliations

Society Risk Analysis ('09 & '11 Chair, Eco-Risk Assessment)	Am. Chemistry Society
Am. Assoc. Advance Science	NY Academy of Science
LSP Association	Am. Institute of Biological Sciences

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
 - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
 - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
 - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002, IHMM
 - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
 - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 60 Conference Papers & Invited Professional Presentations
 - 1999-2012, Visiting Lecturer, Brownfields Program, Harvard Graduate School of Design
 - 2010-2012, Invited Lecturer, Pace University Law School

Attachment 2 DQA Detail Worksheet

BLANKS	>RL?	Compounds	Notes
Method Blanks, VOCs	MDL>X<RL	Chloroform in Batch 90045 only	Flag B in 29792-5, -6, -7, -15 (FB), -16, & -17
		Xylenes in Batch 90834 only	Flag B in 29792-1, -2, & -3
Method Blank, Dissolved Gases	No	—	No Comment
Method Blank, PCBs	No	—	No Comment
Method Blank, Metals (TAL & Mercury)	MDL>X<RL	Iron & Zinc	Zinc: 29640-5—Flag B Iron: 29640-10—Flag B
Method Blank, TOC	No	—	No Comment
Method Blank, Anions (Nitrate & Sulfate)	No	—	No Comment
Method Blank, Ferrous	No	—	No Comment
Field Blank	Yes	Toluene & 1,2,4-Trimethylbenzene	Flagged B in Blank & J if detected in Sample
	MDL>X<RL	Acetone, Naphthalene, & Xylenes	Flagged UJ in Blank
Equipment Blank	Yes	Toluene & 1,2,4-Trimethylbenzene	Flagged B in Blank & J if detected in Sample
	MDL>X<RL	Acetone, 2-Butanone, Naphthalene, & Xylenes	Flagged UJ in Blank
Trip Blank	MDL>X<RL	Methylene Chloride	Flagged UJ in Blank

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	Batch 90046	Bromomethane	Flag UJ/J: 29792-8, -9, -10, -11, -12, -13, & -14
	Batch 90834 %RPD >UCL, poor precision			Vinyl Chloride, Chloroethane, Dichlorodifluoromethane, & Trichlorofluoromethane	Flag UJ/J: 29792--1, -2, -3, -3MS/MSD, & -4
Dis. Gases	—	—	—	Acetylene	No Comment
PCBs	—	—	—	PCBs (1248)	No Comment
Metals + Hg	—	—	—	Metals + Hg	No Comment
TOC	—	—	—	TOC	No Comment
Anions	—	—	—	Nitrate & Sulfate	No Comment
Tot. Iron	—	—	Yes	Iron	Flag J in 29640-10
Ferrous	—	—	—	Iron +2	No Comment

SURROGATES	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	—	No Comment
Dis. Gases	—	—	—	—	No Comment
PCBs	—	—	—	—	No Comment
TAL/Hg Metals	—	—	—	—	No Comment
TOC	—	—	—	—	No Comment
Anions	—	—	—	—	No Comment
Ferrous	—	—	—	—	No Comment

Attachment 2 DQA Detail Worksheet continued

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
VOCs	--	--	1,2-Dibromo-3-Chloropropane	Batch 90834	—	MDL>X<RL, No Flag No other comments
Dis. Gases	—	—	—	Batch	—	No Comment
PCBs	—	—	—	NONE	—	Flag UJ / J all PCBs analyses in 29792-6
Metals & Hg	—	—	—	Batch	—	No Comment
TOC	—	—	—	Batch	—	No Comment
Sulfate	—	—	—	Batch	—	No Comment
Nitrate	—	—	—	Batch	—	No Comment
Tot. Iron	—	—	—	Batch	—	No Comment
Ferrous Ferric (calc)	—	—	—	Batch	—	No Comment

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
VOCs	MW-E #12 & #14	N/A	X	Acetone only	No Comment
SVOCs		N/A	N/C	—	Not collected
Dissolved Gases		N/A	N/C	—	Not collected
Pesticides		N/A	N/C	—	Not collected
PCBs		N/A	N/C	—	Not collected
TAL Metals		N/A	N/C	—	Not collected
Anions (Nitrate & Sulfate)		N/A	N/C	—	Not collected
Total Metals (Iron)		N/A	N/C	—	Not collected
Iron, Ferrous & Ferric		N/A	N/C	—	Not collected
TOC		N/A	N/C	—	Not collected

LAB DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compound	Compound	Notes
--	Batch	N/A	--	--	--	--

Reasonable Confidence Achieved Y N—Not Applicable
 Significant QC Variances Noted Y N
 Requested Reporting Limits Achieved Y N
 Preservation Requirements Met Y N—MW-3 sample vials had headspace violation
 Holding Time Requirements Met Y N—Ferrous Iron samples, results qualified, as are ferric

Abbreviations:

RL = Reporting Limit
 SV = Significant QC Variance
 LCL= RCP Lower Control Limit
 VOCs = Volatile Organic Compounds
 EPH = Extractable Petroleum Hydrocarbons
 Pest = Pesticides
 N/A = Not Applicable
 LCS = Laboratory Control Sample
 RPD = Relative Percent Difference
 UCL= RCP Upper Control Limit
 SVOCs = Semi-volatile Organic Compounds
 VPH = Volatile Petroleum Hydrocarbons
 PCBs = Polychlorinated Biphenyls
 N/C = Not Collected
 ETPH = EPH-Total
 -- = nothing to report

Notes:

* Typical lab contaminants, not site-related

Attachment 3 DQA Non-Conformance Summary Worksheet

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
MW-3 29792-1 29640-1	All VOCs	Preservation	—	—	Low	Flag U J or J
	Xylenes	Blank	—	—	—	Flag B U J
	2-Butanone, p-Isopropyltoluene, Acetone, & Tetrahydrofuran	—	—	—	—	Possible Lab Contaminants
	Chloroethane, Dichlorodifluoro methane, Trichlorofluoro methane, & Vinyl chloride	LCS	—	>UCL	Poor Precision	Flag J
	Toluene	Field Blank	—	—	—	Flag J
	Ferrous Iron	Holding Time	—	—	—	Flag UJ / J
	Ferric Iron	Ferrous	—	—	—	Flag J
MW-4 29792-2 29640-2	Toluene	Field Blank	—	—	—	Flag J
	trans-1,2-Dichloroethene	MDL>X<RL	—	—	—	UJ
	Vinyl chloride	LCS	—	>UCL	Poor Precision	Flag J
	Xylenes	Blank	—	—	—	Flag B U J
	Ferrous Iron	Holding Time	—	—	—	Flag UJ / J
	Ferric Iron	Ferrous	—	—	—	Flag J
MW-5 29792-3 29640-3	All VOCs	High Dilution	—	—	—	Flag UJ or J
	Chloroethane, Dichlorodifluoro methane, Trichlorofluoro methane	LCS	—	>UCL	Poor Precision	Flag UJ
	Vinyl chloride	LCS	—	>UCL	Poor Precision	Flag J
	Xylenes	Blank	—	—	—	Flag B U J
	Ferrous Iron	Holding Time	—	—	—	Flag UJ / J
	Ferric Iron	Ferrous	—	—	—	Flag J
	MW-8A 29792-4	All VOCs	High Dilution	—	—	—
Chloroethane, Dichlorodifluoro methane, & Trichlorofluoro methane		LCS	—	>UCL	Poor Precision	Flag UJ
Vinyl chloride		LCS	—	>UCL	Poor Precision	Flag J

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Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
MW-8B 29792-5 29640-4	Chloroform	Blank	—	—	—	Flag B U J
	Acetone, Methylene Chloride, Tetrahydrofuran, Trichloroethene, & Xylenes	MDL>X<RL	—	—	—	Flag U J
	Toluene	Field Blank	—	—	—	Flag J
	Ferrous Iron	Holding Time	—	—	—	Flag UJ / J
	Ferric Iron	Ferrous	—	—	—	Flag J
	Chloroform	Blank	—	—	—	Flag B U J
MW-7 29792-6 29640-5	Naphthalene & 1,2,4-Trimethyl benzene	MDL>X<RL	—	—	—	Flag U J
	PCBs	No MS/MSD	—	—	—	Flag UJ or J
	Chromium	MDL>X<RL	—	—	—	Flag UJ
	Zinc	Blank & Spike Recovery	>UCL	—	Hi	Flag B J
	Ferrous Iron	Holding Time	—	—	—	Flag J
	Ferric Iron	Ferrous	—	—	—	Flag J
	MW-10 29792-7 29640-6	cis-1,2-Dichloroethene & Naphthalene	MDL>X<RL	—	—	—
Chloroform		Blank	—	—	—	Flag B U J
Ferrous Iron		Holding Time	—	—	—	Flag J
Ferric Iron		Ferrous	—	—	—	Flag J
MW-13A 29792-8	Bromomethane	LCS	>UCL	—	Hi	Flag UJ
MW-15A 29792-9 29640-7	Bromomethane	LCS	>UCL	—	Hi	Flag UJ
	Carbon Disulfide & trans-1,2-Dichloroethene	MDL>X<RL	—	—	—	Flag UJ
	Ferrous Iron	Holding Time	—	—	—	Flag J
	Ferric Iron	Ferrous	—	—	—	Flag J
MW-C 29792-10 29640-8	Bromomethane	LCS	>UCL	—	Hi	Flag UJ
	2-Butanone, Acetone, cis-1,2-Dichloroethene, & Toluene	MDL>X<RL	—	—	—	Flag UJ
MW-D 29792-11 29640-9	Acetone, Carbon disulfide, & Vinyl chloride	MDL>X<RL	—	—	—	Flag UJ
	Bromomethane	Blank	>LCL	—	Hi	Flag UJ
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Ferrous	—	—	—	Flag J
MW-E 29792-12 -----	Acetone, Carbon disulfide, trans-1,2-Dichloroethene, & Trichloroethene	MDL>X<RL	—	—	—	Flag UJ
	Bromomethane	Blank	>UCL	—	Hi	Flag UJ

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Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
29640-10	Total Iron	Blank & Spike Recovery	>UCL	—	Hi	Flag B J
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag J
MW-F 29792-13	2-Butanone, 4-Methyl-2-pentanone, Acetone, Carbon disulfide, cis-1,2-Dichloroethene, & Vinyl chloride	MDL>X<RL	—	—	—	Flag UJ
	Bromomethane	Blank	>LCL	—	Hi	Flag UJ
Duplicate 29792-14	Acetone, Carbon disulfide, trans-1,2-Dichloroethene, & Trichloroethene	MDL>X<RL	—	—	—	Flag UJ
	Bromomethane	Blank	>LCL	—	Hi	Flag UJ

Notes: † RPD—Relative Percent Difference

‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.

Quality Assessment Data Usability Summary Report

RemVer Project #2013GE01			
Client Project # 11022323-05-206			
Site:	Orangetown Shopping Center	Site #:	C344066
Client:	GES, Inc.	Site Owner:	UB Orangeburg, LLC (UBO)
Sample Delivery Group (SDG)	490-35806-1 & 490-37926-1		
Sample Matrix:	<input type="checkbox"/> Drinking water	<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface water
	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Air
	<input type="checkbox"/> Biota (tissue, type: _____)		<input type="checkbox"/> Other: _____

Introduction

RemVer performed a data quality assessment (DQA) on the analytical data reported in Sample Delivery Groups (SDGs) #35806 and #37926 for groundwater samples (all samples the same thus treated as a single SDG). The DQA evaluated the performance of the analytical procedures and the quality of the resulting data. RemVer followed the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable. This report includes a narrative discussion of sample results qualified during the DQA. Table 1 describes qualification flags applied to the data either by Test America or during the DQA process.

Reported Methods

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Method 1311 TCLP <input type="checkbox"/> Method 1312 SPLP <input checked="" type="checkbox"/> Method 6010A, B & C / 6020 Trace Metals <input type="checkbox"/> Method 7000 Metals <input type="checkbox"/> Method 7196 Hexavalent Chromium (other: _____) <input type="checkbox"/> Method 7470A or 7471 Mercury <input type="checkbox"/> Method 8021 Volatile Organic Compounds (VOCs) GC <input type="checkbox"/> Method 8081B Pesticides <input type="checkbox"/> Method 8082 PCBs <input type="checkbox"/> Method 8151 Chlorinated Herbicides <input checked="" type="checkbox"/> Method 8260B VOCs GC/MS <input type="checkbox"/> Method 8270C Semi-VOCs (sVOCs) GC/MS <input type="checkbox"/> Method 9010/9012/9014 Cyanides (_____) | <ul style="list-style-type: none"> <input type="checkbox"/> Method TO-13A PAHs (air) <input type="checkbox"/> Method TO-14A / -15 VOCs (air, summa) (_____) <input type="checkbox"/> Method TO-17 VOCs (air, sorbent) <input type="checkbox"/> Extractable Petroleum Hydrocarbons (EPH) <input type="checkbox"/> Volatile Petroleum Hydrocarbons (VPH) Method <input type="checkbox"/> EPH-total <input checked="" type="checkbox"/> Other Methods: <ul style="list-style-type: none"> Method 9060A Total Organic Carbon Method MCAWW 300.0 Anions (IC) Method RSK-175 Dissolved Gases Method SM3500 Iron – Ferric Method SM3500 Fe B Iron – Ferrous |
|--|---|

Quality Control Requirements Summary

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Duplicate <input checked="" type="checkbox"/> Matrix Spike [MS] / Matrix Spike Duplicate [MSD] <input checked="" type="checkbox"/> Trip Blank(s) <input checked="" type="checkbox"/> Equipment, Method, &/or Rinsate Blank | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Other Field QC: Field notes regarding sampling <input type="checkbox"/> Special QAPP Requirements: _____ |
|---|---|

Intended Use of Data under Review

The client collected groundwater samples on two separate, one-day collection periods: September 19, 2013 and October 14, 2013 at the referenced New York State Brownfields site. The site is under a Site Management Plan (SMP) that requires several kinds of monitoring. This sampling effort was part of quarterly groundwater monitoring (see §3.3 of Kleinfelder, 2011).

Significant Data Usability Issues Identified For SDGs: #35806 & #37926

Of the nine samples, RemVer rejected no results, but flagged certain analytes as estimated due to the quality of the analysis and the results are acceptable for use.

Several samples had either the common laboratory contaminants of Acetone, 2-Butanone, Carbon Disulfide, Freons. In some cases, these results were not 10X greater than their comparative blank samples. RemVer flagged these results recommends considering these particular analytical results suspect and unlikely due to site-specific conditions.

All Samples (SDG #37926)

VOC results above the method limit (MDL) but below the reporting limit (RL) resulted in a UJ or J flag, as appropriate. Several analytes had elevated RLs due to dilutions resulting in a UJ or J flag, as appropriate.

The Trip, Field, and Equipment Blanks had certain issues requiring a UJ flag for a handful of non-site related analytes.

Some VOC batches had Lab Control Sample (LCS) or Matrix Spike/Spike Duplicate issues requiring UJ/J flagging for certain analytes.

All Samples (SDG #35806)

Some results above the method limit (MDL) but below the reporting limit (RL) resulted in a UJ or J flag, as appropriate. Several other analytes had elevated RLs due to dilutions resulting in a UJ or J flag, as appropriate.

All Ferrous Iron results were qualified (UJ or J) due to a holding violation. Because the Ferric Iron results are derivatives (via calculation) of the ferrous results, they too were qualified.

37926-1 MW-5 & #5 Duplicate

VOCs generally fell within normal limits of precision, with ten exceptions.

Please refer to the Lab Results and Data Usability Narrative section for further detail.

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Notebook pages + Summary sheets
Field meteorological data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Associated sampling location and plan included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See RAP/QAPP
Associated drilling logs available, reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Identification of QC samples in notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampling instrument decontamination records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Sampling instrument calibration logs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Chain of custody included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	With analytical report
Notes include communication logs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any corrective action (CA) reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
Any electronic data deliverables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Attachment #4
Sampling Report (by Field Team Leader)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Lab Report Contents (Test America SDG Reports: #35806 & #37926)

- | | |
|---|---|
| <input checked="" type="checkbox"/> SDG Narrative | <input checked="" type="checkbox"/> Spike recoveries |
| <input checked="" type="checkbox"/> Contract Lab Sample Information Sheets | <input checked="" type="checkbox"/> Duplicate results |
| <input checked="" type="checkbox"/> Data Package Summary Forms | <input checked="" type="checkbox"/> Confirmation (lab check/QC) samples |
| <input checked="" type="checkbox"/> Chain-of-Custody (COC) Forms | <input checked="" type="checkbox"/> Internal standard area & retention time summary |
| <input checked="" type="checkbox"/> Test Results (no tentatively identified compounds [TICs]) | <input checked="" type="checkbox"/> Chromatograms |
| <input checked="" type="checkbox"/> Calibration standards | <input checked="" type="checkbox"/> Raw data files |
| <input checked="" type="checkbox"/> Surrogate recoveries | <input checked="" type="checkbox"/> Other specific information |
| <input checked="" type="checkbox"/> Blank results | |

These SDGs reported on the following samples:

Sample ID	SDG-Sample #	SDG-Sample #	Matrix	Sampled	Received (SDG #37926)	Received (SDG #35806)
MW-3	—	—	Water	—	—	—
MW-4	—	35806-1	Water	09/19/2013	—	09/20/2013
MW-5	37926-1	35806-2	Water	10/14/2013	10/16/2013	—
MW-8A	—	—	Water	—	—	—
MW-8B	—	35806-3	Water	09/19/2013	—	09/20/2013
MW-7	37926-2	—	Water	10/14/2013	10/16/2013	—
MW-10	37926-3 (MS/MSD)	—	Water	10/14/2013	10/16/2013	—
MW-13A	—	—	Water	—	—	—
MW-15A	37926-4	—	Water	10/14/2013	10/16/2013	—
MW-C	—	—	Water	—	—	—
MW-D	—	—	Water	—	—	—
MW-E	—	35806-4	Water	09/19/2013	—	09/20/2013
MW-F	—	—	Water	—	—	—
Duplicate	37926-5 (MW-5)	—	Water	10/14/2013	10/16/2013	—
Field Blank	37926-6FB	—	Water	10/14/2013	10/16/2013	—
Equipment Blank	37926-7EB	—	Water	10/14/2013	10/16/2013	—
Trip Blank	37926-8TB	—	Water	10/14/2013	10/16/2013	—

RemVer

These SDGs included the following samples with their particular analyses:

#37926:	VOCs	Ethene	TOC	#35806:	Nitrate	Sulfate	Metals	Iron	Ferrous	Ferric	TOC
MW-3 *				#-1 MW-4 †	X	X	—	X	X	X	X
MW-4 *				#-2 MW-5	X	X	—	X	X	X	X
#-1 MW-5	X	X	X	#-3 MW-8B ‡	X	X	—	X	X	X	X
#-4 MW-8A *				#-4 MW-E	X	X	—	X	X	X	X
#-5 MW-8B *				-----							
#-2 MW-7	X			† #1 MW-4 used for Ferrous MS/MSD							
#-3 MW-10	X			‡ #6 MW-8B used for TOC MS							
#-3MS MW-10	X										
#-3MSD MW-10	X										
MW-13A *											
#-4- MW-15A	X										
MW-C *											
MW-D *											
MW-E *											
MW-F *											
#-5 FD Dup (MW-5)	X										
#-6 FB Field Blank	X										
#-7 EB Equip. Blank	X										
#-8 TB Trip Blank	X										

* Insufficient sample for all analytes

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	Complete (Y/N)	Comments
#35806 & #37926	Y	Yes

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	Hold Times (Y/N)	Preservation (Y/N)	Exception Comment
#35806	N	Y	Hold time for ferrous analysis missed, FLAG
#37926	Y	Y	No Other Comments

Do all QC data fall within the protocol required limits and specifications?									
<i>(1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, (9) and sample data</i>									
SDG	1	2	3	4	5	6	7	8	9
#35806	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
#37926	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The narrative section, below, discusses these deficiencies in detail, see Attachment 2 as well.</i>									

Have all of the data been generated using established and agreed upon analytical protocols?		
Laboratory Report	Protocols (Y/N)	Exception Comment
#35806 & #37926	Y	None

Do the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	Confirmation (Y/N)	Exception Comment
#35806 & #37926	Y	None

Have the correct data qualifiers been used and are they consistent with the most current guidance?		
Laboratory Report	Qualifiers (Y/N)	Comment
#35806 & #37926	Y	The laboratory applied its appropriate qualifiers. To prepare the DUSR it was necessary to apply additional qualifications or adjust qualifications to certain results as shown in Attachments 3 and 4.

Have any quality control (QC) exceedances been specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	QC Exceedances Documented (Y/N)	Comment
#35806 & #37926	Y	Several data qualifications were applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The groundwater samples under review came from two separate, one-day collection periods: September 19, 2013 and October 14, 2013. A review of the field notes provided the following information pertaining to data usability.

Groundwater MWs	09/2013 Comments SDG #35806	10/2013 Comments SDG #37926
MW-3	Bailer purge (0.1-gal) / sample (VOAs only)	No Access To MW
MW-4	Bailer purge (5-gal) / sample MS/MSD samples came from this well	No Access To MW
MW-5	Bailer purge (2.3-gal) / sample	Bailer purge (2-gal) / sample Duplicate sample (#-5) came from this well
MW-7	Bailer purge (0-gal) / sample (VOAs only)	Bailer purge (0.2-gal) / sample (VOAs only)
MW-8A	Bailer purge/sample, Dry, slow recharge	No Access To MW
MW-8B	Bailer purge (0.86-gal) / sample MS/MSD samples came from this well	No Access To MW
MW-10	Bailer purge (10-gal) / sample	Bailer purge (11-gal) / sample MS/MSD samples came from this well
MW-13A	Bailer purge/sample, Dry, slow recharge	Bailer purge/sample, Dry, slow recharge
MW-15A	Bailer purge (0-gal) / sample (VOAs only)	Bailer purge (0-gal) / sample (VOAs only)
MW-C	Bailer purge/sample, Dry, slow recharge	No Access To MW
MW-D	Bailer purge/sample, Dry, slow recharge	Bailer purge/sample, Dry, slow recharge
MW-E	Bailer purge (4-gal) / sample	Bailer purge/sample, Dry, slow recharge
MW-F	Bailer purge/sample, Dry, slow recharge	Bailer purge/sample, Dry, slow recharge

Laboratory Report Inspection

The laboratory produced two SDG reports: 490-35806-1 and 490-37926-1, with the required data and information. The narrative discussion and analytical parameter listings had several errors requiring additional review of the analytical detail to verify and validate data.

Chain of Custody (COC) Evaluation

GES produced two, one-page COCs (one per event per SDG) for the referenced fieldwork.

Sample Preservation & Holding Time Evaluation

Laboratory received one cooler with samples on 9/19/2013 @ 08:30 (designated as SDG-35806) in good condition, properly preserved, and, where required, on ice. The temperatures of the coolers at receipt time were 0.6° C. The laboratory also received a cooler with samples on 10/16/2013 @08:30 (designated as SDG-37926) in good condition, properly preserved and, where required, on ice. The temperatures of the coolers at receipt time were 0.7° C. The laboratory met all holding times and preservation requirements, with the following exceptions:

RemVer

- Ferrous Iron (SDG 35806)—the analytical method for this analyte requires a 15-minute holding time in the field. Because all samples designated for this analysis missed the hold time, RemVer qualified the resulting data as estimated (“UJ or J”) (see Attachment 2 and 3).
- Ferric Iron (SDG 35806)—because this analyte is derived by calculation (from the ferrous iron results) all ferric results were similarly qualified (see Attachment 2 and 3).

Blank Evaluation

The single Trip Blank had no detectable VOC analytes (above their respective the reporting limits). Methylene Chloride was detectable above the method detection limit (MDL) but below the Reporting Limit (RL). RemVer flagged this analyte as UJ in the blank, but not in other samples. RemVer flagged several additional analytes (2-Butanone [MEK], 1,2-Dibromo-3-Chloropropane, Dichlorodifluoromethane, Methylene Chloride, Tetrahydrofuran, & 1,2,3-Trichloropropane) due to the performance of the lab control sample (LSC), which is discussed below.

The Equipment Blank had no detectable VOC analytes (above their respective the RLs). Methylene Chloride was detectable above the MDL but below the RL. RemVer flagged this analyte as UJ in the blank, but not in other samples. RemVer flagged Dichlorodifluoromethane due to the performance of the matrix spike/matrix spike duplicate (MS/MSD), which is discussed below.

Like the Equipment Blank, the Field Blank had no detectable VOC analytes (above their respective the RLs). Methylene Chloride was detectable above the MDL but below the RL. RemVer flagged this analyte as UJ in the blank, but not in other samples. RemVer flagged Dichlorodifluoromethane due to the performance of the MS/MSD.

All laboratory Method Blanks had conforming parameters and all analytes below their respective reporting limits, with the following exception. The analysis of Total Iron (SDG 35806) was detectable above the MDL but below the RL; as the detection was <RL no flag was set.

Laboratory Control Samples

Most LCS performed within the acceptable range for their particular analyses, with the following exceptions associated with analyses of VOCs in SDG 37926:

- Batch 116250 were beyond control limits (biased-high) for Dichlorodifluoromethane requiring that associated samples receive a UJ/J flag, namely: 37926-1 (MW-5), -2 (MW-7), -3 (MW-10), -4 (MW-15A), -5 (Dup of MW-5), -6 (Field Blank), and -7 (Equip. Blank).
- Batch 116581 were beyond control limits (biased-high) for 2-Butanone [MEK], 1,2-Dibromo-3-Chloropropane, Dichlorodifluoromethane, Tetrahydrofuran, and 1,2,3-Trichloropropane requiring that associated samples receive a UJ/J flag, namely: 116581-8 (Trip Blank).

Surrogates

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for all analytes. The surrogates performed within their applicable ranges.

RemVer

Site-Specific Matrix Spikes and Matrix Spike Duplicates

Most analyses met the matrix spike/matrix spike duplicate (MS/MSD) QA criteria, but certain variances mandated qualifying flags regardless of whether the LCS data supported the evaluation of acceptable precision.

- Recoveries for SDG 37926 Batch 116581 were outside control limits (biased-high) for Dichlorodifluoromethane. The associated LCS performed acceptably. This analyte was not a site-related chemical of concern and it only affected the Trip Blank; therefore, RemVer flagged the Trip Blank but no other analytical result.
- Insufficient sample volume was available to perform MS/MSD associated with SDG 37926 Batch 116896. The associated LCS performed acceptably. No flag set.
- Recoveries for SDG 35806 Batch 109560 were outside control limits (biased-high) for the MS of Iron. In contrast, the MSD for this batch failed the recovery criteria (biased low). This spread between the MS and MSD resulted in the unspiked sample exceeding four times the spiking amount. RemVer flagged all associated samples (#-1 – #-4) as UJ/J.
- While the LCS for SDG 35806 Batch 110197 for TOC performed acceptably, the RPD was greater than the acceptable upper criteria limit (UCL). RemVer flagged all associated samples (#-1, #-3, & #-4) as UJ/J.

Note that there was no Nitrate or Sulfate MS/MSD data, but the LCS data supported the evaluation of acceptable precision.

Other QC Data (Elevated Reporting Limits or Matrix Interferences)

The laboratory reported elevated RLs for certain analytes as discussed below, all others performed within the method/QAPP requirements.

- For VOC analytes only, if the reported value was less than the RL but greater than the MDL, then a flag of UJ was set instead of a value of U.
- Dilution (50X, Batch 116581) was necessary for sample 37926-1 (MW-5) and the duplicate (37926-5) prior to analysis resulting in elevated reporting limits, therefore, the results for Chloroform, cis-1,2-Dichloroethene, and Vinyl Chloride were flagged UJ or J.
- The TOC analysis of Sample MW-5 (37926-1) required dilution resulting in an elevated RL. Due to the NYSDEC criteria for this analyte, the results for this sample were flagged UJ or J.
- Samples 35806-1 (MW-4), -2 (MW-5), and -4 (MW-E) required dilution to accomplish the TOC analysis; this resulted in an elevated RL. Due to the NYSDEC criteria for this analyte, the results for these samples were flagged UJ or J.
- Samples 35806-1 (MW-4), #-2 (MW-5), #-3 (MW-8B), and #-4 (MW-E) required dilution prior to **Ferrous Iron** analysis; this required appropriate adjustment of the reporting limits, these results were flagged UJ or J.
- **Ferric Iron** is a derivative (calculated) measurement (from total iron and ferrous iron), and qualifying flags were required per the relevant parent data.

RemVer

Other QC Data (Continuing Calibration Verification)

- The continuing calibration verification (CCV) of SDG 37926 Batch 116250 had recoveries greater than the upper control limit (UCL), but the associated samples were non-detect for the affected analytes; therefore, the data were reported.
- The CCV for SDG 37926 Batch 116581 had recoveries less than the UCL (biased low) for Chloromethane. The lab reanalyzed the samples in another batch for this compound with acceptable results, which were reported.

Duplicates

GES collected a field replicate of MW-5 (compare sample #-1 and #-5). Most VOC analytes met the RPD performance criteria of <20%, except for fifteen analytes (see below Attachment #2).

Tentatively Identified Compounds (TICs)

This SDG had no analysis of TICs.

Sample Result and Usability Evaluation

Due to certain sample issues or laboratory performance, some results were qualified; however, the data are usable. No data received an R (rejected) flag.

Estimation of the Total Iron concentration used Inductively Coupled Plasma (ICP), whereas estimation of Ferrous Iron used the Phenanthroline Method (SM3500). Using the analytically estimated Total and Ferrous Iron concentrations, Test America calculated the concentration of Ferric Iron by difference. Any qualifier flags associated with analytic results automatically attach to the calculated results.

RemVer modified Test America's laboratory electronic data reports by adding quality flags, highlighted in yellow (see the attached separate file: Orangetown_2013Q3_DUSR.xls [EXCEL file]).

RemVer

References

- Kleinfelder, 2011, *Site Management Plan, Orangetown Shopping Center, 1-45 Orangetown Shopping Center, Orangeburg, NY, NYSDEC Site #C344066*, Final, 21-November, 250p
- NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p
- NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p
- USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p
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- USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>, accessed April 2012

Tables

1. Qualifier Flags

Attachments

1. Data Usability Reviewer Qualifications
2. DQA Detail Worksheet
3. DQA Non-Conformance Summary Workheet
4. Separate EXCEL File: Orangetown_2013Q3_DUSR.xls [NOTE: RemVer modified this Test America product by adding quality flags, which are in yellow highlight.]

Prepared by: Kurt A. Frantzen, PhD, CHMM
November 17, 2013



GES PO# 212647

Table 1
Qualifier Flags

Qualifier	Quality Implication
U	Analyte analyzed for, but not detected above the sample's reported quantitation limit
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J -	Sample likely to have a low bias
UJ	Analyte not detected above the sample quantitation limit; the associated quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (<i>i.e.</i> , dilutions or re-analyses), the most technically acceptable result is considered acceptable.
B EB TB BB	An analyte identified in method blank (B), aqueous equipment (EB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (<i>see below</i>).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.

RemVer

Attachment 1

Data Usability Reviewer: Kurt A. Frantzen, PhD, CHMM

Experience

2013-Present	d/b/a RemVer	Owner
2011-2012	RemVer, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVer, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington	1985-1986
PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Registrations

Certified Hazardous Materials Manager, since 2007, #14143

Professional Affiliations

Society Risk Analysis ('09 & '11 Chair, Eco-Risk Assessment)	Am. Chemistry Society
Am. Assoc. Advance Science	NY Academy of Science
LSP Association	Am. Institute of Biological Sciences

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
 - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
 - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
 - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002, IHMM
 - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
 - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 60 Conference Papers & Invited Professional Presentations
 - 1999-2012, Visiting Lecturer, Brownfields Program, Harvard Graduate School of Design
 - 2010-2013, Invited Lecturer, Pace University Law School

Attachment 2 DQA Detail Worksheet

BLANKS	>RL?	Compounds	Notes
Method Blank: VOCs	No	—	No Comment
Method Blank; Ethene	No	—	No Comment
Method Blank: Iron	MDL>X<RL	Iron	SDG-35806—No Flag
Method Blank: TOC	No	—	No Comment
Method Blank: Nitrate & Sulfate	No	—	No Comment
Method Blank: Ferrous	No	—	No Comment
Field Blank	MDL>X<RL	Methylene Chloride	Flagged UJ in Blank
Equipment Blank	MDL>X<RL	Methylene Chloride	Flagged UJ in Blank
Trip Blank	MDL>X<RL	Methylene Chloride	Flagged UJ in Blank

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs SDG 37926	—	—	Batch 116250	Dichlorodifluoromethane	Flag UJ/J: 37926-1-7
	—	—	Batch 116581	2-Butanone [MEK], 1,2-Dibromo-3-Chloropropane, Dichlorodifluoromethane, Tetrahydrofuran, & 1,2,3-Trichloropropane	Flag UJ/J: 37926--8
Dis. Gases	—	—	—	Ethene	No Comment
TOC	—	—	—	TOC	No Comment
Anions	—	—	—	Nitrate & Sulfate	No Comment
Total Iron	—	—	—	Iron	No Comment
Ferrous	—	—	—	Iron +2	No Comment

SURROGATES	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	—	No Comment
Dis. Gases	—	—	—	—	No Comment
PCBs	—	—	—	—	No Comment
TAL/Hg Metals	—	—	—	—	No Comment
TOC	—	—	—	—	No Comment
Anions	—	—	—	—	No Comment
Ferrous	—	—	—	—	No Comment

Attachment 2 DQA Detail Worksheet continued

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
VOCs	--	--	Dichlorodi-fluoromethane	SDG 37926 Batch 116581	—	Flag UJ/J
	--	--	--	SDG 37926 Batch 116896	--	Insufficient sample volume, LCS Acceptable
Dis. Gases	—	—	—		—	No Comment
TOC	—	—	—	SDG 35806 Batch 110197	>UCL	Flag UJ / J Samples #-1, # 3, & #-4
Sulfate	—	—	—		—	None Performed LCS Acceptable
Nitrate	—	—	—		—	
Tot. Iron	MSD	—	MS	SDG 35806 Batch 109560	—	Flag UJ / J Samples #-1 – #-4
Ferrous Ferric (calc)	—	—	—		—	None Performed LCS Acceptable

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
VOCs	#-1 & # 5	N/A	X	1,2,4-Trimethylbenzene, Bromochloromethane, Carbon disulfide, Chloroethane, Chloroform, cis-1,2-Dichloroethene, Ethylbenzene, n-Butylbenzene, sec-Butylbenzene, trans-1,2-Dichloroethene, Methylene Chloride, Toluene, Trichloroethene, Vinyl chloride, & total Xylenes	No Comment
SVOCs		N/A	N/C	—	Not collected
Dissolved Gases		N/A	N/C	—	
Pesticides		N/A	N/C	—	
PCBs		N/A	N/C	—	
TAL Metals		N/A	N/C	—	
Anions (Nitrate & Sulfate)		N/A	N/C	—	
Total Metals (Iron)		N/A	N/C	—	
Iron, Ferrous & Ferric		N/A	N/C	—	
TOC		N/A	N/C	—	

LAB DUPLICATES					
--	Batch	N/A	--	--	--

Reasonable Confidence Achieved Y N—Not Applicable
 Significant QC Variances Noted Y N
 Requested Reporting Limits Achieved Y N
 Preservation Requirements Met Y N—MW-3 sample vials had headspace violation
 Holding Time Requirements Met Y N—Ferrous Iron samples, results qualified, as are ferric

Abbreviations:

RL = Reporting Limit LCS = Laboratory Control Sample SV = Significant QC Variance
 RPD = Relative Percent Difference LCL= RCP Lower Control Limit UCL= RCP Upper Control Limit
 VOCs = Volatile Organic Compounds SVOCs = Semi-volatile Organic Compounds Pest = Pesticides
 EPH = Extractable Petroleum Hydrocarbons VPH = Volatile Petroleum Hydrocarbons ETPH = EPH-Total
 PCBs = Polychlorinated Biphenyls N/A = Not Applicable N/C = Not Collected -- = nothing to report

Notes: * Typical lab contaminants, not site-related

Attachment 3 DQA Non-Conformance Summary Worksheet

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
MW-4 35806-1	Sulfate	MDL>X<RL	—	—	—	Flag U J
	TOC	MS/MSD	—	>UCL	—	Flag J
	Iron	MS/MSD	<LCL >UCL	—	Hi & Lo	Flag J
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-5 37926-1 35806-2	1,1-Dichloroethene Benzene	MDL>X<RL	—	—	—	Flag UJ
	Chloroform, cis-1,2- Dichloroethene, & Vinyl Chloride	Elevated DL	—	—	—	Flag UJ/J
	Dichloro- difluoromethane	LCS	>UCL	—	Hi	Flag UJ/J
	TOC (37926)	Elevated DL	—	—	—	Flag J
	TOC (35806)	MS/MSD	—	>UCL	—	Flag J
	Iron	MS/MSD	<LCL >UCL	—	Hi & Lo	Flag J
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-8B 35806-3	TOC	MS/MSD	—	>UCL	—	Flag J
	Iron	MS/MSD	<LCL >UCL	—	Hi & Lo	Flag J
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-7 37926-2	cis-1,2- Dichloroethene	MDL>X<RL	—	—	—	Flag UJ
	Dichloro- difluoromethane	LCS	>UCL	—	Hi	Flag UJ/J
MW-10 (37926-3) MW-15A (37926-4)	Dichloro- difluoromethane	LCS	>UCL	—	Hi	Flag UJ/J
MW-E 35806-4	TOC	MS/MSD	—	>UCL	—	Flag J
	Iron	MS/MSD	<LCL >UCL	—	Hi & Lo	Flag J
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
Duplicate (MW-5) 37926-5	1,1-Dichloroethene Benzene	MDL>X<RL	—	—	—	Flag UJ/J
	Chloroform, cis-1,2- Dichloroethene, & Vinyl Chloride	Elevated DL	—	—	—	Flag UJ/J
	Carbon disulfide	Common Lab Contaminant <10X Rule	—	—	—	Flag J
	Dichloro- difluoromethane	LCS	>UCL	—	Hi	Flag UJ/J

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Notes: † RPD—Relative Percent Difference

‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.

Quality Assessment Data Usability Summary Report

RemVer Project #2014GE01 Client Project # 11022323-05-206			
Site:	Orangetown Shopping Center	Site #:	C344066
Client:	GES, Inc.	Site Owner:	UB Orangeburg, LLC (UBO)
Sample Delivery Group (SDG)	490-42465-1		
Sample Matrix:	<input type="checkbox"/> Drinking water	<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface water
	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Air
	<input type="checkbox"/> Biota (tissue, type: _____)		<input type="checkbox"/> Other: _____

Introduction

RemVer performed a data quality assessment (DQA) on the analytical data reported in Sample Delivery Group (SDG) #42465 for groundwater samples. The DQA evaluated the performance of the analytical procedures and the quality of the resulting data. RemVer followed the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable. This report includes a narrative discussion of sample results qualified during the DQA. Table 1 describes qualification flags applied to the data either by Test America or during the DQA process.

Reported Methods

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Method 1311 TCLP <input type="checkbox"/> Method 1312 SPLP <input checked="" type="checkbox"/> Method 6010A, B & C / 6020 Trace Metals <input type="checkbox"/> Method 7000 Metals <input type="checkbox"/> Method 7196 Hexavalent Chromium (other: _____) <input type="checkbox"/> Method 7470A or 7471 Mercury <input type="checkbox"/> Method 8021 Volatile Organic Compounds (VOCs) GC <input type="checkbox"/> Method 8081B Pesticides <input type="checkbox"/> Method 8082 PCBs <input type="checkbox"/> Method 8151 Chlorinated Herbicides <input checked="" type="checkbox"/> Method 8260B VOCs GC/MS <input type="checkbox"/> Method 8270C Semi-VOCs (sVOCs) GC/MS <input type="checkbox"/> Method 9010/9012/9014 Cyanides (_____) | <ul style="list-style-type: none"> <input type="checkbox"/> Method TO-13A PAHs (air) <input type="checkbox"/> Method TO-14A / -15 VOCs (air, summa) (_____) <input type="checkbox"/> Method TO-17 VOCs (air, sorbent) <input type="checkbox"/> Extractable Petroleum Hydrocarbons (EPH) <input type="checkbox"/> Volatile Petroleum Hydrocarbons (VPH) Method <input type="checkbox"/> EPH-total <input checked="" type="checkbox"/> Other Methods: <ul style="list-style-type: none"> Method 9060A Total Organic Carbon Method MCAWW 300.0 Anions (IC) Method RSK-175 Dissolved Gases Method SM3500 Iron – Ferric Method SM3500 Fe B Iron – Ferrous |
|--|---|

Quality Control Requirements Summary

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Duplicate <input checked="" type="checkbox"/> Matrix Spike [MS] / Matrix Spike Duplicate [MSD] <input checked="" type="checkbox"/> Trip Blank(s) <input checked="" type="checkbox"/> Equipment, Method, &/or Rinsate Blank | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Other Field QC: Field notes regarding sampling <input type="checkbox"/> Special QAPP Requirements: _____ |
|---|---|

Intended Use of Data under Review

The client collected groundwater samples during a one-day collection event: December 11, 2013 at the referenced New York State Brownfields site. The site is under a Site Management Plan (SMP) that requires several kinds of monitoring. This sampling effort was part of quarterly groundwater monitoring (see §3.3 of Kleinfelder, 2011).

Significant Data Usability Issues Identified For SDG: #42465

Of the thirteen samples, RemVer rejected no results, but flagged certain analytes as estimated due to the quality of the analysis and the results are acceptable for use. The lab report and COC/sample receipt had several issues but do not impact overall quality.

All Samples (SDG #42465)

Certain samples had either headspace potentially biasing VOC results low, resulting in a UJ or J flag, as appropriate. The Trip Blank had detectable Toluene and this analyte was B flagged. Additionally, the Trip, Field, and Equipment Blanks had certain issues requiring a UJ flag for a handful of non-site related analytes.

Some analytes had either Lab Control Sample (LCS) or Matrix Spike/Spike Duplicate issues requiring UJ/J flagging for certain analytes. Additionally, certain analytes or analyses had calibration, detection limit, or other quality issues requiring UJ/J flagging.

Some results above the method limit (MDL) but below the reporting limit (RL) resulted in a UJ or J flag, as appropriate. Several other analytes had elevated RLs due to dilutions resulting in a UJ or J flag, as appropriate.

All Ferrous Iron results were qualified (UJ or J) due to a holding violation. Because the Ferric Iron results are derivatives (via calculation) of the ferrous results, they too were qualified.

Please refer to the Lab Results and Data Usability Narrative section for further detail.

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Summary sheets only
Field meteorological data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Associated sampling location and plan included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See RAP/QAPP
Associated drilling logs available, reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Identification of QC samples in notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampling instrument decontamination records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Sampling instrument calibration logs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Chain of custody included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	With analytical report
Notes include communication logs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any corrective action (CA) reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
Any electronic data deliverables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Attachment #4
Sampling Report (by Field Team Leader)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Lab Report Contents (Test America SDG Report: #42465)

- | | |
|---|---|
| <input checked="" type="checkbox"/> SDG Narrative | <input checked="" type="checkbox"/> Spike recoveries |
| <input checked="" type="checkbox"/> Contract Lab Sample Information Sheets | <input checked="" type="checkbox"/> Duplicate results |
| <input checked="" type="checkbox"/> Data Package Summary Forms | <input checked="" type="checkbox"/> Confirmation (lab check/QC) samples |
| <input checked="" type="checkbox"/> Chain-of-Custody (COC) Forms | <input checked="" type="checkbox"/> Internal standard area & retention time summary |
| <input checked="" type="checkbox"/> Test Results (no tentatively identified compounds [TICs]) | <input checked="" type="checkbox"/> Chromatograms |
| <input checked="" type="checkbox"/> Calibration standards | <input checked="" type="checkbox"/> Raw data files |
| <input checked="" type="checkbox"/> Surrogate recoveries | <input checked="" type="checkbox"/> Other specific information |
| <input checked="" type="checkbox"/> Blank results | |

The SDG reported on the following samples:

Sample ID	SDG-Sample #	Matrix	Sampled	Received
MW-3	—	Water	—	—
MW-4	—	Water	—	—
MW-5	42465-1	Water	12/11/13	12/12/13
MW-8A	42465-2	Water	12/11/13	12/12/13
MW-8B	—	Water	—	—
MW-7	42465-3	Water	12/11/13	12/12/13
MW-10	42465-4	Water	12/11/13	12/12/13
	42465-4MS			
	42465-4MSD			
MW-13A	—	Water	—	—
MW-15A	42465-13	Water	12/11/13	12/12/13
MW-C	42465-5	Water	12/11/13	12/12/13
MW-D	42465-6	Water	12/11/13	12/12/13
MW-E	42465-7	Water	12/11/13	12/12/13
MW-F	42465-8	Water	12/11/13	12/12/13
Field Duplicate (FD) (MW-D)	42465-9	Water	12/11/13	12/12/13
Field Blank (FB)	42465-11	Water	12/11/13	12/12/13
Equipment Blank (EB)	42465-10	Water	12/11/13	12/12/13
Trip Blank (TB)	42465-12	Water	12/11/13	12/12/13

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The SDG included the following samples with their particular analyses:

#42465:	Well	VOCs	Ethene	TOC	Iron	Fe ⁺²	Fe ⁺³	NO ₃	SO ₄
None	MW-3 *	—	—	—	—	—	—	—	—
None	MW-4 *	—	—	—	—	—	—	—	—
#-1	MW-5 φ	X	X	X	X	X	X	X	X
#-2	MW-8A	X	X	—	—	—	—	—	—
None	MW-8B *	—	—	—	—	—	—	—	—
#-3	MW-7	X	—	—	—	—	—	—	—
#-4	MW-10	X	—	—	—	—	—	—	—
#-4MS	MW-10	X	—	—	—	—	—	—	—
#-4MSD	MW-10	X	—	—	—	—	—	—	—
None	MW-13A †	—	—	—	—	—	—	—	—
#-5	MW-C * λ	X	X	X	X	X	X	X	X
#-6	MW-D *	X	X	X	X	—	—	—	—
#-7	MW-E *	X	X	X	X	X	X	X	X
#-8	MW-F *	X	X	X	X	—	—	—	—
#-9	FD (MW-D)	X	—	—	—	—	—	—	—
#-11	FB	X	—	—	—	—	—	—	—
#-10	EB	X	—	—	—	—	—	—	—
#-12	TB	X	—	—	—	—	—	—	—
#-13	MW-15A	X	—	—	—	—	—	—	—

* Dry, no sample † No sample, MW not located φ #1 MW-5 used for Ferrous MS/MSD λ #5 MW-C used for TOC MS
 TOC: Total Organic Carbon | Iron: Total Iron | Fe⁺²: Ferrous Iron | Fe⁺³: Ferric Iron | NO₃: Nitrate | SO₄: Sulfate

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	Complete (Y/N)	Comments
#42465	Y	Yes

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	Hold Times (Y/N)	Preservation (Y/N)	Exception Comment
#42465	Y	Y	Hold time for all ferrous analysis missed, FLAG #2 (MW8A): 1 of 3 vials had headspace, no flag No Other Comments

Do all QC data fall within the protocol required limits and specifications?									
<i>(1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, (9) and sample data</i>									
SDG	1	2	3	4	5	6	7	8	9
#42465	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The narrative section, below, discusses these deficiencies in detail, see Attachment 2 as well.</i>									

Have all of the data been generated using established and agreed upon analytical protocols?		
Laboratory Report	Protocols (Y/N)	Exception Comment
#42465	Y	None

Do the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	Confirmation (Y/N)	Exception Comment
#42465	Y	None

Have the correct data qualifiers been used and are they consistent with the most current guidance?		
Laboratory Report	Qualifiers (Y/N)	Comment
#42465	Y	The laboratory generally applied appropriate qualifiers. To prepare the DUSR, it was necessary to apply additional qualifications or adjust qualifications to certain results as shown in Attachments 3 and 4.

Have any quality control (QC) exceedances been specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	QC Exceedances Documented (Y/N)	Comment
#42465	Y	Several data qualifications were applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The groundwater samples under review came from a one-day collection event: December 11, 2013. A review of the field notes provided the following information pertaining to data usability.

Groundwater MWs	December-2013 Comments SDG #42465
MW-3	dry no sample
MW-4	dry, no sample
MW-5	Bailer purge (<1-gal) / sample
MW-7	Bailer purge (<1-gal) / sample
MW-8A	Bailer purge (<1-gal) /sample, (limited sample volume)
MW-8B	dry, no sample
MW-10	Bailer purge (<1-gal) / sample; MS/MSD samples came from this well
MW-13A	Could not locate due to snow-pack, no sample
MW-15A	Bailer purge (<1-gal) / sample (VOAs only)
MW-C	Bailer purge (<1-gal) /sample
MW-D	Bailer purge (1-gal) /sample; Duplicate sample from this well (limited sample volume)
MW-E	Bailer purge (<1.5-gal) / sample
MW-F	Bailer purge (<1-gal) /sample, slow recharge (limited sample volume)

Laboratory Report Inspection

The laboratory produced one SDG report: 490-42465-1, with the required data and information. The narrative discussion and analytical parameter listings had several errors requiring additional review of the analytical detail to verify and validate data. The Ferrous Iron samples require a very short (<30-minute) holding time. This was not noted in the report's case narrative.

Chain of Custody (COC) Evaluation

GES produced one, two-page COC for the referenced fieldwork. There were several samples with insufficient volume (sample jars):

- #2 (MW-8A)—missing Nitrate, Sulfate, Fe⁺³, Fe⁺², Iron, and TOC
- #6 (MW-D)—missing Nitrate, Sulfate, Fe⁺³, and Fe⁺²
- #8 (MW-F)—missing Nitrate, Sulfate, Fe⁺³, and Fe⁺²

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Sample Preservation & Holding Time Evaluation

Laboratory received two coolers with samples on 12/12/2013 @ 08:50 (designated as SDG-42465) in proper condition and, where required, on ice. The temperatures of the coolers at receipt time were 2.7° and 2.9° C. All holding times and preservation requirements were met with the following exceptions:

- VOCs—Sample #2 (MW-8A) had one of the three vials received with headspace. GES directed lab to only use the two acceptable vials for the analysis. Therefore, no flag.
- Ferrous Iron—the analytical method for this analyte requires a 15-minute holding time in the field. Because all samples designated for this analysis missed the hold time, RemVer qualified the resulting data as estimated (“UJ or J”) (see Attachment 2 and 3).
- Ferric Iron—because this analyte is derived by calculation (from the ferrous iron results) all ferric results were similarly qualified (see Attachment 2 and 3).

Blank Evaluation

The single Trip Blank (TB) generally had no detectable VOC analytes (above their respective the reporting limits), with one exception: Toluene was present. Therefore, RemVer flagged the detection in the blank and all samples as ‘B’. In addition, 1,2,4-Trimethylbenzene and Xylenes were detectable above the method detection limit (MDL) but below the Reporting Limit (RL). RemVer flagged this analyte as UJ in the blank and then only flagged samples if either analyte was detected above the RL.

Like the TB, the Equipment and Field Blank (EB and FB, respectively) generally had no detectable VOC analytes (above their respective the RLs) except for Toluene. Additionally, 1,2,4-Trimethylbenzene and Xylenes behaved similarly as in the TB.

Laboratory Method Blanks (MBs) generally had conforming parameters and analytes below their respective RLs, with the following exceptions.

- Detections of 1,2,3-Trichlorobenzene, Chloroform and Hexachlorobutadiene were greater than the MDL but less than the RL in Method Blank (MB) 128921/6 and 129441/6. This affects all samples; however, these analytes were only flagged as ‘B’ if and only if a sample had detections greater than the respective RL.

Laboratory Control Samples (LCS)

Most LCS performed within the acceptable range for their particular analyses, with the following exceptions in SDG 42465:

- Nitrate failed the high recovery criterion for Batch 128515/4&5, which required the associated samples #1 (MW-5), #5 (MW-C), & #7 (MW-E) be flagged as UJ or J.

Surrogates

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for all analytes. The surrogates performed within their applicable ranges.

RemVer

Site-Specific Matrix Spikes and Matrix Spike Duplicates

Most analyses met the matrix spike/matrix spike duplicate (MS/MSD) QA criteria, but certain variances mandated qualifying flags regardless of whether the LCS data supported the evaluation of acceptable precision.

- Sample #4 (MW-10, Batch 128921) had Carbon disulfide fail the lower recovery criterion. All samples [#4 (MW-10), #10 (EB), and #11 (FB)] in this batch are affected for this analyte and flagged as UJ or J.
- Nitrate failed the high recovery criterion for the MS of Sample #2 Batch 130024, likely due to matrix interference and/or non-homogeneity. All nitrate results flagged UJ or J.
- Due to the high concentration of TOC, the MS/MSD for SDG 42465 Batch 131455 could not be evaluated for accuracy and precision, resulting in a UJ or J flag.

Other QC Data (Elevated Reporting Limits or Matrix Interferences)

The laboratory reported elevated RLs for certain analytes as discussed below, all others performed within the method/QAPP requirements.

- For VOC analytes only, if the reported value was less than the RL but greater than the MDL, then a flag of UJ was set instead of a value of U.
- Sample #1 (MW-5) was diluted [10X] by the lab due to foaming at the time of purging during the original analysis. The resulting elevated RLs require the results flagged as UJ or J.
- Sample #2 (MW-8A) was analyzed using a vial containing headspace due to the original run being analyzed after a foaming sample. Therefore, all results flagged UJ or J, as the results may have low bias.
- The TOC analysis of Sample #1 (MW-5) required dilution [10X] resulting in an elevated RL, and required flagging as UJ or J.
- Samples #1 (MW-5 [2X]), #5 (MW-C [5X]), and #7 (MW-E [5X]) required dilution prior to **Ferrous Iron** analysis; this required appropriate adjustment of the reporting limits, these results were flagged UJ or J.
- The **Ferrous Iron** results of samples #1 (MW-5), #5 (MW-C), and #7 (MW-E) were higher than the total iron results, most likely due to matrix interferences. This does not affect either the total iron or the ferrous results and no flag was required.
- **Ferric Iron** is a derivative (calculated) measurement (from total iron and ferrous iron), and qualifying flags were required per the relevant parent data. Because the ferrous iron results swamped the total iron results, all ferric iron results required a UJ flag.

Other QC Data (Continuing Calibration Verification)

- The continuing calibration verification (CCV) of SDG 42465 Batch 128921 had recoveries beyond the control limits for 1,2-Dibromo-3-Chloropropane, Naphthalene, and Tetrahydrofuran, but the associated samples were non-detect for the affected analytes; therefore, the data were reported with no flag.
- The CCV for SDG 42465 Batch 129441 had recoveries beyond the control limits for Bromomethane and Naphthalene, but the associated samples were non-detect (with one exception) for the affected analytes; therefore, the data were reported with no flag.

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Duplicates

GES collected a field replicate of MW-D (compare samples #-6 and #-9). Most VOC analytes met the RPD performance criteria of <20%, with few exceptions (see below Attachment #2).

Tentatively Identified Compounds (TICs)

This SDG had no analysis of TICs.

Sample Result and Usability Evaluation

Due to certain sample issues or laboratory performance, some results were qualified; however, the data are usable. No data received an R (rejected) flag.

Measurement of Total Iron used Inductively Coupled Plasma (ICP) based on nitric acid preserved samples; whereas measurement of Ferrous Iron used the Phenanthroline Method (SM3500), which is a colorimetric method using hydrochloric-preserved samples. Interferences resulting in positive bias in the ferrous result include strong oxidizing agents, cyanide, nitrite, phosphates (polyphosphates more so than orthophosphate), chromium, or zinc in concentrations exceeding 10X greater than iron, or cobalt and copper in excess of 5 mg/L, or nickel in excess of 2 mg/L; moreover, bismuth, cadmium, mercury, molybdate, and silver precipitate phenanthroline, which is the color reagent used for ferrous iron. Using the analytically estimated Total and Ferrous Iron concentrations, Test America calculated the concentration of Ferric Iron by difference. Any qualifier flags associated with analytic results automatically attach to the calculated results.

RemVer modified Test America's laboratory electronic data reports by adding quality flags, highlighted in yellow (see the attached separate file: Orangetown_2013Q4_DUSR.xls [EXCEL file]).

RemVer

References

- Kleinfelder, 2011, *Site Management Plan, Orangetown Shopping Center, 1-45 Orangetown Shopping Center, Orangeburg, NY, NYSDEC Site #C344066*, Final, 21-November, 250p
- NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p
- NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p
- USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p
- USEPA, 2010, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-51, USEPA-540-R-10-011, Office of Superfund Remediation and Technology Innovation: Washington, DC, January, 110p
- USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>, accessed April 2012

Tables

1. Qualifier Flags

Attachments

1. Data Usability Reviewer Qualifications
2. DQA Detail Worksheet
3. DQA Non-Conformance Summary Workheet
4. Separate EXCEL File: Orangetown_2013Q4_DUSR.xls [NOTE: RemVer modified this Test America product by adding quality flags, which are in yellow highlight.]

Prepared by: Kurt A. Frantzen, PhD, CHMM
January 10, 2014



GES PO# 212666

Table 1
Qualifier Flags

Qualifier	Quality Implication
U	Analyte analyzed for, but not detected above the sample's reported quantitation limit
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J -	Sample likely to have a low bias
UJ	Analyte not detected above the sample quantitation limit; the associated quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (<i>i.e.</i> , dilutions or re-analyses), the most technically acceptable result is considered acceptable.
B EB TB BB	An analyte identified in method blank (B), aqueous equipment (EB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (<i>see below</i>).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.

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Attachment 1

Data Usability Reviewer: Kurt A. Frantzen, PhD, CHMM

Experience

2013-Present	d/b/a RemVer	Owner
2011-2012	RemVer, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVer, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington	1985-1986
PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Registrations

Certified Hazardous Materials Manager, since 2007, #14143

Professional Affiliations

Society Risk Analysis ('09 & '11 Chair, Eco-Risk Assessment)	Am. Chemistry Society
Am. Assoc. Advance Science	NY Academy of Science
LSP Association	Am. Institute of Biological Sciences

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
 - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
 - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
 - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002, IHMM
 - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
 - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 60 Conference Papers & Invited Professional Presentations
 - 1999-2014, Visiting Lecturer, Brownfields Program, Harvard Graduate School of Design
 - 2010-2013, Invited Lecturer, Pace University Law School

Attachment 2 DQA Detail Worksheet

BLANKS	>RL?	Compounds	Notes
Method Blank: VOCs	MDL>X<RL	1,2,3-Trichlorobenzene Chloroform Hexachlorobutadiene	No 'B' flag unless sample >RL
Method Blank; Ethene	No	—	No Comment
Method Blank: Iron	No	—	No Comment
Method Blank: TOC	No	—	No Comment
Method Blank: Nitrate & Sulfate	No	—	No Comment
Method Blank: Ferrous	No	—	No Comment
Field Blank	>RL MDL>X<RL MDL>X<RL	Toluene 1,2,4-Trimethylbenzene Xylenes	'B' 'B' flag only if sample >RL 'B' flag only if sample >RL
Equipment Blank	>RL MDL>X<RL MDL>X<RL	Toluene 1,2,4-Trimethylbenzene Xylenes	'B' 'B' flag only if sample >RL 'B' flag only if sample >RL
Trip Blank	>RL MDL>X<RL MDL>X<RL	Toluene 1,2,4-Trimethylbenzene Xylenes	'B' 'B' flag only if sample >RL 'B' flag only if sample >RL

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs SDG	—	—	—	VOCs	
Dis. Gases	—	—	—	Ethene	No Comment
TOC	—	—	—	TOC	No Comment
Anions	—	—	X	Nitrate Sulfate	Flag UJ/J No Comment
Total Iron	—	—	—	Iron	No Comment
Ferrous	—	—	—	Iron +2	No Comment

SURROGATES	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	—	No Comment
Dis. Gases	—	—	—	—	No Comment
TOC	—	—	—	—	No Comment
Anions	—	—	—	—	No Comment
Ferrous	—	—	—	—	No Comment

Attachment 2 DQA Detail Worksheet continued

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
VOCs	--	Carbon Disulfide	—	Batch 128921	—	Flag UJ/J
Dis. Gases	—	—	—	SDG Batch	—	No Comment
TOC	—	—	Hi Concen.	Batch 128921	—	Flag UJ / J
Sulfate	—	—	—	SDG Batch	—	No Comment
Nitrate	—	—	X	Batch 130024	—	Flag UJ / J
Tot. Iron	—	—	—	SDG Batch	—	No Comment
Ferrous Ferric (calc)	—	—	—	SDG Batch	—	No Comment

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
VOCs	#-6 & #-9	N/A	X	Acetone	No Comment
Dissolved Gases		N/A	N/C	—	Not Collected
Total Iron		N/A	N/C	—	
Anions (Nitrate & Sulfate)		N/A	N/C	—	
Total Metals (Iron)		N/A	N/C	—	
Iron, Ferrous & Ferric		N/A	N/C	—	
TOC		N/A	N/C	—	

LAB DUPLICATES	Batch	N/A	--	--	--
--	Batch	N/A	--	--	--

Reasonable Confidence Achieved Y N—Not Applicable
 Significant QC Variances Noted Y N
 Requested Reporting Limits Achieved Y N
 Preservation Requirements Met Y N—MW-8A sample vials had headspace violation
 Holding Time Requirements Met Y N—Ferrous Iron samples, results qualified, as are ferric

Abbreviations:

RL = Reporting Limit LCS = Laboratory Control Sample SV = Significant QC Variance
 RPD = Relative Percent Difference LCL= RCP Lower Control Limit UCL= RCP Upper Control Limit
 VOCs = Volatile Organic Compounds SVOCs = Semi-volatile Organic Compounds Pest = Pesticides
 EPH = Extractable Petroleum Hydrocarbons VPH = Volatile Petroleum Hydrocarbons ETPH = EPH-Total
 PCBs = Polychlorinated Biphenyls N/A = Not Applicable N/C = Not Collected -- = nothing to report

Notes: * Typical lab contaminants, not site-related

Attachment 3 DQA Non-Conformance Summary Worksheet

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
MW-5 42465-1	All VOCs	Foaming Sample Headspace, Elevated DL	—	—	Lo	Flag UJ/J
	1,2,3-Trichlorobenzene, 1,2,4-Trimethylbenzene, Chloroform, Hexachlorobutadiene, Xylenes	Method or Trip/Eq/Field Blanks	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	—	—	—	—	No Comment
	Nitrate	LCS	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	Hi Dilution No MS/MSD LCS OK	—	—	Lo or Hi	Flag J
	Iron	—	—	—	—	No Comment
	Ferrous	Holding Time	—	—	—	Flag J
Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ	
MW-8A 42465-2	VOC	Headspace	—	—	Lo	Flag UJ/J
	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	—	—	—	—	No Comment
MW-7 42465-3	Toluene	Trip Blank	—	—	Hi	Flag B
MW-10 42465-4	VOC	MDL>X<RL	—	—	—	Flag UJ
	Carbon Disulfide	MS/MSD	<LCL	—	Lo	Flag UJ
	Toluene	Trip Blank	—	—	Hi	Flag B
MW-C 42465-5	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	—	—	—	—	No Comment
	Nitrate	LCS	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	No MS/MSD LCS OK	—	—	Hi	Flag J
	Iron	—	—	—	—	No Comment
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-D 42465-6	VOC	MDL>X<RL	—	—	—	Flag UJ
	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	MDL>X<RL	—	—	—	Flag UJ
	TOC	No MS/MSD LCS OK	—	—	Hi	Flag J
	Iron	—	—	—	—	No Comment
MW-E 42465-7	VOC	MDL>X<RL	—	—	—	Flag UJ
	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	—	—	—	—	No Comment

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Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
	Nitrate	LCS	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	No MS/MSD LCS OK	—	—	Hi	Flag J
	Iron	—	—	—	—	No Comment
	Ferrous	Holding Time	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-F 42465-8	VOC	MDL>X<RL	—	—	—	Flag UJ
	Toluene	Trip Blank	—	—	Hi	Flag B
	Ethene	—	—	—	—	No Comment
	TOC	No MS/MSD LCS OK	—	—	Hi	Flag J
	Iron	—	—	—	—	No Comment
Duplicate (MW-D) 42465-9	VOC	MDL>X<RL	—	—	—	Flag UJ
	Toluene	Trip Blank	—	—	Hi	Flag B
MW-15A 42465-13	Toluene	Trip Blank	—	—	Hi	Flag B

Notes: † RPD—Relative Percent Difference

‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.

Quality Assessment Data Usability Summary Report

RemVer Project #2014GE01 Client Project # 11022323-05-206			
Site:	Orangetown Shopping Center	Site #:	C344066
Client:	GES, Inc.	Site Owner:	UB Orangeburg, LLC (UBO)
Sample Delivery Group (SDG)	490-47801-1		
Sample Matrix:	<input type="checkbox"/> Drinking water	<input checked="" type="checkbox"/> Groundwater	<input type="checkbox"/> Surface water
	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Air
	<input type="checkbox"/> Biota (tissue, type: _____)		<input type="checkbox"/> Other: _____

Introduction

RemVer performed a data quality assessment (DQA) on the analytical data reported in Sample Delivery Group (SDG) #47801 for groundwater samples. The DQA evaluated the performance of the analytical procedures and the quality of the resulting data. RemVer followed the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable. This report includes a narrative discussion of sample results qualified during the DQA. Table 1 describes qualification flags applied to the data either by Test America or during the DQA process.

Reported Methods

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Method 1311 TCLP <input type="checkbox"/> Method 1312 SPLP <input checked="" type="checkbox"/> Method 6010A, B & C / 6020 Trace Metals <input type="checkbox"/> Method 7000 Metals <input type="checkbox"/> Method 7196 Hexavalent Chromium (other: _____) <input checked="" type="checkbox"/> Method 7470A or 7471 Mercury <input type="checkbox"/> Method 8021 Volatile Organic Compounds (VOCs) GC <input checked="" type="checkbox"/> Method 8081B Pesticides <input checked="" type="checkbox"/> Method 8082 PCBs <input type="checkbox"/> Method 8151 Chlorinated Herbicides <input checked="" type="checkbox"/> Method 8260C VOCs GC/MS <input checked="" type="checkbox"/> Method 8270D Semi-VOCs (sVOCs) GC/MS <input type="checkbox"/> Method 9010/9012/9014 Cyanides (_____) | <ul style="list-style-type: none"> <input type="checkbox"/> Method TO-13A PAHs (air) <input type="checkbox"/> Method TO-14A / -15 VOCs (air, summa) (_____) <input type="checkbox"/> Method TO-17 VOCs (air, sorbent) <input type="checkbox"/> Extractable Petroleum Hydrocarbons (EPH) <input type="checkbox"/> Volatile Petroleum Hydrocarbons (VPH) Method <input type="checkbox"/> EPH-total <input checked="" type="checkbox"/> Other Methods: <ul style="list-style-type: none"> Method 9060A Total Organic Carbon Method MCAWW 300.0 Anions (IC) Method RSK-175 Dissolved Gases Method SM3500 Iron – Ferric Method SM3500 Fe B Iron – Ferrous |
|--|---|

Quality Control Requirements Summary

- | | |
|---|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Duplicate <input checked="" type="checkbox"/> Matrix Spike [MS] / Matrix Spike Duplicate [MSD] <input checked="" type="checkbox"/> Trip Blank(s) <input checked="" type="checkbox"/> Equipment, Method, &/or Rinsate Blank | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Other Field QC: Field notes regarding sampling <input type="checkbox"/> Special QAPP Requirements: _____ |
|---|---|

Intended Use of Data under Review

The client collected groundwater samples during a one-day collection event: March 5, 2014 at the referenced New York State Brownfields site. The site is under a Site Management Plan (SMP) that requires several kinds of monitoring. This sampling effort was part of quarterly groundwater monitoring (see §3.3 of Kleinfelder, 2011).

Significant Data Usability Issues Identified For SDG: #47801

Of the thirteen samples (eight actual, one duplicate, & four QC), RemVer rejected no results, but flagged certain analytes as estimated due to the quality of the analysis and the results are acceptable for use.

All Samples (SDG #47801)

The method blanks were generally acceptable with the following issues: several VOCs, one SVOC (bis-2-ethylhexy phthalate), and total iron were detectable above the method detection (MDL) but below the reporting limits (RL) in which case they were only B-flagged if the sample concentration was greater than the RL. Similarly, one of the Trip Blanks had detectable chloroform above the method detection (MDL) but below the reporting limits (RL), which was handled in the same fashion.

Some analytes had either calibration, Matrix Spike/Spike Duplicate detection limit, or other quality issues requiring UJ/J flagging for certain analytes.

Some results above the method limit (MDL) but below the reporting limit (RL) resulted in a UJ or J flag, as appropriate. Several other analytes had elevated RLs due to dilutions resulting in a UJ or J flag, as appropriate.

All Ferrous Iron results were qualified (UJ or J) due to a holding violation. Because the Ferric Iron results are derivatives (via calculation) of the ferrous results, they too were qualified.

Please refer to the Lab Results and Data Usability Narrative section for further detail.

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Summary sheets only
Field meteorological data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Associated sampling location and plan included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See RAP/QAPP
Associated drilling logs available, reviewed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Identification of QC samples in notes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sampling instrument decontamination records	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Sampling instrument calibration logs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No review required under QAPP
Chain of custody included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	With analytical report
Notes include communication logs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Any corrective action (CA) reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	None
Any electronic data deliverables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Attachment #4
Sampling Report (by Field Team Leader)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Lab Report Contents (Test America SDG Report: #47801)

- | | |
|---|---|
| <input checked="" type="checkbox"/> SDG Narrative | <input checked="" type="checkbox"/> Spike recoveries |
| <input checked="" type="checkbox"/> Contract Lab Sample Information Sheets | <input checked="" type="checkbox"/> Duplicate results |
| <input checked="" type="checkbox"/> Data Package Summary Forms | <input checked="" type="checkbox"/> Confirmation (lab check/QC) samples |
| <input checked="" type="checkbox"/> Chain-of-Custody (COC) Forms | <input checked="" type="checkbox"/> Internal standard area & retention time summary |
| <input checked="" type="checkbox"/> Test Results (no tentatively identified compounds [TICs]) | <input checked="" type="checkbox"/> Chromatograms |
| <input checked="" type="checkbox"/> Calibration standards | <input checked="" type="checkbox"/> Raw data files |
| <input checked="" type="checkbox"/> Surrogate recoveries | <input checked="" type="checkbox"/> Other specific information |
| <input checked="" type="checkbox"/> Blank results | |

The SDG reported on the following samples:

Sample ID	SDG-Sample #	Matrix	Sampled	Received
MW-3	—	Water	—	—
MW-4	47801-1	Water	03/05/14	03/06/14
MW-5	47801-2	Water	03/05/14	03/06/14
MW-6	47801-3	Water	03/05/14	03/06/14
MW-7	47801-4	Water	03/05/14	03/06/14
MW-8A	—	Water	—	—
MW-8B	47801-5 47801-5MS 47801-5MSD	Water	03/05/14	03/06/14
MW-15A	47801-6	Water	03/05/14	03/06/14
MW-C	47801-7	Water	03/05/14	03/06/14
MW-D	47801-8	Water	03/05/14	03/06/14
MW-E	—	Water	—	—
MW-F	—	Water	—	—
Field Duplicate (FD) (MW-D)	47801-9	Water	03/05/14	03/06/14
Field Blank (FB)	47801-10	Water	03/05/14	03/06/14
Equipment Blank (EB)	47801-11	Water	03/05/14	03/06/14
Trip Blank (TB #1)	47801-12	Water	03/05/14	03/06/14
Trip Blank (TB #2)	47801-13	Water	03/05/14	03/06/14

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The SDG included the following samples with their particular analyses:

#47801: Well	VOCs	Ethene	TOC	Iron	Fe ⁺²	Fe ⁺³	NO ₃	SO ₄	Pest/PCB	SVOCs	RCRA13
None MW-3 †	—	—	—	—	—	—	—	—	—	—	—
#1 MW-4 ‡	X	X	X	X	X	X	X	X	—	—	—
#2 MW-5	X	X	—	X	X	X	X	X	—	—	—
#3 MW-6	X	X	X	X	X	X	X	X	X	X	X
#4 MW-7	X	—	—	X	—	—	—	—	X	X	X
None MW-8A *	—	—	—	—	—	—	—	—	—	—	—
#5 MW-8B	X	X	X	X	X	X	X	X	—	—	—
#5MS MW-8B	X	—	—	—	—	—	—	—	—	—	—
#5MSD MW-8B	X	—	—	—	—	—	—	—	—	—	—
None MW-10 †	X	—	—	—	—	—	—	—	—	—	—
None MW-13A *	—	—	—	—	—	—	—	—	—	—	—
#6 MW-15A	X	—	—	—	—	—	—	—	—	—	—
None MW-A *	—	—	—	—	—	—	—	—	—	—	—
None MW-B *	—	—	—	—	—	—	—	—	—	—	—
#7 MW-C	X	X	X	X	X	X	X	X	—	—	—
#8 MW-D	X	X	—	—	—	—	—	—	—	—	—
None MW-E †	—	—	—	—	—	—	—	—	—	—	—
None MW-F *	—	—	—	—	—	—	—	—	—	—	—
#9 FD (MW-6)	X	—	—	—	—	—	—	—	—	—	—
#10 FB	X	—	—	—	—	—	—	—	—	—	—
#11 EB	X	—	—	—	—	—	—	—	—	—	—
#12 TB-1	X	—	—	—	—	—	—	—	—	—	—
#13 TB-2	X	—	—	—	—	—	—	—	—	—	—

TOC: Total Organic Carbon | Iron: Total Iron | Fe⁺²: Ferrous Iron | Fe⁺³: Ferric Iron | NO₃: Nitrate | SO₄: Sulfate

* Dry, no sample † No sample ‡ #1 MW-4 used for NO₃/SO₄ MS

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	Complete (Y/N)	Comments
#47801	Y	Yes

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	Hold Times (Y/N)	Preservation (Y/N)	Exception Comment
#47801	Y	Y	Hold time for all ferrous analysis missed, FLAG #2 (MW8A): 1 of 3 vials had headspace, no flag No Other Comments

Do all QC data fall within the protocol required limits and specifications?									
<i>(1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, (9) and sample data</i>									
SDG	1	2	3	4	5	6	7	8	9
#47801	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The narrative section, below, discusses these deficiencies in detail, see Attachment 2 as well.</i>									

Have all of the data been generated using established and agreed upon analytical protocols?		
Laboratory Report	Protocols (Y/N)	Exception Comment
#47801	Y	None

Do the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	Confirmation (Y/N)	Exception Comment
#47801	Y	None

Have the correct data qualifiers been used and are they consistent with the most current guidance?		
Laboratory Report	Qualifiers (Y/N)	Comment
#47801	Y	The laboratory generally applied appropriate qualifiers. To prepare the DUSR, it was necessary to apply additional qualifications or adjust qualifications to certain results as shown in Attachments 3 and 4.

Have any quality control (QC) exceedances been specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	QC Exceedances Documented (Y/N)	Comment
#47801	Y	Several data qualifications were applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The groundwater samples under review came from a one-day collection event: March 5, 2014. A review of the field notes provided the following information pertaining to data usability.

Groundwater MWs	March-2014 Comments SDG #47801
MW-3	Ignored
MW-4	Bailer purge (<2-gal), sampled
MW-5	Bailer purge (2.5-gal), sampled, went dry while sampling
MW-6	Bailer purge (4.5-gal), sampled; Duplicate sample from this well
MW-7	Bailer purge limited (<1-gal), sampled but limited #
MW-8A	Insufficient water, no sample
MW-8B	Bailer purge (<1-gal), sampled; MS/MSD samples came from this well
MW-10	Ignored
MW-13A	Dry, no sample
MW-15A	Bailer purge (<1-gal), sampled but limited # (VOAs only)
MW-A	Dry, no sample
MW-B	Dry, no sample
MW-C	Bailer purge (1.5-gal), sampled
MW-D	Bailer purge (1-gal), sampled, went dry while sampling
MW-E	Ignored
MW-F	Dry, no sample

Laboratory Report Inspection

The laboratory produced one SDG report: 490-47801-1, with the required data and information. The narrative discussion and analytical parameter listings had several errors requiring additional review of the analytical detail to verify and validate data. The Ferrous Iron samples require a very short (<30-minute) holding time. This was not noted in the report's case narrative.

Chain of Custody (COC) Evaluation

GES produced one, two-page COC for the referenced fieldwork. There were several samples with insufficient volume (sample jars):

- #2 (MW-5)—missing Pesticide/PCBs and semi-VOCs (SVOCs)
- #8 (MW-D)—missing Nitrate, Sulfate, total Iron, Fe⁺³, and Fe⁺²

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Sample Preservation & Holding Time Evaluation

Laboratory received two coolers with samples on 3/6/2014 @ 08:30 (designated as SDG-47801) in proper condition and, where required, on ice. The temperatures of the coolers at receipt time were 1.4° and 4.1° C. All holding times and preservation requirements were met with the following exceptions:

- Ferrous Iron—the analytical method for this analyte requires a 15-minute holding time in the field. Because all samples designated for this analysis missed the hold time, RemVer qualified the resulting data as estimated (“UJ or J”) (see Attachment 2 and 3).
- Ferric Iron—because this analyte is derived by calculation (from the ferrous iron results) all ferric results were similarly qualified as ferrous iron (see Attachment 2 and 3).

Blank Evaluation

The TBs generally had no detectable VOC analytes (above their respective the reporting limits) with one exception, that is TB-2 (#13) had a detection of Chloroform greater than the method detection limit (MDL) but less than the reporting limit (RL). This affects the samples in the same cooler (second); however, there is no record of those samples to which this applies (the COC notwithstanding). Therefore, this analyte was only flagged as ‘B’ if and only if a sample had detections greater than the respective RL.

The Equipment and Field Blank (EB and FB, respectively) had no detectable VOC analytes (above their respective the RLs).

Laboratory Method Blanks (MBs) generally had conforming parameters and analytes below their respective RLs, with the following exceptions.

- Method 8260C (GS/MS for VOCs) had a MB for Batch 146516 contained 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, chloroform, hexachlorobutadiene, and naphthalene above the MDL, but the target analyte concentrations were less than the RL. Therefore, the lab did not re-extract or re-analyze the samples. This affects all samples; however, these analytes were only flagged as ‘B’ if and only if a sample had detections greater than the respective RL.
- Method(s) 8270D (GS/MS for SVOCs) had a MB for Preparation Batch 147234 containing Bis-2-(ethyl hexyl) phthalate above the RL, requiring flagging samples MW-6 (#-3) and MW-7 (#-4) with a as ‘B’ for this analyte.
- Total Iron had a method blank detection. This affects all samples; however, these analytes were only flagged as ‘B’ if and only if a sample had detections greater than the respective RL.

Laboratory Control Samples (LCS)

The various LCS’ performed within the acceptable range for their particular analyses in SDG 47801.

Surrogates

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for all analytes. The surrogates performed within their applicable ranges.

RemVer

Site-Specific Matrix Spikes and Matrix Spike Duplicates

The VOC matrix spike/matrix spike duplicate (MS/MSD, sample #5, MW-8B) met the QA criteria. Other analyses had MS/MSD QA issues:

- The nitrate MS recovery (Batch 146175) was greater than the upper control limit, due to sample matrix interference and/or non-homogeneity, the associated LCS/LCSD recoveries were within limits, resulting in flagging the results UJ or J.
- Ferrous iron failed the high recovery criterion for the MS/MSD of Batch 149604, likely due to matrix interference and/or non-homogeneity, resulting in flagging the results UJ or J.

The following analytes had no MS/MSD (typically due to limited sample volume), although their respective LCS/LCSD samples performed acceptably: SVOCs, Pesticides, and PCBs. No QA flag was set.

Other QC Data (Elevated Reporting Limits or Matrix Interferences)

The laboratory reported elevated RLs for certain analytes as discussed below, all others performed within the method/QAPP requirements.

- If the reported value was less than the RL but greater than the MDL, then a flag of UJ was set instead of a value of U.
- Sample MW-5 (#-2) was diluted due to foaming at the time of purging during the original Method 8260C analysis. The VOC analytes had resulting elevated RLs, and flagged as UJ or J.
- Total iron and other metals analysis of samples MW-6 (#-3) and MW-7 (#-4) required dilution [10X or 100X], due to the abundance of non-target analytes, resulting in an elevated RL, and requiring flagging as UJ or J.
- The Ferrous Iron results of samples MW-4 (#-1) and MW-8B (#-5) were higher than the total iron results, most likely due to matrix interferences. This does not affect the total iron, but will swamp the ferric results and no flag was required. These results were flagged UJ or J.
- Ferric Iron is a derivative (calculated) measurement (from total iron and ferrous iron), and qualifying flags were required per the relevant parent data.

Other QC Data (Continuing Calibration Verification)

- The continuing calibration verification (CCV) associated with Method 8260C VOC Batch 146516 had recoveries greater than the upper control limit (UCL) for chlorobromomethane and 1,1,2,2-tetrachloroethane. The samples associated with this CCV were non-detects for the affected analytes, but flagged as UJ.
- The CCV for associated with Method 8081B Pesticide Batch 148156 had recoveries greater than the UCL for all target analytes. The samples (MW-6 [#-3] and MW-7 [#-4]) associated with this CCV were non-detects for the affected analytes, but flagged as UJ.

Duplicates

GES collected a field replicate of MW-6 (compare samples #-3 and #-9). The VOC analytes met the RPD performance criteria of <20% (see below Attachment #2).

RemVer

Tentatively Identified Compounds (TICs)

This SDG had no analysis of TICs.

Sample Result and Usability Evaluation

Due to certain sample issues or laboratory performance, some results were qualified; however, the data are usable. No data received an R (rejected) flag. If an analyte was above the MDL but below the RL, then it was flagged as "UJ".

Measurement of Total Iron used Inductively Coupled Plasma (ICP) based on nitric acid preserved samples; whereas measurement of Ferrous Iron used the Phenanthroline Method (SM3500), which is a colorimetric method using hydrochloric-preserved samples. Interferences resulting in positive bias in the ferrous result include strong oxidizing agents, cyanide, nitrite, phosphates (polyphosphates more so than orthophosphate), chromium, or zinc in concentrations exceeding 10X greater than iron, or cobalt and copper in excess of 5 mg/L, or nickel in excess of 2 mg/L; moreover, bismuth, cadmium, mercury, molybdate, and silver precipitate phenanthroline, which is the color reagent used for ferrous iron. Using the analytically estimated Total and Ferrous Iron concentrations, Test America calculated the concentration of Ferric Iron by difference. Any qualifier flags associated with analytic results automatically attach to the calculated results.

RemVer modified Test America's laboratory electronic data reports by adding quality flags, highlighted in yellow (see Attachment #4 [separate file]: Orangetown_2014Q1_DUSR.xls [EXCEL file]).

RemVer

References

- Kleinfelder, 2011, *Site Management Plan, Orangetown Shopping Center, 1-45 Orangetown Shopping Center, Orangeburg, NY, NYSDEC Site #C344066*, Final, 21-November, 250p
- NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p
- NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p
- USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p
- USEPA, 2010, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-51, USEPA-540-R-10-011, Office of Superfund Remediation and Technology Innovation: Washington, DC, January, 110p
- USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>, accessed April 2012

Tables

1. Qualifier Flags

Attachments

1. Data Usability Reviewer Qualifications
2. DQA Detail Worksheet
3. DQA Non-Conformance Summary Workheet
4. Separate EXCEL File: Orangetown_2014Q1_DUSR.xls [NOTE: RemVer modified the Test America work product by adding quality flags, which are in yellow highlight.]

Prepared by: Kurt A. Frantzen, PhD, CHMM
April 11, 2014



GES PO# 213214

Table 1
Qualifier Flags

Qualifier	Quality Implication
U	Analyte analyzed for, but not detected above the sample's reported quantitation limit
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J -	Sample likely to have a low bias
UJ	Analyte not detected above the sample quantitation limit; the associated quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (<i>i.e.</i> , dilutions or re-analyses), the most technically acceptable result is considered acceptable.
B EB TB BB	An analyte identified in method blank (B), aqueous equipment (EB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (<i>see below</i>).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.

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Attachment 1

Data Usability Reviewer: Kurt A. Frantzen, PhD, CHMM

Experience

2013-Present	d/b/a RemVer	Owner
2011-2012	RemVer, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVer, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington	1985-1986
PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Registrations

Certified Hazardous Materials Manager, since 2007, #14143

Professional Affiliations

Society Risk Analysis ('09 & '11 Chair, Eco-Risk Assessment)	Am. Chemistry Society
Am. Assoc. Advance Science	NY Academy of Science
LSP Association	Am. Institute of Biological Sciences

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
 - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
 - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
 - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002, IHMM
 - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
 - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 60 Conference Papers & Invited Professional Presentations
 - 1999-2014, Visiting Lecturer, Brownfields Program, Harvard Graduate School of Design
 - 2010-2013, Invited Lecturer, Pace University Law School

Attachment 2 DQA Detail Worksheet

BLANKS	>RL?	Compounds	Notes
Method Blank: VOCs	MDL>X<RL	1,2,3- & 1,2,4-Trichlorobenzene Chloroform, Naphthalene Hexachlorobutadiene	No 'B' flag unless sample >RL
Method Blank: Ethene	No	—	No Comment
Method Blank: Metals	Yes	Iron only	'B' flag only if sample >RL
Method Blank: TOC	No	—	No Comment
Method Blank: Nitrate & Sulfate	No	—	No Comment
Method Blank: Ferrous	No	—	No Comment
Method Blank: SVOCs	Yes	Bis-2-e,h-phthalate only	'B' flag sample #-3 & -4
Method Blank: Pesticides	No	—	No Comment
Method Blank: PCBs	No	—	No Comment
Field Blank (FB)	No	—	No Comment
Equipment Blank (EB)	No	—	No Comment
Trip Blank #1	No	—	No Comment
Trip Blank #2	MDL>X<RL	Chloroform only	'B' flag only if sample >RL

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	VOCs	No Comment
Dis. Gases	—	—	—	Ethene	No Comment
SVOCs	—	—	—	SVOCs	No Comment
Pesticides	—	—	—	Pesticides	No Comment
PCBs	—	—	—	PCBs	No Comment
Metals	—	—	—	Metals	No Comment
TOC	—	—	—	TOC	No Comment
NO ₃ / SO ₄	—	—	—	Nitrate & Sulfate	No Comment
Ferrous	—	—	—	Iron +2	No Comment

SURROGATES	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	—	No Comment
Dis. Gases	—	—	—	—	No Comment
SVOCs	—	—	—	—	No Comment
Pesticides	—	—	—	—	No Comment
PCBs	—	—	—	—	No Comment
Metals	—	—	—	—	No Comment
TOC	—	—	—	—	No Comment
NO ₃ / SO ₄	—	—	—	—	No Comment
Ferrous	—	—	—	—	No Comment

Attachment 2 DQA Detail Worksheet continued

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
VOCs	—	—	—	SDG Batch	—	No Comment
Dis. Gases	—	—	—	SDG Batch	—	No Comment
SVOCs	—	—	—	SDG Batch	—	NONE, LCS acceptable
Pesticides	—	—	—	SDG Batch	—	NONE, LCS acceptable
PCBs	—	—	—	SDG Batch	—	NONE, LCS acceptable
Metals	—	—	—	SDG Batch	—	No Comment
TOC	—	—	—	SDG Batch	—	No Comment
Sulfate	—	—	—	SDG Batch	—	No Comment
Nitrate	—	—	X	SDG Batch	—	Flag UJ / J
Ferrous Ferric (calc)	—	—	X	SDG Batch	—	Flag UJ / J

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
VOCs	MW-6 (#-3 & #-9)	N/A	—	—	No Comment
Dissolved Gases		N/A	N/C	—	Not Collected
Total Iron		N/A	N/C	—	
Nitrate & Sulfate		N/A	N/C	—	
Total Metals (Iron)		N/A	N/C	—	
Iron, Ferrous & Ferric		N/A	N/C	—	
TOC		N/A	N/C	—	

LAB DUPLICATES					
--	Batch	N/A	--	--	--

Reasonable Confidence Achieved Y N—Not Applicable
 Significant QC Variances Noted Y N
 Requested Reporting Limits Achieved Y N
 Preservation Requirements Met Y N
 Holding Time Requirements Met Y N—Ferrous Iron samples, results qualified, as are ferric

Abbreviations:

RL = Reporting Limit LCS = Laboratory Control Sample SV = Significant QC Variance
 RPD = Relative Percent Difference LCL= RCP Lower Control Limit UCL= RCP Upper Control Limit
 VOCs = Volatile Organic Compounds SVOCs = Semi-volatile Organic Compounds Pest = Pesticides
 EPH = Extractable Petroleum Hydrocarbons VPH = Volatile Petroleum Hydrocarbons ETPH = EPH-Total
 PCBs = Polychlorinated Biphenyls N/A = Not Applicable N/C = Not Collected -- = nothing to report

Notes: * Typical lab contaminants, not site-related

Attachment 3 DQA Non-Conformance Summary Worksheet

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
MW-4 47801-1	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachlorobutadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromomethane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
	Nitrate	MS/MSD	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	—	—	—	—	No Comment
	Iron	Blank	—	—	Hi	Flag B
	Ferrous	Holding Time & MS	—	—	—	Flag J
Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ	
MW-5 47801-2	All Other VOCs	Foaming/Dilution	—	—	—	Flag UJ or J
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachlorobutadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromomethane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
	Nitrate	MS/MSD	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	Iron	Blank	—	—	Hi	Flag B
	Ferrous	Holding Time & MS	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-6 47801-3	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachloro-	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL

RemVer

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
	butadiene, Naphthalene					
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromo-methane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
	Other SVOCs	—	—	—	—	No Comment
	Bis(2-e h)phthalate	Blank	—	—	Hi	Flag B
	Pesticides	Calibration Verify	—	—	—	Flag UJ
	PCBs	—	—	—	—	No Comment
	Nitrate	MS/MSD	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	—	—	—	—	No Comment
	Metals	Dilution	—	—	Lo	Flag UJ/J
	Iron	Blank	—	—	Hi	Flag B
	Ferrous	Holding Time & MS	—	—	—	Flag J
Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ	
MW-7 47801-4	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachloro-butadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromo-methane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Other SVOCs	—	—	—	—	No Comment
	Bis(2-e h)phthalate	Blank	—	—	Hi	Flag B
	Pesticides	Calibration Verify	—	—	—	Flag UJ
	PCBs	—	—	—	—	No Comment
	Metals	Dilution	—	—	Lo	Flag UJ/J
	Iron	Blank	—	—	Hi	Flag B
MW-8B 47801-5	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachloro-butadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL

RemVer

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
	Chlorobromo-methane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
	Nitrate	MS/MSD	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	—	—	—	—	No Comment
	Iron	Blank	—	—	Hi	Flag B
	Ferrous	Holding Time & MS	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-15A 47801-6	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachlorobutadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromo-methane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
MW-C 47801-7	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachlorobutadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromo-methane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
	Nitrate	MS/MSD	>UCL	—	Hi	Flag UJ/J
	Sulfate	—	—	—	—	No Comment
	TOC	—	—	—	—	No Comment
	Iron	Blank	—	—	Hi	Flag B
	Ferrous	Holding Time & MS	—	—	—	Flag J
	Ferric	Tot. Iron & Ferrous	—	—	—	Flag UJ
MW-D 47801-8	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform,	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL

RemVer

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
	Hexachlorobutadiene, Naphthalene					
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromomethane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ
	Ethene	—	—	—	—	No Comment
Duplicate (MW-6) 47801-9	All Other VOCs	—	—	—	—	No Comment
	VOCs	If MD<VOC<RL	—	—	—	Then Flag UJ
	1,2,3-/1,2,4-Trichlorobenzene, Chloroform, Hexachlorobutadiene, Naphthalene	Method	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chloroform	Trip Blank	—	—	Hi	MDL>X<RL 'B' flag only if sample >RL
	Chlorobromomethane & 1,1,2,2-Tetrachloroethane	Calibration Verify	—	—	Hi	Flag UJ

Notes: † RPD—Relative Percent Difference

‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.