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New York State Department of Environmental Conservation

Pre-Design Investigation Report

Crown Dykman (NYSDEC Site no. 130054)
City of Glen Cove, Nassau County, New York

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ARCADIS

Pre-Design Investigation Report

Crown Dykman (Site #130054)
City of Glen Cove, Nassau County, New York

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New York State Department of Environmental Conservation

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1. Introduction

This *Pre-Design Investigation Report* provides a summary of the field activities, and subsequent analysis and evaluation, completed from August 2013 to December 2013, and supplemental investigation work completed during the Summer of 2014 in support of the scope of work under Task 3 and 5 of the Crown Dykman Remedial Design Work Assignment (WA) Amendment (D-007618-22.1), at the former Crown Dykman Site (Site), located at 66 Herb Hill Road in the City of Glen Cove, Nassau County, New York (**Figure 1**).

The work included field and other support activities to complete a pre-design, in-situ chemical oxidation injection test at the site in support of the preferred site remedy, and a supplemental assessment of a potential volatile organic compound (VOC) source area beneath the southwest corner of the site building. The work also included completion of a performance review of the existing site soil vapor extraction system, and indoor air quality assessment of the site building, as summarized below.

2. Site Background and Investigation Objectives

2.1 Site Background

During the period 1987 to 2009, several investigations to determine the environmental conditions at the one-acre Class 2 Inactive Hazardous Waste Site were performed by the Nassau County Department of Health, the property owner, and the New York State Department of Environmental Conservation (NYSDEC) (EEA, 1991; 1996; 1997a; 1997b; Weston, 1997; EEA, 1999; 2000; Walden, 2006; Malcolm Pirnie, 2006; 2009a; 2009b). These investigations identified the presence of soil and groundwater contaminated with tetrachloroethylene (PCE) and associated degradation products, 1,1,1-trichloroethane (TCA), toluene and xylene, associated with historic activities at the Site.

Underground storage tanks (USTs) formerly containing solvents and gasoline were removed from the Site in the early 1990s. In 2005 an Interim Remedial Measure (IRM) was undertaken to remove and dispose of approximately 2,200 tons of contaminated soil from beneath the southern portion of the on-site building's floor slab (Walden Associates, 2006). Post-removal soil samples taken from the southwestern corner of the excavation, near the building's footing, indicated the presence of PCE at concentrations of 290 parts per million (ppm) (Walden Associates, 2006).

Post-IRM investigations identified residual soil and groundwater contamination, including a plume that extended off-site to the south and southwest. A soil vapor extraction (SVE) sub-slab piping system was installed under the on-site building during additional IRM work in 2005 (Walden Associates, 2006). Additional IRM work in 2009 included the installation and operation of an SVE system at the site, connected to the previous sub-slab SVE piping (Malcolm Pirnie, 2009a) to mitigate potential soil vapor intrusion issues associated with the remaining contamination.

In March 2010, the NYSDEC developed a Record of Decision (ROD) to address the remediation of the remaining Site contamination. The ROD required in-situ chemical oxidation (ISCO) of the groundwater plume area with the highest concentrations of chlorinated volatile organic compounds (CVOCs), which are present in the southwestern portion of the Site (**Figure 2**). To accomplish this objective, the ROD includes a provision for "an in-situ chemical oxidation pilot test to determine the necessary injection parameters" to be included in the Site's remedial design. The ROD also includes a provision for continued operation of the existing SVE system to mitigate the potential for soil vapor intrusion within the Site building.

In November 2010, the NYSDEC retained ARCADIS/Malcolm Pirnie, Inc. (Malcolm Pirnie) to develop the design for ISCO of contamination in the plume area, as well as the other remedial elements identified in the ROD. Malcolm Pirnie evaluated the existing data obtained from various historical Site investigations (EEA, 1991; 1996; 1997a; 1997b; Weston, 1997; EEA, 1999; 2000; Walden, 2006; Malcolm Pirnie, 2006; 2009a; 2009b) then developed and implemented an initial ISCO pilot test study in support of the final remedial design for the Crown Dykman Site (ARCADIS/Malcolm Pirnie, 2012a; 2012b).

The initial 2012 Pilot Study included injection of sodium permanganate into the subsurface at the Site using a proprietary injection technology developed by Badger Technologies, Inc. (Badger), using an alternative slotted injection nozzle method (ARCADIS/Malcolm Pirnie, 2012a; 2012b), and through injection into an existing monitoring well at the Site. The Pilot Study concluded that the stratigraphy in the vicinity of the area of greatest chlorinated VOC (CVOC) concentrations limited the applicability of Badger injection technology at the Crown Dykman Site for full-scale implementation. The alternate delivery methods evaluated during the Pilot Test (slotted tip injection and well injection) were generally unsuccessful at introducing permanganate to the subsurface. Therefore, evaluation of additional techniques for ISCO implementation, including injection through purpose-built injection wells, was recommended by the NYSDEC.

2.2 Investigation Objectives

The objectives off the pre-design investigation activities presented herein were to support remedial design and implementation, as specified in the Crown Dykman ROD. These activities included:

1. Implementation of an additional pilot program to evaluate the injection of sodium permanganate into the subsurface via purpose-built injection wells in support of final remedy design; and,
2. A review the performance of the existing soil vapor extraction system (including a general system inspection, radius of influence testing of the sub-slab system, checks of other system operational components, and additional indoor air testing) in support of ROD requirements for soil vapor intrusion mitigation.

In addition, recent groundwater monitoring results, including post-injection monitoring from the 2012 ISCO Pilot and subsequent site monitoring, indicate that a residual

source of CVOC contamination may remain under the foundation of the southwest portion of the site building. As discussed below, elevated concentrations of CVOCs remain present over time in monitoring wells adjacent to the southwestern corner of the site building in the vicinity of, and hydraulically down-gradient from, the 2005 soil removal IRM. Therefore, the NYSDEC recommended a supplemental investigation to evaluate the nature of the residual source beneath the building.

2.3 Report Organization

The specific work assignment tasks and scope of work required to meet the objectives of the investigation are presented in the Comprehensive Scope of Work provided in Schedule 1 of WA D-007618-22.1, and are summarized below. The remainder of this Report is organized as follows:

- **Section 3** presents a summary of the Site characteristics, including a description of the Site geology, hydrology, and distribution of contaminants;
- **Section 4** presents a summary of the ISCO injection well pilot program, including the work performed and results;
- **Section 5** presents the results of the supplemental source investigation within the site building;
- **Section 6** summarizes the review of the Site SVE system;
- **Section 7** summarizes the report findings and conclusions;
- **Section 8** provides recommendations for additional work; and
- **Section 9** provides a list of the references cited in this report.

3. Summary of Site Conditions

The Site (**Figure 2**) is an approximately one-acre commercial property occupied by a former laundry and dry-cleaning facility, which is now used as an automotive repair shop and commercial, water-based laundry. The building consists of a single-story brick and block structure, which is constructed on a concrete slab, with no basement or crawl-space present beneath the building. The Site is bordered on the south and west by Parcels A and B (respectively) of the former Li Tungsten industrial facility, which are now vacant properties under redevelopment. The site is bordered to the north and east by a vacant lot that was previously occupied by the former Konica-Minolta industrial facility, which is currently undergoing redevelopment. An access road to the former Konica-Minolta facility, now owned by the City of Glen Cove, is present along the western boundary of the Site between the Site and the Former Li Tungsten Parcel B (**Figure 2**).

3.1 Surface Topography and Surface Water Features

The ground surface of the undeveloped portions of the Crown Dykman Site exhibit a gradual slope from north to south, with a retaining wall along the southern portion of the site where the ground surface drops off approximately three to four feet near Herb Hill Road. The section of Herb Hill Road in the vicinity of the site occupies a low-lying area that frequently floods after precipitation events.

A small wetland area is present at the southern end of the former Li Tungsten Parcel B, and a flooded drainage ditch is present along the northern side of Herb Hill Road at the southernmost edge of the Site. A small concrete structure is present at the eastern extent of the ditch, from which water flows throughout most of the year (**Figure 2**). A small depression where water flows from is also present in the Access Road just north of MW-21S/D, which ground-penetrating radar data (used for clearing monitoring well locations during this Study) suggests may be from a leaking water line buried beneath the Access Road. During the initial ISCO Pilot Investigation (ARCADIS/Malcolm Pirnie, 2012b) in 2012, the water discharging from this depression in the access road was sampled for VOC/SVOC analyses. The analytical results indicated the presence of trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), and trans-1,2-DCE at estimated values of 0.91, 0.91, and 0.41 ug/l, respectively (ARCADIS/Malcolm Pirnie, 2012b).

3.2 Regional and Site Geology

Surficial geology in the vicinity of the Site consist of deposits associated with the Harbor Hill ground moraine, which at the Site consist predominantly of zones of fine to medium sand, medium to coarse sand, and silty sand with silt lenses (**Figure 3**). The Harbor Hill ground moraine is typically five to 10 feet thick, but can be up to 40 feet thick. Upper Pleistocene age deposits associated with the Ronkonkoma glaciation are deposited beneath the Harbor Hill ground moraine deposits. The Ronkonkoma layer consists of interlayered glacial till and outwash deposits, which are not observed at the Site. The glacial sediments associated with both layers range in thickness from less than 10 feet to over 200 feet in the northern part of Long Island (Kilburn and Krulikas, 1987).

At the Site, the saturated thickness of the moraine units generally decreases from north to south, with the upper sand and silty sand units generally extending to a depth of approximately 35 feet below ground surface (bgs) at the northern portion of the Site to approximately 15 feet bgs south of Herb Hill Road. However, in the vicinity of monitoring well cluster MW-1/1D (boring location SB-14), the saturated aquifer thickness increases where the moraine deposits extend to approximately 43 feet bgs (**Figure 3**) into an apparent trough in the underlying clay unit. The moraine units at the site are generally heterogeneous, with numerous fluvial channels (coarse gravel and sand) cutting through the medium to fine moraine sands. These gravel channels represent preferential groundwater flow paths where saturated. One such gravel layer is present along the western edge of the site building in the vicinity of MW-13, IW-1S, MW-26, MW-27, and MW-28 (**Figure 2**), generally between 18 and 20 feet bgs. The gravel channel present in this area consists of medium to coarse gravels in a coarse sand matrix, contrasting significantly with surrounding material that consists primarily of medium to fine sands and occasional silty sand zones.

Beneath the moraine deposits is an extensive confining unit (Port Washington clay) comprised of clay, silt, and a few layers of sand that correlates to the Pleistocene and Holocene epochs (Kilburn, 1972). **Figure 4** depicts elevation of the top of the Port Washington confining unit in the vicinity of the Site, based on site boring data from the Pilot Study and past investigation data. As shown on **Figure 4**, boring data from wells intersecting the Port Washington clay unit indicates the presence of a northeast to southwest oriented depression (trough) in the clay underlying the southern portion of the Site (see cross-section, **Figure 3**).

Underlining the moraine sediments and Port Washington clay in the vicinity of the site are unconsolidated deposits associated with the Raritan Formation. The lower unit of the Raritan Formation is the Lloyd Sand Member, which is up to 125 feet thick in this portion of Long Island. The Lloyd Sand lies above the bedrock, which is encountered at depths of up to 400 to 500 feet below mean sea level (Smolensky et al., 1989).

3.3 Hydrogeology

3.3.1 Hydraulic Properties of Water Bearing Units

During 2008 slug tests were completed to evaluate the hydraulic conductivity (K) of the fine sand and silty sand water-bearing units in the vicinity of the Site. These tests utilized onsite wells MW-1, MW-1D, MW-2, MW-3, MW-4, MW-7, MW-10S and MW-10D, and offsite wells GM-9, MW-9 and MP-20 (Malcolm Pirnie, 2008). The slug tests included rising-head tests in wells screened across the water table, and both rising- and falling-head slug tests in wells screened below the water table. As shown in Table 1, Hydraulic conductivity values resulting from slug test analysis ranged from an average of 82 ft/day (2.89 x 10-2 cm/sec) in GM-9, to 0.4 ft/day (1.46 x 10-4 cm/sec) in MW-9.

3.3.2 Groundwater Flow Direction

Groundwater levels at the Site range from approximately five to 10 feet below grade in the vicinity of the building and at the southern Site boundary. As shown by the potentiometric groundwater contours presented on **Figure 5**, groundwater generally flows upland areas to the north of the site to the south-southwest toward Glen Cove Creek, at the southern edge of the former Li Tungsten Parcel A. The groundwater gradient slightly decreases beneath the southwestern portion of the building and steepens slightly between the building and Herb Hill Road. Heads in the monitoring well clusters at the southern edge of the site (MW-10S/D, MW-23S/D, MW-25S/D, and the MW-1/1D/1DD cluster) indicate a downward head gradient indicating downward groundwater flow into the clay trough (**Figure 3**).

3.4 Distribution of Groundwater Contaminants

Based on groundwater analytical data from previous investigations at the Site (Malcolm Pirnie, 2009a; ARCADIS/Malcolm Pirnie, 2012b), and the pre-pilot baseline sampling in August 2013 (summarized below and shown on **Figures 6 and 7**), the greatest concentrations of PCE and its degradation products in groundwater at the Site are

present in samples down-gradient from the southwestern corner of the Site building extending off-site to northern portions of the former Li Tungsten Parcel A, and on the eastern portion of the former Li Tungsten Parcel B. Concentrations of PCE and related CVOCs in groundwater extend to a depth of up to 35 feet bgs.

Concentrations of petroleum compounds and measurable light non-aqueous phase liquid (LNAPL) in some monitoring wells in the southwestern area of the site building indicate a petroleum release at the Site. The presence of petroleum in groundwater at the Site may be contributing to conditions favorable to the natural attenuation of CVOCs present in groundwater, as data from previous investigations (Malcolm Pirnie, 2009a; ARCADIS/Malcolm Pirnie, 2012b) shows that degradation of CVOCs in the groundwater is occurring. Concentrations of PCE and TCE in groundwater have generally degraded over time, with site conditions generally favoring cis-1,2-DCE, with some trans-1,2-DCE. However, site conditions have generally limited the production of vinyl chloride.

The extent of CVOCs in groundwater has not been fully delineated to the south and west on former Li Tungsten Parcels A and B, respectively (**Figure 7**). It is likely that PCE and related CVOCs in groundwater are moving to the south and southwest, toward Glen Cove Creek. Dewatering operations on the former Li Tungsten Parcel B during excavation and grading activities there in 2006-2008 may have caused migration of groundwater contaminants from the southwestern area of the Crown Dykman property toward the former Li Tungsten Parcel B.

4. Chemical Oxidation Pilot Study

4.1 Pilot Study Objectives

As summarized in Section 2, Malcolm Pirnie developed and implemented an initial ISCO pilot test study in support of the final remedial design for the Crown Dykman Site (ARCADIS/Malcolm Pirnie, 2012a; 2012b). The initial 2012 Pilot Study included injection of sodium permanganate into the subsurface at the Site using a proprietary injection technology developed by Badger Technologies, Inc. (Badger), and using an alternative slotted injection nozzle method (ARCADIS/Malcolm Pirnie, 2012a; 2012b). The work included installation of an additional monitoring well, completion of the chemical oxidant injections, and evaluation of post-injection analytical sampling. The results and conclusions of the pilot test are presented in the Chemical Oxidation Pilot Study Summary Report submitted to the NYSDEC in August 2012 (ARCADIS/Malcolm Pirnie, 2012b).

Eight direct-push injection points (DPIPs) were installed using the Badger injection equipment within, and upgradient of, the pilot study treatment area shown on **Figure 8**. In addition, an injection point was attempted in the vicinity of a Badger DPIP location using a compressor and a slotted 4-port, direct-push injection tip (ARCADIS/ Malcolm Pirnie, 2012b). Injection of the sodium permanganate solution into an existing monitoring well (MW-10D) using both gravity feed and pressurization of the well were attempted during the initial Pilot Test. The initial Pilot Study concluded that the stratigraphy in the vicinity of the area of greatest CVOC concentrations (**Figure 7**) limited the applicability of Badger injection technology at the Crown Dykman Site for full-scale implementation. The alternate delivery methods evaluated during the Pilot Test (slotted tip injection and well injection) were generally unsuccessful at introducing permanganate to the subsurface.

While the initial Pilot Study results demonstrated that injection (by gravity feed or under pressure) into existing monitoring well MW-10D was not effective, the study concluded that this was likely due to the well construction not being suitable for such a purpose. MW-10D was constructed and designed as a monitoring well, and was not sufficiently developed and hydraulically connected to the aquifer to support injections. The Pilot Study concluded that the use of temporary injection wells, specifically designed with greater diameters and wire-wrapped screens, could potentially increase injectability of the preferred chemical oxidant. Therefore, as part of the next phase of work, the second pre-design Pilot Study summarized herein was implemented to assess the

applicability of introducing sodium permanganate to the subsurface using purpose-built injection wells.

4.2 Summary of Pre-Pilot Test Field Activities

Pre-Pilot Test activities included, groundwater monitoring well and injection well installation, and pre-pilot groundwater analytical sampling. Prior to injection well installation, a private utility locater was subcontracted to locate utilities by way of Ground Penetrating Radar (GPR) and through the use of passive and active signal locating.

4.2.1 Existing Monitoring Well Replacements

During the utility locating field work, it was discovered that an existing monitoring well MW-18 and monitoring well cluster (MW-22S/D) had been damaged and were buried under debris. Initial attempts to locate these wells using the GPR were unsuccessful. The MW-18 location is located hydraulically cross-gradient from the injection wells, with the MW-10 well cluster present between the former MW-18 and injection well IW-1D (**Figure 8**). This location was not critical for injection monitoring during the Pilot Study, and after consultation with the NYSDEC it was decided not to replace the MW-18 location.

In addition to being buried, traffic entering the site routinely cut the corner where the existing MW-22S/D well cluster was located, causing further damage to the wellheads. Upon consultation with the NYSDEC, and due to its importance as a site boundary well downgradient from the injection area, it was decided to replace the MW-22 well cluster. Therefore, two additional wells were drilled and installed at the request of the NYSDEC (MW-22R-S and MW-22R-D) to replace the damaged monitoring well cluster. The MW-22 well cluster replacement wells, MW-22R-S/D were installed just north of the original well cluster, in an effort to move them from the low-lying area where heavy truck traffic turning onto the Access Road appears to have contributed to the destruction of the original cluster (**Figure 8**).

4.2.2 Additional Monitoring Well Installations

During August 2013, two injection wells and one new monitoring well cluster were installed at the Site for the chemical oxidation pilot. The injection and monitoring wells were installed using both rotary drilling techniques (4-¼ inch hollow-stem-augers), and direct-push drilling. During drilling of the injection well locations, continuous split-spoon

and/or direct-push soil sampling was performed from the surface to the total depth of the boring and logged by a field geologist. For the monitoring well clusters, only the deep well was logged during drilling. The boring logs and well construction details are provided in Appendix A.

The injection wells (IW-01S/D) were installed in the vicinity of the MW-10 cluster, as shown on **Figure 8**. The injection wells were constructed using a 10-foot length of 2-inch diameter poly-vinyl chloride (PVC) wire wrapped screen, with a 2-inch schedule 40 PVC riser from the top of the screen interval to ground surface (see Table 2 and Appendix A). The injection wells were screened over 10-foot screened intervals, with one well screened over a shallow interval beginning at the water table, and one in a deep interval generally screened from 20 to 30 feet bgs (see Table 2 and Appendix A). An annular well seal consisting of neat cement was installed above the filter pack to ground surface to reduce the potential for sodium permanganate from preferentially moving up the annulus of the well and breaking through the ground surface during injection (referred to as “short-circuiting”).

To supplement the existing monitoring well network, the new monitoring well cluster, consisting of a shallow and deep screen interval (MW-25S/D) was installed in between the MW-21 and MW-1 well clusters, within the fenced-in area at the southwestern corner of the building (**Figure 8**). The monitoring well clusters were completed in two depth intervals installed in two separate borings, similar to those of the injection wells (see Table 2 and Appendix A).

The injection and monitoring wells were developed to improve their hydraulic properties by removing sediment and clearing the well screen of fine particles. To assess the effectiveness of well development in the injection wells, development was paused, and the well was purged at a constant rate periodically throughout development. During this time, the resultant drawdown in each well was measured to assess changes in estimated well specific capacity (Sc). The well was pumped at the same rate during each test, and Sc was again estimated. As shown in Tables 3a (IW-01S) and 3b (IW-01D), an increase in Sc of the injection wells was observed during development, indicating decreased fines in the well screen filter pack, and a better connection to the aquifer. The Sc of injection well IW-01S increased by approximately 3.5 times from the initial estimate at the start of development (Table 3a). The Sc of injection well IW-01D increased by approximately 1.5 times from the initial estimate at the start of development (Table 3b). Development was considered complete when the turbidity was at a minimum, and no further gains in Sc were observed (Sc increased by at least 100 percent).

4.3 Pre-Pilot (Baseline) Groundwater Sampling and Analysis

Prior to implementing the chemical oxidation pilot, ARCADIS sampled groundwater from eight monitoring locations, including six existing monitoring wells/ well clusters (MW-1S/D/DD cluster, MW-10S/D cluster, MW-13, MW-21S/D cluster, MW-22(R)S/D cluster, MW-24, and MW-25S/D cluster), and the injection wells (shallow and deep) (**Figure 8**). The groundwater samples were submitted to TestAmerica Laboratories, Inc. (TestAmerica) for analysis of Target Compound List (TCL) VOCs by USEPA Method 8260B. During the baseline sampling, all eight of the sampling locations (15 groundwater samples) were additionally analyzed for total organic carbon (TOC), and chemical oxygen demand (COD). The TOC and COD data will be used in support of design of the final remedy for the site. The results of the baseline sampling event and purge logs from this event are summarized in Table 4 and Appendix B (VOCs).

To evaluate geochemical characteristics of the groundwater, and to evaluate the effectiveness of well purging, temperature, pH, oxidation-reduction potential (ORP), specific conductivity, turbidity, and dissolved oxygen (DO) were measured during purging and immediately prior to groundwater sampling. Water Quality parameters measured during the baseline sampling event included pH, which ranged from 6.21 in monitoring well MW-10S and 6.83 in monitoring well MW-24, which generally indicate neutral to slightly acidic conditions throughout most of the treatment area.

The ORP and DO data (Table 5) indicate Anaerobic conditions persist in areas where petroleum products are present (see Section 4.5.2.3), including MW-8, MW-13, and MW-14R (**Figure 8**). The shallow injection well (IW-1S), and areas adjacent to or downgradient from IW-1S are predominantly oxidizing during the post-injection period, including the MW-1/1D/1DD well cluster, the MW-10S/D well cluster, MW-12, the MW-21S/D well cluster, the MW-23S/D well cluster and MW-24 (**Figure 8**). However, the deep injection well (IW-1D) and the MW-25S/D well cluster, located approximately 15 feet downgradient of the injection wells, indicate reducing conditions.

Laboratory results for samples collected during the baseline sampling event are included as Appendix C. These results indicated that cis-1,2-DCE, PCE, TCE, and Vinyl Chloride were the most frequently detected compounds in groundwater samples collected during the baseline sampling event. A majority of the groundwater samples collected during the baseline sampling event, with the exceptions of samples from monitoring wells MW-21S, MW-21D, and MW-22(R)D, had concentrations of all four of these analytes exceeding NYSDEC Class GA standards. The sample from monitoring well MW-21S only exhibited a concentration of PCE exceeding NYSDEC Class GA

standards, and the sample from monitoring well MW-22(R)D only contained a concentration of cis-1,2,-DCE exceeding NYSDEC Class GA standards. The sample from groundwater monitoring well MW-21D contained concentrations of cis-1,2-DCE and Vinyl Chloride that contained concentrations greater than the NYSDEC Class GA standards (**Figure 6**).

Several groundwater samples also contained concentrations of Methylene Chloride which exceeded NYSDEC Class GA standards. These groundwater samples were collected from injection well IW-01S, and monitoring wells MW-1D, MW-1DD, MW-10S, MW-13, MW-21D, MW-22(R)S, MW-24. Samples from groundwater monitoring wells MW-10S and MW-22R-S also contained concentrations of Trans-1,2,-DCE which exceeded corresponding NYSDEC Class GA standards. None of the remaining monitoring or injection wells sampled contained concentrations exceeding corresponding NYSDEC Class GA standards (**Figure 6**).

4.4 Pilot Test Implementation

The sodium permanganate pilot test was completed during the first two weeks of September 2013. During the pilot injections, a stock sodium permanganate solution was used at the site to mix a four-percent solution for injection. The solution (IW-01S and IW-01D) was delivered to the subsurface through the use of a mobile injection skid consisting of two 500-gallon horizontal storage tanks, one chemically compatible double diaphragm pump, well head manifolds, and associated piping and hosing to deliver the solution to the well heads (**Figure 9**).

Sodium permanganate solution was distributed over the 10-foot screen interval with a target injection radius of influence (ROI) of up to 10 feet, with well head pressure not exceeding five pounds per square inch (PSI). Well head manifolds were fitted with a flow control ball valve, a pressure gauge and an overflow valve for pressure relief. Once the system was assembled, it was tested for leaks prior to implementation of permanganate injection using potable water.

4.4.1 Injection Monitoring

Injection performance was monitored through both visual observations, and through measuring water quality parameters in surrounding monitoring well locations, including the proposed monitoring well cluster, and six existing monitoring wells/ well clusters (MW-1 cluster, MW-10 cluster, MW-13, MW-21 cluster, MW-22 cluster, MW-24). These parameters will include turbidity, pH, DO, ORP, temperature, and conductivity

readings, which will assist in assessing breakthrough of sodium permanganate. Summary tables of the injection monitoring data are included in Appendix D.

During the Pilot Test, the ground surface, particularly in those areas around the injection wells and adjacent to built physical features, were monitored to identify any occurrence of the solution leaching through to the surface (referred to as “daylighting”) or short-circuiting from the injection well annulus:

- ARCADIS visually inspected the areas with penetrations through the building floor and exterior ground surfaces adjacent to built physical features during the Pilot Test to monitor for daylighting of the sodium permanganate.
- In addition, ARCADIS visually monitored storm water manholes and catch basins in the adjacent access roadway and along Herb Hill Road during the Pilot Test to monitor them for sodium permanganate daylighting.

Water quality parameters including pH, DO, ORP, and conductivity were also monitored at two feet screen intervals in monitoring wells MW-10S, MW-10D, MW-22S, MW-22D, MW-25S, and MW-25D during the injection process (see Appendix D). The results of the sodium permanganate injections are summarized in Section 4.5, below.

4.4.2 Post-Injection Monitoring

Post-Injection monitoring and groundwater sampling included three sampling rounds at one (October 2013), two (November 2013), and four (January 2014) months following completion of the sodium permanganate injections in September 2013. The monitoring events included groundwater sampling in select monitoring wells to determine the overall effectiveness and reduction of CVOCs. After discussion with, and concurrence of, the NYSDEC, the baseline monitoring well sampling group (see section 4.3, above) was expanded during post-injection sampling events to include sampling four additional well locations (MW-8, MW-12, MW-14R, MW-23S/D), bringing the total number of monitoring locations to 12 (up to 20 groundwater samples). Samples from wells MW-8, MW-12, and MW-14R were included to evaluate VOC concentrations and the continued presence of LNAPL in support of remedy design. The MW-23 well cluster was sampled to further assess potential downgradient movement of the sodium permanganate solution post-injection.

Groundwater was sampled using the USEPA low flow methodology. During the sampling events, groundwater levels were measured in each of the monitoring wells and recorded prior to groundwater sampling using an electronic groundwater interface

probe, which also was used to indicate the potential presence and thickness of LNAPL in the wells. Where LNAPL was identified, the thickness was recorded, and the water levels were corrected accordingly. Wells where sodium permanganate was visibly present (including the injection wells during all post-injection sampling events) were not sampled, as discussed in Section 4.5, below.

The monitoring well samples were submitted to TestAmerica for analysis of TCL VOCs by USEPA Method 8260B. Groundwater parameters, including turbidity, pH, ORP, temperature, and conductivity were measured prior to sampling using a multi-parameter water quality instrument. Laboratory analytical reports from the post-injection rounds are included in Appendix C. The results are summarized below in Section 4.5.

During the November post-injection sampling round, LNAPL from monitoring well MW-8 was sampled and submitted for analysis of additional parameters (ignitability, hydrocarbon identification, viscosity, and specific gravity/density). In addition, groundwater samples from well MW-8 during the November post-injection sampling round were also submitted for analysis of semi-volatile VOCs (SVOCs) using USEPA method 8270C. The analytical laboratory reports are provided in Appendix C. The results are summarized below in Section 4.5.

4.5 Pilot Study Results

4.5.1 Sodium Permanganate Injection

During the pilot pre-design, a mobile porosity of 10 percent was estimated for volumetric calculations as a conservative number these soil types. Based on this assumed mobile porosity, a total injection volume of approximately 2,350 gallons of four-percent solution was anticipated per injection well to achieve the effective ROI, resulting in a total of 4,700 gallons injected between the two injection points. The injections assumed an initial flow rate of up to 1gallon per minute (gpm) per well, with injection in both injection wells simultaneously.

However, during implementation a total of approximately 5,170 gallons of sodium permanganate was injected in 10 batches into injection wells IW-01S and IW-01D simultaneously:

- Approximately 2,066 gallons of solution were injected into IW-01D with flow rates ranging from approximately 1 to 3.3 gallons per minute (gal/min.); and,

- Approximately 3,104 gallons of solution were injected into IW-01S with flow rates ranging from approximately 1.6 to 3.3 gal/min.

The injections were completed over the period of seven days. Slight pressure was observed in injection well IW-01S that remained between 0.5 to 1.0 psi. ARCADIS personnel did not observe day-lighting of the permanganate solution in surrounding wells, in the interior of the building, nor in surrounding catch basins or surface water.

During the injection process, groundwater levels were monitored in several monitoring wells to observe whether solution was entering monitoring wells, resulting in rising water levels. However, during injection water levels remained consistent with static, pre-injection levels and changes in water level were not observed.

Overall there were no significant changes in pH in any of the monitoring wells during the injection process. Conductivity showed slight increases in each of the well screen intervals in monitoring wells MW-10D, and MW-25S and no significant changes in the remaining observed monitoring wells over time. DO showed no significant increases in any of the observed monitoring wells during injection.

As shown on **Figure 10**, sodium permanganate was visibly present in both the shallow and deep injection wells during all of the post-injection monitoring events, and during the July 2014 synoptic sampling round (Section 5). During injection, there was no indication of sodium permanganate in monitoring wells adjacent to the injection wells (including MW-13, MW-10S/D, and MW-025S/D). The presence of sodium permanganate was not observed in any of the site wells during the subsequent three post-injection sampling rounds. Sodium permanganate was first observed in both MW-21S and MW-21D (approximately 20 feet west of the injection wells) and well MW-25S (approximately 15 feet south of the injection wells) during the July 2014 sampling round.

4.5.2 Post-injection Monitoring Results

As discussed above, post-Injection monitoring and groundwater sampling included three sampling rounds at one, two, and fourth months following completion of the sodium permanganate injections in September 2013. The post-injection water quality data (DO and ORP) are summarized in Table 5. The Post-injection analytical data are summarized in Table 6. A discussion of the post-injection data is provided below.

4.5.2.1 Water Quality Parameters

Water quality parameters (Table 5) collected at each well prior to sampling indicated that monitoring wells MW-12, MW-13, MW-22(R)D, MW-22(R)S, MW-24, MW-25D, and MW-25S exhibited negative ORP values. Monitoring wells MW-1, MW-1D, MW-1DD, MW-21D, MW-21S, MW-23D, and MW-23S exhibited positive ORP values. In general, Positive ORP values (>0.0 mV) in conjunction with elevated levels of DO may indicate aerobic conditions and the success of oxidant addition. However, at neutral pH values, measurements below -50 mV can suggest that strongly reducing conditions (iron-reducing, sulphate-reducing or methanogenic) prevail in the groundwater plume. DO measurements of less than 1 ppm suggest that anaerobic conditions may exist.

Anaerobic conditions persist in areas where petroleum products are present (see Section 4.5.2.3), including MW-8, MW-13, and MW-14R (**Figure 8**), while areas adjacent to, or, downgradient from the injection wells are predominantly oxidizing during the post-injection period, including the MW-1/1D/1DD well cluster, the MW-10S/D well cluster, MW-12, the MW-21S/D well cluster, the MW-23S/D well cluster and MW-24 (**Figure 8**). However, monitoring of ORP and DO in the MW-25S/D well cluster, located approximately 15 feet downgradient of the injection wells, indicate that these wells remain reducing.

As shown in the plots provided on **Figure 10**, monitoring wells in the vicinity of the injection wells (including MW-10S, MW-10D, and MW-13) show an increase in oxygenation post-injection that may indicate response to the sodium permanganate injections. In the case of MW-13, reducing conditions were temporarily replaced by oxidizing conditions during the second post-sampling round. However, the presence of petroleum-related compounds in areas upgradient from the injection wells drove conditions anaerobic during subsequent sampling rounds.

Groundwater pH values were relatively neutral throughout the treatment area during this time (Table 5). Values of pH ranged from 6.01 in monitoring well MW-10S to 7.68 in monitoring well MW-25S. This data indicate that changes in ORP are not likely a result of fluctuations in pH within the groundwater plume.

4.5.2.2 Chlorinated VOCs

As shown on **Figure 11** and Table 6, concentrations of CVOCs, including PCE, TCE, cis/trans-1,2-DCE, and vinyl chloride are present in many of the injection pilot

monitoring wells, with cis-1,2-DCE at concentrations in all of the wells sampled exceeding the respective NYSDEC Class GA standard.

The greatest post-injection concentrations of CVOCs are present in wells located adjacent to, or downgradient from, the southwestern corner of the Site building (**Figure 11**). Post-injection concentrations of PCE, TCE, and cis-1,2-DCE were greatest at MW-13, located near the southwest corner of the building, approximately 12 feet upgradient from the shallow injection well. MW-13 is a shallow well screened approximately 7 to 12 feet bgs, across the water table, approximately within the screened interval of the adjacent shallow injection well (8 to 18 feet bgs).

As shown on **Figures 11 and 12**, post-injection concentrations of PCE, TCE, and cis-1,2-DCE from samples in MW-13 have remained at baseline levels, or have risen, during the first two post-injection period following the September 2013 sodium permanganate injections. Baseline cis-1,2-DCE concentrations of 51,000 ug/l (based on sample dilution) rose to 140,000 ug/l during the second post sampling event approximately two months after injection, then exhibiting a slight decrease to 120,000 ug/l in January 2014. The same time period showed an increasing trend in PCE concentrations from a baseline concentration of 7,000 ug/l (based on sample dilution) to 9,600 ug/l in November 2013, continuing to 34,000 ug/l in January 2014. TCE concentrations in MW-13 exhibited a similar trend, increasing to 22,000 ug/l at MW-13 in January 2014 from a baseline concentration of 7,800 ug/l (based on sample dilution). Vinyl chloride concentrations at MW-13 were the greatest observed in the wells sampled during the pilot and remained relatively constant throughout the three post-injection sampling events (ranging from a baseline of 3,000 ug/l to a maximum of 3,800 ug/l in January 2014).

However, during the period from January 2014 to July 2014, post-injection concentrations of CVOCs detected in groundwater at MW-13 exhibited a marked decline (**Figure 12**). Concentrations of PCE and TCE both declined to 4,100 ug/l during the July 2014 synoptic sampling round (Section 5), representing an approximately 88 and 81percent decline in those compounds at MW-13, respectively. Concentrations of cis-1,2-DCE declined to 25,000 ug/l, representing an approximately 79 percent decrease in concentration at MW-13. Concentrations of vinyl chloride during the 2014 synoptic sampling event had declined to a value below the reporting limit (450 ug/l), representing at least an 88 percent decline in concentration.

While CVOC concentrations in MW-13 exhibited the greatest relative declines, trends of CVOC concentrations in other wells, including MW-10S, MW-14R, MW-25S, MW-

23S, MW-23D, MW-24, MW-1DD, MW-22(R)S, and MW-25D, showed a relative decline during the same period. However, other wells exhibited relatively stable CVOC concentrations from September 2013 to July 2014, including MW-8, MW-10D, MW-1D, and MW-22(R)D (**Figure 12**). While MW-21S and MW-21D had slightly increasing and relatively stable CVOC concentrations, respectably, through January 2014, the presence of sodium permanganate in those wells by July 2014 likely indicates the destruction of CVOCs in the vicinity of those wells while the sodium permanganate persists.

4.5.2.3 Other Constituents

Figure 13 provides a summary of other VOC constituents in groundwater during the post-injection sampling rounds. Detected constituents exceeding their respective NYSDEC class GA standards included BTEX compounds (benzene, toluene, ethylbenzene, and m-, p-, and o- xylenes), methyl tert-butyl ether (MTBE), acetone, methylene chloride, dichlorodifluoromethane, 1,1,1-trichloroethane (1,1,1-TCA), and 11-dichloroethane (1,1,-DCA). BTEX compounds were most prevalent in groundwater samples from wells in areas where petroleum products are or were previously present, including MW-8, MW-12, and MW-14R (**Figure 13**).

The greatest concentrations of BTEX compounds were in MW-8, with ethylbenzene ranging from 14 to 130 ug/l, and total xylenes ranging from 120 to 1,400 ug/l in samples from November 2013 and July 2014, respectively. As shown on Table 6, the groundwater sample from MW-8 (November 2013) contained SVOC concentrations of Bis(2-Ethylhexyl) Phthalate, Diethyl Phthalate, and Pentachlorophenol which exceeded NYSDEC Class GA standards. No other SVOC analytes exceeded the NYSDEC Class GA standards.

4.5.2.4 LNAPL Occurrence and Distribution

During this monitoring period, LNAPL was present in monitoring wells MW-6R, MW-16R, and MW-17R with less than 0.01 feet thicknesses. LNAPL was also present in monitoring well MW-8 at a thickness of 0.58 feet (see Table 7). During this sampling round, a sample of the LNAPL in MW-8 was sent to TestAmerica for sample identification and characterization (Appendix C). According to the LNAPL identification results, the LNAPL present in well MW-8 is consistent with gasoline.

During the second-post injection monitoring period, LNAPL was present in monitoring well MW-6R at less than 0.01 feet in thickness MW-16R at 0.07 feet in thickness, MW-17R at 0.08 feet in thickness, and MW-95 at 0.95 feet in thickness (see Table 7).

During the third-post injection monitoring event LNAPL was present in monitoring well MW-8 at a thickness of 0.01 feet in thickness. LNAPL was not present in monitoring well MW-6R, and monitoring wells MW-16R and MW-17R were not measured (see Table 7).

The presence of LNAPL at the Site is consistent with detections of BTEX and other petroleum-related compounds in groundwater. However, as shown on **Figure 14** LNAPL trends in all of the wells indicate that measurable levels of LNAPL are no longer present in wells at the Site.

5. Supplemental Source Investigation

As discussed above, the post-pilot groundwater monitoring results indicated that a residual source of CVOC contamination may remain under the foundation of the southwest portion of the site building despite the soil removal that had been performed previously (Walden Associates, 2006). This may be contributing to the continued high concentration of CVOCs in the vicinity of MW-13. The continued presence of such CVOC groundwater concentrations could adversely affect the effectiveness of the selected remedy for the site. Therefore, to further evaluate CVOC concentrations under the foundation and beneath the formerly excavated area of the Crown Dykman building, four new monitoring wells were installed in the storage room located at the southwestern corner of the building (Figure 2) during July 2014.

In addition, an additional synoptic groundwater sampling effort was completed to include all new and existing wells at the site and adjacent properties associated with the former Li Tungsten property, as discussed below. The supplemental investigation included a review of all existing site wells in an effort to assess the presence and condition of the Site wells, and their viability for use in the monitoring well network. This included wells that were previously thought to be damaged or destroyed by Site activities (MW-5, MW-4, MW-3, MW-18, and the MW-22S/D cluster), or by construction or demolition activities on adjacent sites (MP-20 and GM-1 on the former Li Tungsten Parcel A). A summary of the work performed, and the investigation results is provided below.

5.1 Building Interior Soil Boring and Monitoring Well Installations

Four additional groundwater monitoring wells (MW-26, MW-27, MW-28, and MW-29) were installed through the building slab using direct-push drilling techniques and were completed at the surface with a flush-mount cover installed in the concrete slab (Figure 3). During drilling, continuous direct-push soil cores were collected and screened using a PID from the surface to the total depth of the boring. Soil grab samples were collected from each boring within the depth interval where the PID indicated the presence of volatile constituents or at the water table if no PID detections are noted, as described in the boring logs in Appendix A. The soil samples were analyzed for TCL VOCs by USEPA Method 8260B. The analytical results from the soil samples are summarized on **Figure 15** and in Table 8 and are discussed below. The laboratory reports are provided in Appendix C.

Well construction details for each of the interior wells is provided on the well logs in Appendix A and summarized in Table 2. The monitoring wells were constructed using a 10-foot length of 2-inch diameter PVC machine-slotted screen (0.010-inch slot), with a 2-inch schedule 40 PVC riser from the top of the screen interval to ground surface (see Table 2 and Appendix A). The wells were screened over a 10-foot shallow interval beginning at, or just above, the water table (see Table 2 and Appendix A), which was generally encountered between approximately six and seven feet below grade within the building. An annular well seal consisting of cement-bentonite grout was installed above the filter pack to ground surface.

The monitoring wells were developed to improve their hydraulic properties by removing sediment and clearing the well screen of fine particles through simultaneous well surging and pumping. After completion of well development, the wells were sampled for TCL VOCs by USEPA Method 8260B as part of the synoptic groundwater monitoring event discussed below.

5.2 Monitoring Well Assessment

During July 2014, prior to groundwater sampling, the condition of each well at the Crown Dykman site, and off-site wells associated with the Crown Dykman investigation (MP-20 and GM-1 on the former Li Tungsten Parcel A south of the Site; GM-9 and MW-9 on the former Li Tungsten Parcel B west of the Site) was assessed.

The results of the well assessment are summarized on Table 9. Of the 38 on-site wells and four off-site wells, only two wells were not found during the assessment, due to the presence of debris over their presumed location. These included well MW-5 at the northern (upgradient) end of the site, and GM-1 at the northeastern corner of the former Li Tungsten Parcel A (Table 9). However, during the well assessment, ARCADIS field personnel were able to locate the formerly lost well cluster MW-22S/D, which was found intact after a significant effort. MW-18 was also located. Although is both instances the wells had been buried under debris, the field personnel were able to locate them, and the wells were viable for use in subsequent sampling during the synoptic event.

5.3 Groundwater Sampling and Analysis

A synoptic groundwater sampling round was completed at the Site in July 2014 during the well installation field effort. Groundwater was sampled from the new building interior wells, and all viable monitoring locations on the Crown Dykman Site and adjacent

properties associated with the former Li Tungsten Facility (Li Tungsten Parcels A and B. The groundwater samples were analyzed for TCL VOCs by USEPA Method 8260B. A total of 34 of the 40 available wells were sampled during the July 2014 synoptic sampling event. The injection wells (IW-01S/D), the MW-21S/D well cluster, and well MW-25S were not sampled due to the presence of sodium permanganate at those locations. The groundwater sampling results are summarized on **Figure 16**.

5.4 Analytical Sampling Results

5.4.1 Soil Sampling Results

Soil sampling results (Table 8 and **Figure 15**) show that significant concentrations of PCE are present in the soil below the site building, within the area of the 2005 IRM excavation (Walden Associates, 2006). Soil samples from the well MW-27 boring, which was installed in the vicinity of the southwestern corner of the 2005 IRM excavation (where post-removal soil samples indicated PCE at 290 ppm in soil), yielded the greatest concentrations of PCE and TCE in soil, at 24,000 ppm and 300 ppm, respectively (11-12 feet bgs). Concentrations of PCE in soil at that same location were 110 ppm at the sample interval above (6-7 feet bgs). Such concentrations of PCE in the soil at MW-27 indicate the presence of free-phase PCE within this boring. Concentrations of PCE at 150 ppm and 180 ppm (8-9 feet bgs and 10-11 feet bgs, respectively) were present in soil at MW-28, within the building approximately 10 feet west of MW-27 (**Figure 15**). The PCE concentrations exceed both the NYSDEC Unrestricted Use (1.3 ppm) and Commercial (150 ppm) soil cleanup objectives (SCOs) at both sampling intervals in MW-28, and at the deep sampling interval (11-12 feet bgs) in MW-27.

At the other two boring locations (MW-26 and MW-29), installed north of MW-27 and MW-28 (**Figure 15**), concentrations of CVOCs were significantly lower. At both locations, only one interval was sampled above the water table in each (7-8 feet bgs). Concentrations of PCE in soil in MW-26 were below the Unrestricted SCOs for PCE at both boring locations.

In addition to CVOCs, BTEX compounds, including ethylbenzene and xylenes, were present in soil samples from all four boring locations within the building (**Figure 15**). At MW-26 and MW-29, both ethylbenzene and total xylene concentrations exceeded their respective Unrestricted Use SCOs (1ppm and 0.26 ppm, respectively) in the soil sampled at the water table (7-8 feet bgs). Total xylene concentrations were also

present in both sample intervals at MW-27, at levels exceeding the respective Unrestricted Use SCO (Table 8).

5.4.2 Groundwater Sampling Results

The results of the July 2014 sampling round were consistent with previous post-injection sampling rounds; however, this round included all viable Site wells, including the three new wells installed within the building. As shown on **Figure 16** and summarized in Table 6, concentrations of CVOCs, including PCE, TCE, cis/trans-1,2-DCE, and vinyl chloride are present in many of the injection pilot monitoring wells, with cis-1,2-DCE at concentrations in all of the wells sampled exceeding the respective NYSDEC Class GA standard.

The greatest concentrations of CVOCs were present in the groundwater sample from the new well MW-27, located within the building near the southwest corner (**Figure 16**), with PCE detected at 150,000 ug/l, TCE at 130,000 ug/l, cis-1,2-DCE at 130,000 ug/l, and vinyl chloride at 4,900 ug/l in groundwater (all based on sample dilution). The other three new wells within the building also contained CVOCs at concentrations greater than previously (or concurrently) observed in MW-13 (**Figure 16**). These included PCE, TCE, cis-1,2-DCE, and vinyl chloride at 77,000 ug/l, 28,000 ug/l, 110,000 ug/l and 3,000 ug/l, respectively (**Figure 16** and Table 6).

As discussed above (Section 4) concentrations of CVOCs in MW-13 showed a decrease from the January 2014 sampling data, with concentrations of PCE and TCE during July 2014 both at 4,100 ug/l, and cis-1,2-DCE at 25,000 ug/l (**Figure 16** and Table 6). These values were less than those in MW-26, located along the western wall of the storage area within the building, just upgradient from MW-13, which yielded concentrations of PCE, TCE, cis-1,2-DCE, and vinyl chloride of 8,100 ug/l, 5,500 ug/l, 54,000 ug/l, and 3,600 ug/l, respectively (based on sample dilution).

The distribution of CVOCs in the remaining Site wells is consistent with previous post-injection sampling rounds. Based on the presence and distribution of CVOCs (**Figure 16**) in wells down-gradient from the presumed source area (in the southwestern corner of the building), the CVOC plume in groundwater is moving to the south and southwest, consistent with groundwater flow patterns at the Site (**Figure 5**). Based on the vertical distribution of CVOCs in the downgradient area (MW-1, MW-22, and MW-22(R) well clusters), it is apparent that the plume is increasing in depth toward the southern edge of the property (**Figure 16**). This is also consistent with vertical groundwater gradients observed at the Site.

In addition, concentrations of CVOCs were present in the groundwater sample from MW-11, which is present to the north of the presumed source area, at the northwestern corner of the western half of the Site building (**Figure 16**). PCE and TCE were not detected in this well, however, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride were present at concentrations of 1,400 ug/l, 11, ug/l, and 450 ug/l, respectively. Lower concentrations of cis-1,2-DCE and vinyl chloride were present in MW-8 (south of MW-11, between MW-11 and the presumed source area at the southwestern corner of the building), at 190 ug/l and 38 ug/l, respectively. PCE and TCE were not present in the groundwater sample from MW-8. It is likely that the presence of cis-1,2-DCE and vinyl chloride in the vicinity of these wells are remnants of a previous migration of CVOCs into the vicinity from the source area under different hydraulic conditions.

Other constituents present in groundwater samples, exceeding their respective NYSDEC class GA standards, included BTEX compounds (benzene, toluene, ethylbenzene, and m-, p-, and o- xylenes), methyl tert-butyl ether (MTBE), acetone, methylene chloride, dichlorodifluoromethane, 1,1,1-trichloroethane (1,1,1-TCA), and 11-dichloroethane (1,1,-DCA). BTEX compounds were most prevalent in groundwater samples from wells in areas where petroleum products are or were previously present, or within the southern portion of the Site building (including MW-8, MW-12, MW-14R, MW-26, MW-27, MW-28, AND MW-29, as shown on **Figure 16**).

The greatest concentrations of BTEX compounds were in MW-8, with ethylbenzene ranging from 14 to 130 ug/l, and total xylenes ranging from 120 to 1,400 ug/l in samples from November 2013 and July 2014, respectively. As shown on Table 6, the groundwater sample from MW-8 (November 2013) contained SVOC concentrations of Bis(2-Ethylhexyl) Phthalate, Diethyl Phthalate, and Pentachlorophenol which exceeded NYSDEC Class GA standards. No other SVOC analytes exceeded the NYSDEC Class GA standards.

During the July 2014 sampling round, LNAPL was not observed in site wells at measurable thicknesses. As with trends during previous sampling rounds (see Section 4.5.2.4), measurable levels of LNAPL are no longer present in wells at the Site.

6. Soil Vapor Extraction System Performance Review

ARCADIS reviewed the performance of the existing SVE system, which included a general system inspection, checks of other system operational components, and a review of past system operational data. As an additional evaluation of SVE system performance, indoor air and sub-slab vapor samples were collected in accordance with NYSDEC DER-10 and the Final New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH Guidance), dated October 2006.

6.1 SVE System Overview

A limited remedial action was performed at the Site in 2004 in the southwestern corner of the building that included excavation of some soil in the southwestern corner of the building, and installation of sub-slab piping intended for a depressurization system to mitigate contamination not removed during the excavation. However, subsequent confirmation sampling of the excavation showed that not all of the contaminated soil was removed. Based on the results of the investigation, a “sub-slab venting system” (Walden Associates, 2006), which consisted of 2-inch perforated PVC piping was installed prior to installing a new floor slab in the excavated area. The existing sub-slab piping is shown on **Figure 17**.

Based on the results of a sub-slab piping system evaluation completed in 2008 (Malcolm Pirnie, 2008), a depressurization system that utilized the existing sub-slab piping system was designed and installed to operate at the Site. The system was installed in December 2008, after review and approval of the system design by the NYSDEC. The system consists of a regenerative blower, control equipment, and a carbon canister effluent treatment system installed on a skid-mounted platform outside of the building adjacent to the western wall inside a fenced storage area. It is connected to the existing sub-slab piping system by piping installed through the wall. System operation was initiated on December 30, 2008, after completion of a pre-startup testing phase (Malcolm Pirnie, 2008). Between 2008 and 2013, system operation, maintenance and performance monitoring were performed by EAR.

During the 2008 investigation, ten sub-slab soil vapor monitoring points were installed to allow sub-slab soil vapor sampling and SVE system performance monitoring via pressure readings (Malcolm Pirnie, 2008). These points were evaluated and reviewed for their use in monitoring and sampling during this performance review, as discussed below.

6.2 SVE Performance Review

Prior to evaluating current system performance, a review of system construction (including any changes from as-built drawings) maintenance records, the system alarm history, and overall system energy usage was completed. These included operational records provided by EAR, the NYSDEC Callout Contractor overseeing system operation.

On December 5, 2013, ARCADIS visited the Site to evaluate the SVE system performance. While on site, system components were inspected for:

- Damaged, missing, loose, or corroded components or fasteners;
- The presence and proper installation of equipment safety guards;
- The presence and condition of appropriate signs and warning labels
- Integrity of piping and connections of sub-slab extraction lines and electrical conduit.

In addition, system-critical function and system operation tests were completed, as well as screening of pre- and post-carbon effluent using a photoionization detector (PID). Subsequently, a qualitative analysis of the SVE system's energy usage was conducted.

6.3 Indoor Air Quality Assessment

During the second post-injection groundwater monitoring event in November 2013, indoor air and sub-slab vapor was sampled while the SVE system was in operation. The indoor air and sub-slab vapor samples were analyzed by TestAmerica for VOCs using the United States Environmental Protection Agency (USEPA) Method TO-15. Each canister was evacuated and certified as analyte-free by the laboratory prior to use at the site. A flow regulator was attached to each canister to control the rate at which the sample will be collected, and was equipped with a filter to prevent particulate matter from entering the canister.

Six indoor air samples were collected over an 8-hour period using 6-liter Summa canisters (**Figure 18**). A background (outdoor) air sample was also collected in the same manner as the indoor air samples (**Figure 18**). The sub-slab vapor sampling was performed concurrently with the indoor and ambient air sampling. Ten existing soil

vapor monitoring points used during the 2008 remedial site investigation were evaluated for use as sub-slab soil vapor sampling points (**Figure 18**).

New sub-slab vapor monitoring points were installed where the existing points could not be located or were damaged. The new points were located within the same vicinity of the existing locations and were installed in accordance with the methods recommended by the NYSDOH Guidance. Each soil vapor point was sampled over a period of up to two-hours using a 6-liter Summa canister. Prior to sampling, the seal of each sub-slab vapor sampling point (including both existing and replacement points) was evaluated for adequacy by means of a Helium tracer gas test, in accordance with the methods recommended by the NYSDOH Guidance. After successful completion of tracer gas testing, the sub-slab vapor point was properly purged prior to sampling.

The air sampling results are summarized in Table 7 and laboratory results are included in Appendix C. As shown on Table 7, the CVOC target analytes including PCE, TCE, Trans-1,2-DCE, Cis-1,2,-DCE, and Vinyl Chloride have decreased in the majority of sub-slab vapor point locations since 2008. The only sub-slab vapor point that showed an increase in CVOCs was the soil vapor sample collected from SS-7. All other soil vapor points showed either a decrease or had very low concentrations of CVOC compounds.

Indoor air samples also showed a decrease in CVOC target analytes since 2008. PCE and TCE decreased in all six indoor air sampling locations. Trans-1,2-DCE and Vinyl Chloride remained undetected. Cis-1,2-DCE also showed decreases in CVOCs in the air samples collected at locations IA-2 and IA-3, and showed consistent very low or non-detect concentrations in the remaining indoor air sampling locations.

7. Summary and Conclusions

7.1 Pre-Design Chemical Oxidation Pilot Performance

During implementation a total of approximately 5,170 gallons of sodium permanganate was injected over the period of seven days into the purpose-built injection wells, thus establishing that this is a viable delivery system for permanganate injection at the site.

During injection, there were no immediate indications of injection response in adjacent observation wells. However, while sodium permanganate was not observed in any of the site wells during the subsequent three post-injection sampling rounds, it was ultimately observed in both MW-21S and MW-21D (approximately 20 feet west of the injection wells) and well MW-25S (approximately 15 feet south of the injection wells) during the July 2014 sampling round.

While post-injection water quality monitoring ORP levels indicated a change from reducing to oxidizing conditions in some portions of the treatment area, in other area there were no indications of a change in groundwater chemistry. Groundwater pH values were relatively neutral throughout the treatment area during monitoring, indicating that changes in ORP were not likely a result of fluctuations in pH within the groundwater plume. While anaerobic conditions persist in areas where petroleum products were present, areas adjacent to, or downgradient from the injection wells were predominantly oxidizing during the post-injection period. Monitoring wells in the vicinity of the injection wells, including MW-10S, MW-10D, and MW-13 also showed an increase in oxygenation post-injection that may indicate response to the sodium permanganate injections. However, conditions in the MW-25S/D well cluster, located approximately 15 feet downgradient of the injection wells, indicate that these wells remained reducing through the first three post-injection monitoring events.

While post-injection concentrations of PCE, TCE, and cis-1,2-DCE from samples generally remained at baseline levels, or rose slightly, during the first two post-injection period following the September 2013 sodium permanganate injections, during the period from January 2014 to July 2014, post-injection concentrations of CVOCs detected in groundwater showed declines in a number of monitoring wells in the vicinity of the injection area. In some instances (such as in MW-13), concentrations of PCE and TCE both exhibited an approximately 88 and 81percent decline, respectively. Concentrations of cis-1,2-DCE at MW-13 also exhibited an approximately 79 percent decrease in concentration at MW-13. While CVOC concentrations in MW-13 exhibited the greatest relative declines, trends of CVOC concentrations in other shallow-zone

wells also showed a relative decline during the same period. However, deep-zone wells exhibited relatively stable CVOC concentrations from September 2013 to July 2014.

These results are consistent with the heterogeneity observed in the geologic units at the site. High and low permeability units are interspersed throughout the site, resulting in preferential flow paths that can affect the distribution of the permanganate once injected. Such effects were also observed during the first chemical oxidation pilot, where the injection technology used had difficulty distributing the sodium permanganate evenly throughout the subsurface.

Based on the data and observations presented herein, introduction of sodium permanganate to the subsurface via purpose-build injection wells would be an effective technology to implement the ISCO strategy presented in the ROD for the Crown Dykman Site. However, the presence of significant heterogeneity and preferential flow paths may reduce the overall effectiveness of the ISCO remedy, as some areas of the subsurface may prove recalcitrant to in-situ chemical oxidation.

7.2 Supplemental Investigation

Soil sampling results show that significant concentrations of PCE are present in the soil below the site building, within the area of the 2005 IRM excavation (Walden Associates, 2006). Soil samples from the well MW-27 boring, which was installed in the vicinity of the southwestern corner of the 2005 IRM excavation yielded the greatest concentrations of PCE and TCE in soil, at concentrations indicative of free-phase PCE within the soil in this area. In addition to CVOCs, BTEX compounds, including ethylbenzene and xylenes, were present in soil samples from all four boring locations within the building.

Based on the results of groundwater sampling within the monitoring wells installed within the building, the presence of the petroleum compounds is likely creating subsurface conditions favorable to degradation of the PCE to cis-1,2-DCE in groundwater within this presumed source area. However, while there are significant concentrations of vinyl chloride observed in groundwater in the vicinity of the source area, the presence of this constituent is likely due to the mass of cis-1,2-DCE present and available for degradation.

The low groundwater gradient beneath this portion of the building, and the continued presence of a potential NAPL source of PCE in the vicinity, is contributing to the

continued presence of CVOCs in both soil and groundwater beneath the southwestern corner of the site building. This area acts as a source for the groundwater plume that must be addressed. While the results of the pre-design chemical oxidation pilot indicate that chemical oxidation would likely be an effective remedial solution for the groundwater plume if implemented in full-scale, the presence of a continuing source area would undermine the effectiveness of the remedy and would likely lengthen the remedial timeframe if not addressed.

7.3 LNAPL Distribution and Trends

LNAPL was present in monitoring wells MW-6R, MW-8, MW-16R, and MW-17R during the initial sampling rounds, however, by July 2014 there were no measurable thicknesses of LNAPL present in the Site wells. LNAPL characterization of a sample in well MW-8 is consistent with gasoline. While presence of LNAPL at the Site was consistent with detections of BTEX and other petroleum-related compounds in groundwater, LNAPL trends in all of the wells appear to indicate that measurable levels of LNAPL are no longer present in wells at the Site.

7.4 SVE System

Based on the indoor air and sub-slab soil vapor sampling results, it appears that CVOCs in indoor air and in the sub-slab vapor have mainly decreased. The only sub-slab soil vapor point of concern is SS-7. This soil vapor point showed increases in CVOCs. This soil vapor point is located in the auto repair shop and its increase in CVOCs is most likely attributed to a confounding source associated with auto-repair activities taking place in the area. If the SVE system will remain in operation in its current configuration during and after the remedial activities at the site, some modification to the existing equipment could be made to minimize maintenance issues and reduce the long-term energy usage.

8. Recommendations

The following recommendations have been developed based upon the results of the investigations discussed herein and the approach indicated as preferred by the NYSDEC's project representatives:

- In the near term, it is recommended that an evaluation of remedial alternatives to potentially implement at the site be conducted to identify the option which will facilitate achievement of the established remedial objectives in the shortest timeframe and most cost-effective manner that is practicable. The data collected during the investigations described herein should be used as a basis of this evaluation;
- Since measurable levels of LNAPL are no longer present in wells at the Site, it is recommended that implementation of the LNAPL recovery element of the remedy, as identified in the ROD, be deferred for the present time;
- The examination of the SVE system identified some potential equipment modifications which could be implemented to alleviate certain recurring maintenance issues. In addition, the qualitative energy usage analysis indicated that the existing system could be retrofitted to provide long-term energy savings. However, it is not recommended that any action to upgrade or retrofit the SVE system be undertaken at this time. Instead, it is suggested that the selection of the preferred remedial approach be completed first, as a number of the potential remedial options will affect the SVE system and its performance objectives. Subsequent to identification of the remedial approach, improvements to the SVE system can be examined and evaluated in the context of the overall remedy, and any enhancements to it can be designed and implemented as part of the remedial construction.

9. References

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Infrastructure · Water · Environment · Buildings

Pre-Design Investigation Report

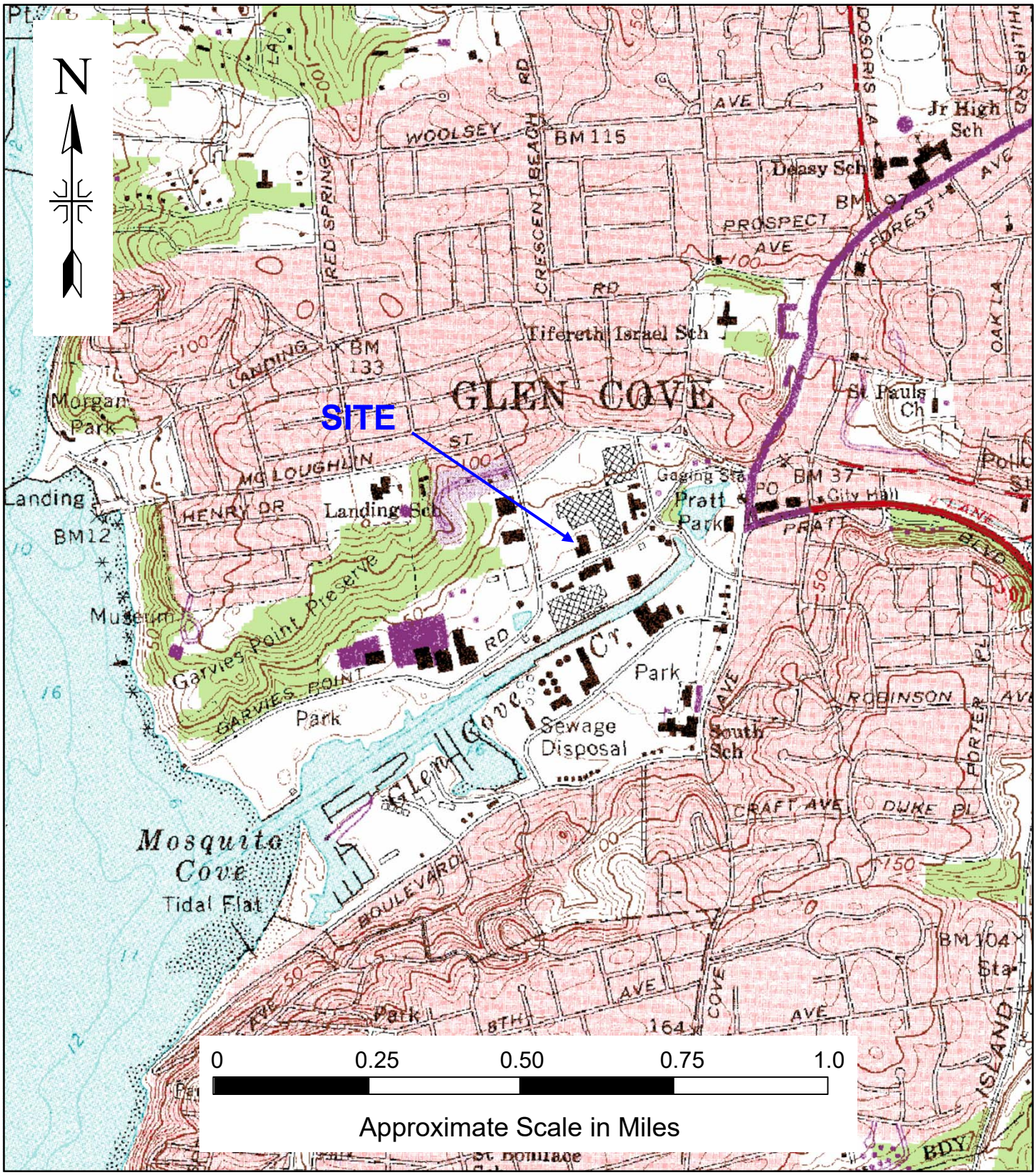
Crown Dykman (Site #130054)
Glen Cove, Nassau County, New York

Figures

ARCADIS
Infrastructure · Water · Environment · Buildings

Figure 1
Site Location

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York



FORMER KONICA MINOLTA PROPERTY

FORMER KONICA MINOLTA PROPERTY

FORMER LI TUNGSTEN PARCEL B

ACCESS ROAD

STORAGE

STORAGE TRAILER

STORAGE TRAILER

BOILER

STORAGE/ SUMP

OVERHEAD DOOR

OFFICE

Laundry Facility

Laundry Facility

Volvo Repair Garage

Storage Area

MW-3

MW-4

MW-5

MW-2

MW-6R

MW-7

MW-8

MW-9

MW-10D

MW-10S

MW-11

MW-12

MW-13

MW-14R

MW-15R

MW-16R

MW-17R

MW-18

MW-19

MW-20

MW-21D

MW-21S

MW-22D

MW-22S

MW-22(R)D

MW-22(R)S

MW-23D

MW-23S

MW-24

MW-25D

MW-25S

MW-26

MW-27

MW-28

MW-29

MW-1D

MW-1DD

IW-01D

IW-01S

GM-1

GM-9

MP-20

W

W

W

HERBHILL ROAD
(GARVEYS POINT ROAD)

FORMER LI TUNGSTEN PARCEL A

N

0 30 60

Approximate Scale in Feet

LEGEND

- W — UNDERGROUND UTILITY ACCESS (WATER)
- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- 2005 IRM EXCAVATION AREA/ SVE SYSTEM SUB-SLAB PIPING
- MW-13 — GROUNDWATER MONITORING WELL
- GM-1 — DAMAGED/MISSING WELL LOCATION
- IW-01S — PERMANGANATE INJECTION WELL

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Site Plan

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2
FIGURE

ARCADIS
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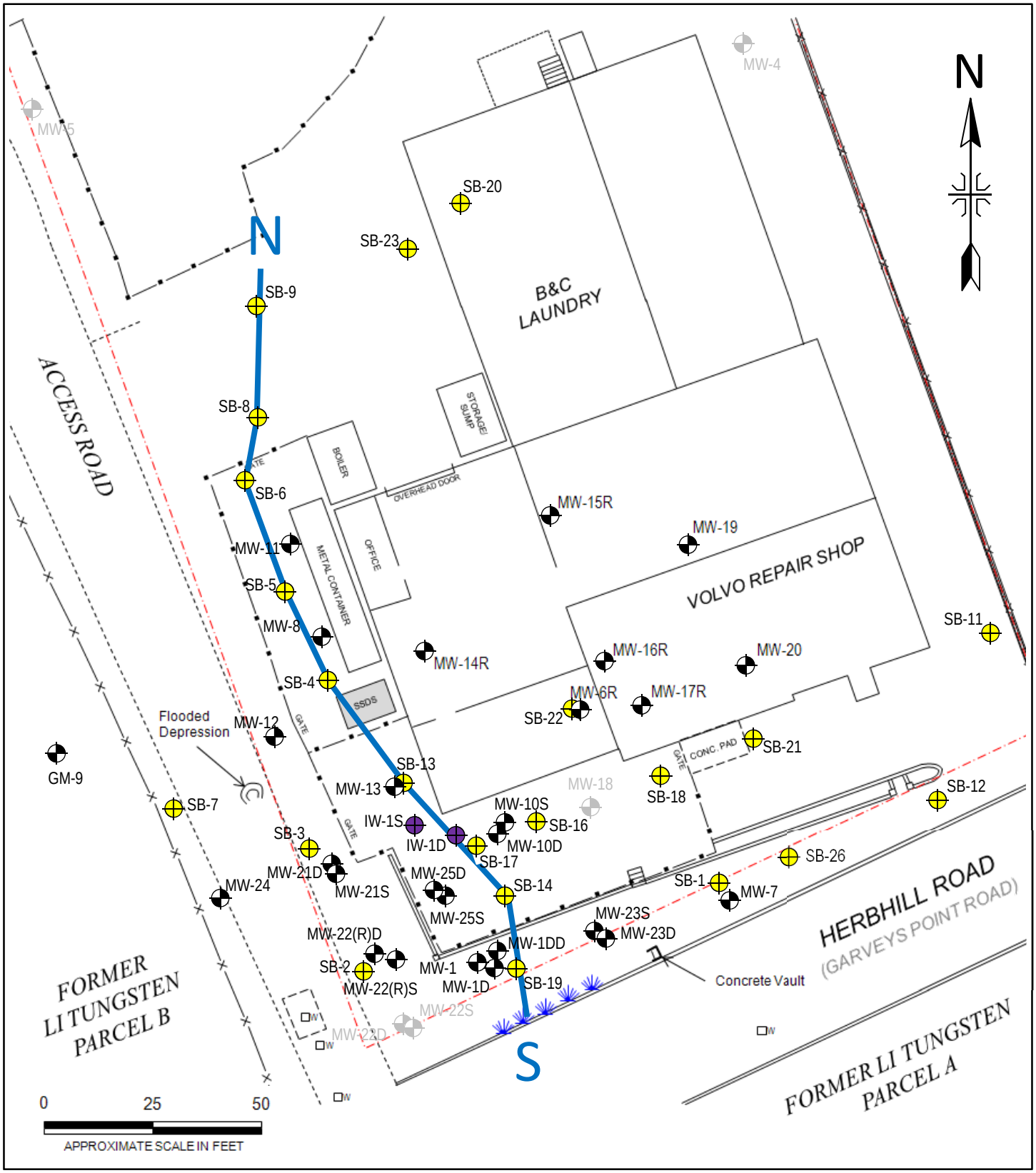
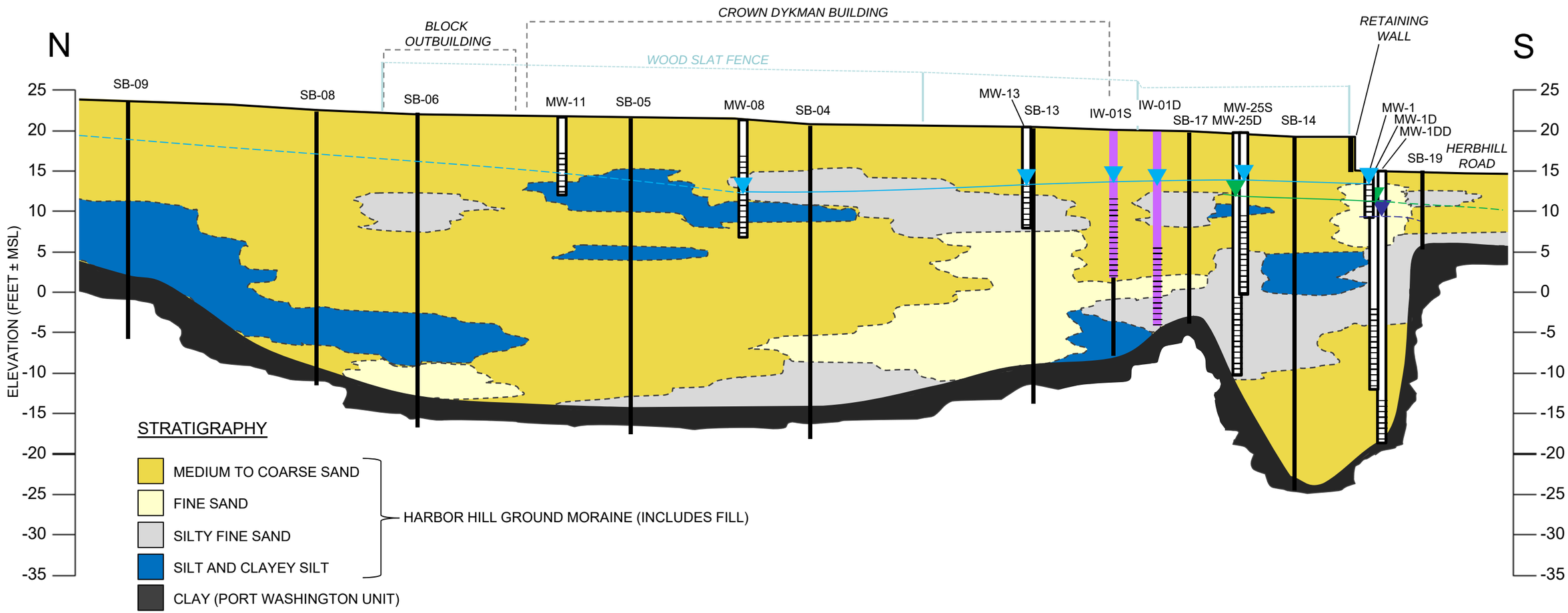
Figure 3a
Geologic Cross-Section Location
(Cross-Section N-S)

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York





STRATIGRAPHY

- MEDIUM TO COARSE SAND
- FINE SAND
- SILTY FINE SAND
- SILT AND CLAYEY SILT

HARBOR HILL GROUND MORAINE (INCLUDES FILL)

- CLAY (PORT WASHINGTON UNIT)

LEGEND

- GROUNDWATER TABLE (DASHED WHERE INFERRED)
- WELL WATER LEVEL OBSERVATION

SOIL BORING

SB-22 IDENTIFIER

BORING

MONITORING WELL

MW-08 IDENTIFIER

RISER

SCREENED INTERVAL

ISCO INJECTION WELL

IW-01S IDENTIFIER

RISER

INJECTION INTERVAL

NOTES

1. **CROSS-SECTION INFORMATION FROM 2008-2009 REMEDIAL INVESTIGATION DATA, INCLUDING DIRECT-PUSH SOIL BORINGS AND GROUNDWATER MONITORING WELL BORING LOGS (MALCOLM PIRNIE, INC, 2009a).**
2. **GROUNDWATER ELEVATIONS FROM NOVEMBER 2013 POST-PILOT GROUNDWATER SAMPLING EVENT.**

0 12.5 25

APPROXIMATE SCALE IN FEET (1" = 12.5')
NO VERTICAL EXAGGERATION

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Geologic Cross-Section (North-South)

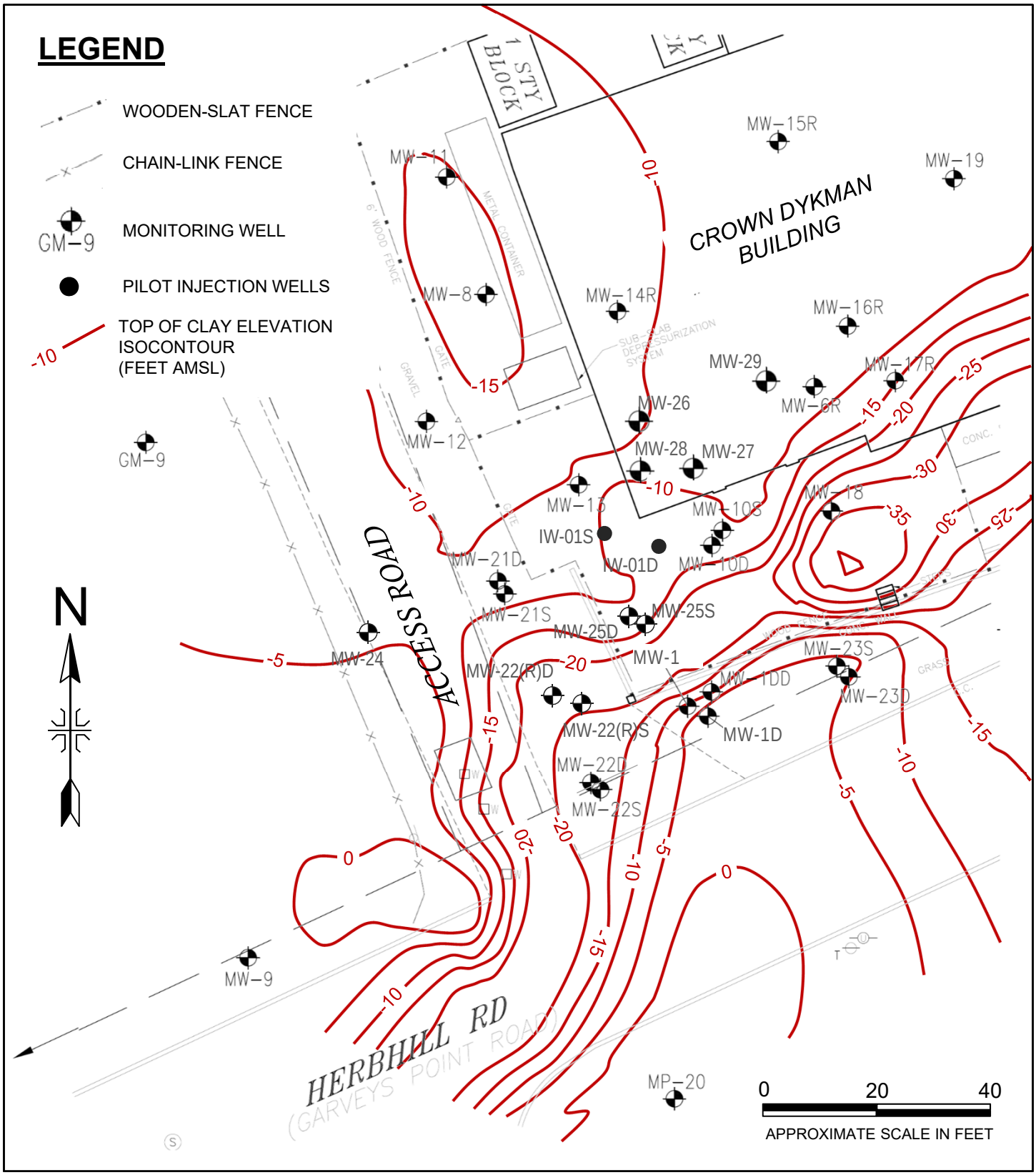
ARCADIS
Infrastructure · Water · Environment · Buildings

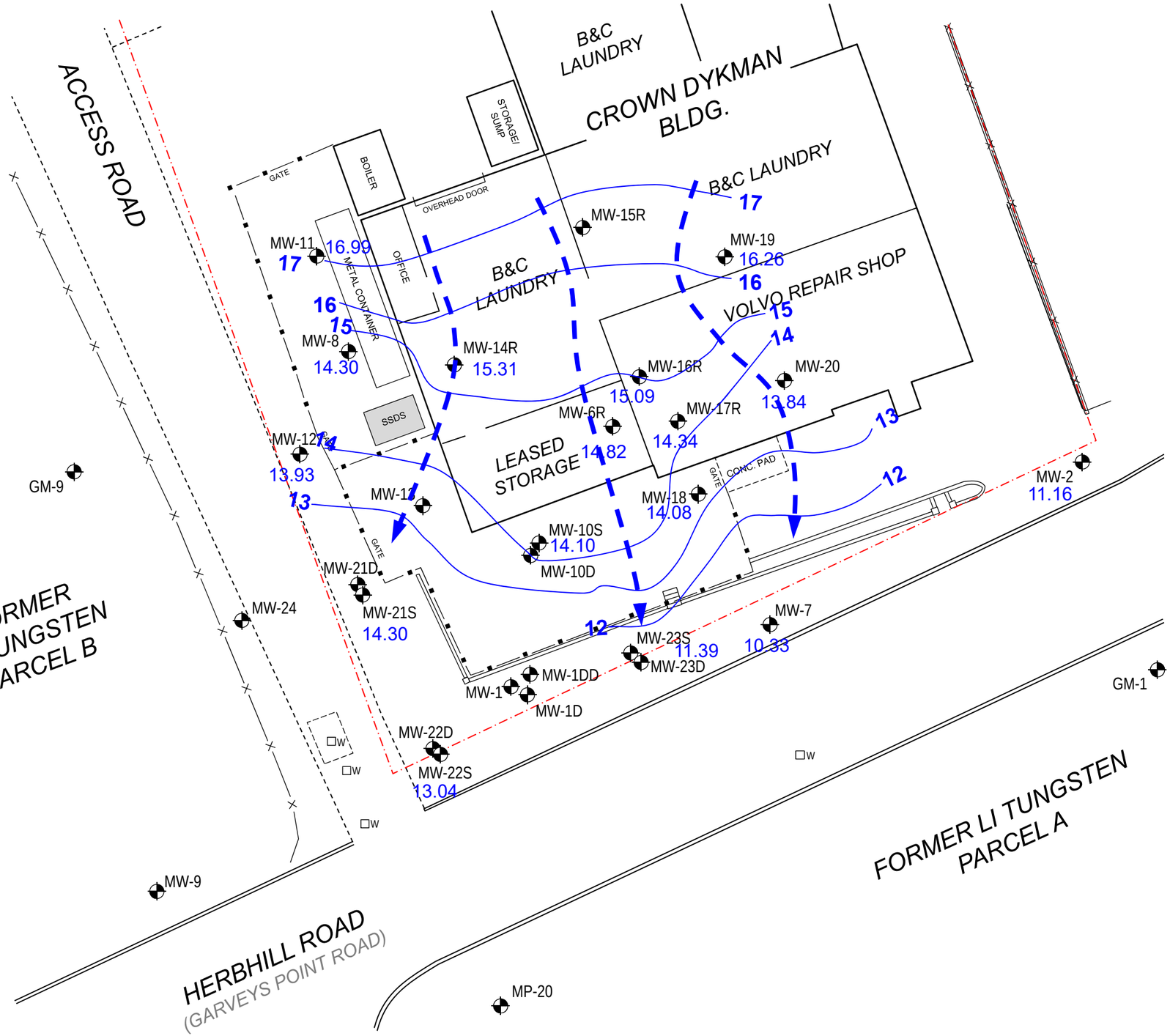
3b
FIGURE

ARCADIS
Infrastructure · Water · Environment · Buildings

Figure 4
Port Washington Clay Surface
(Top of First Confining Unit)

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York





LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 — GROUNDWATER MONITORING WELL
- 17 — POTENTIOMETRIC CONTOUR (Feet AMSL)
- 16.99 — GROUNDWATER ELEVATION (Feet AMSL)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

N

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Groundwater Potentiometric Surface
Shallow Wells
July 2014

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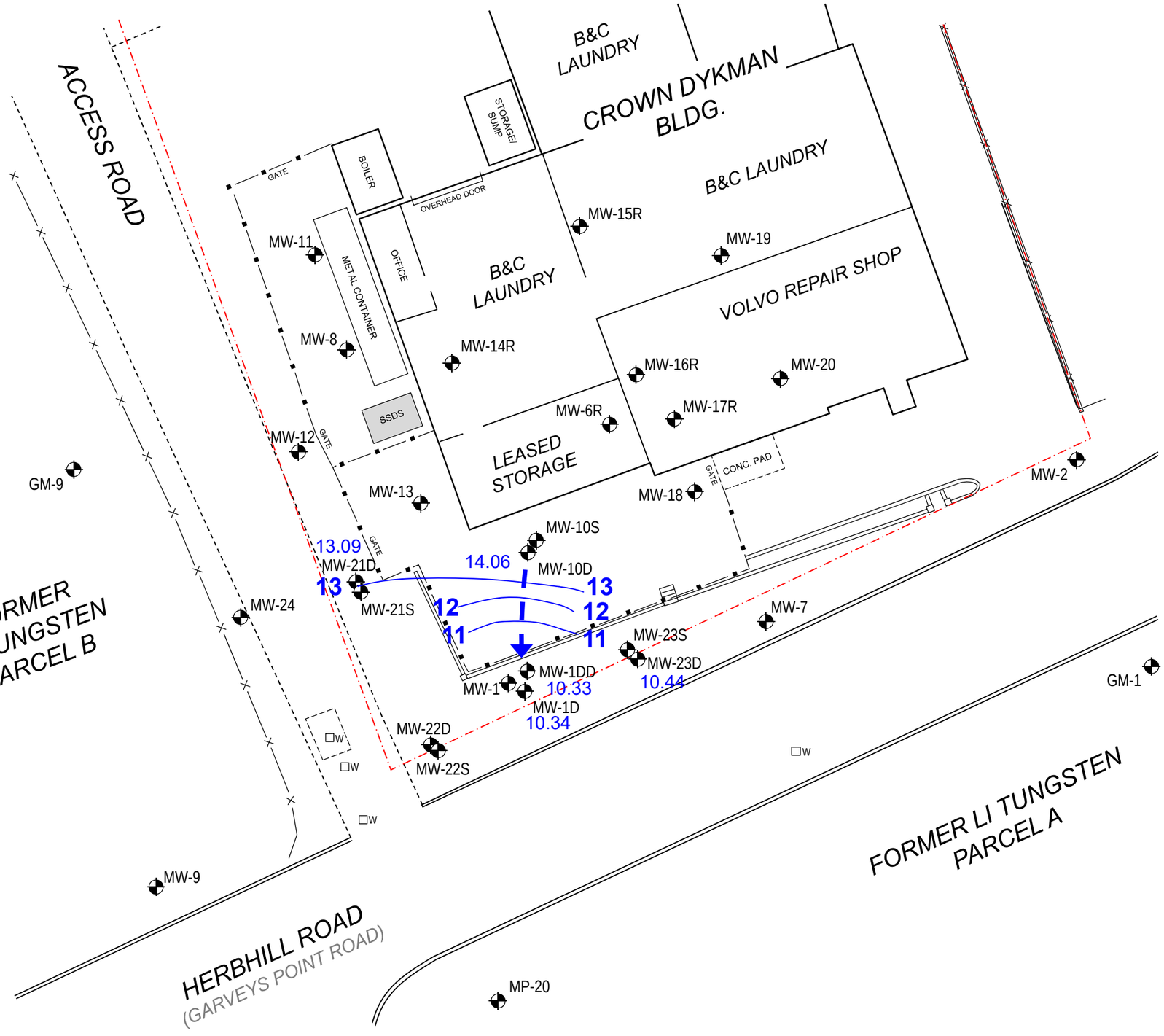
Infrastructure · Water · Environment · Buildings

5a
FIGURE



LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 — GROUNDWATER MONITORING WELL
- 13 — POTENTIOMETRIC CONTOUR (Feet AMSL)
- 13.09 — GROUNDWATER ELEVATION (Feet AMSL)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

N

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Groundwater Potentiometric Surface
Deep Wells
July 2014

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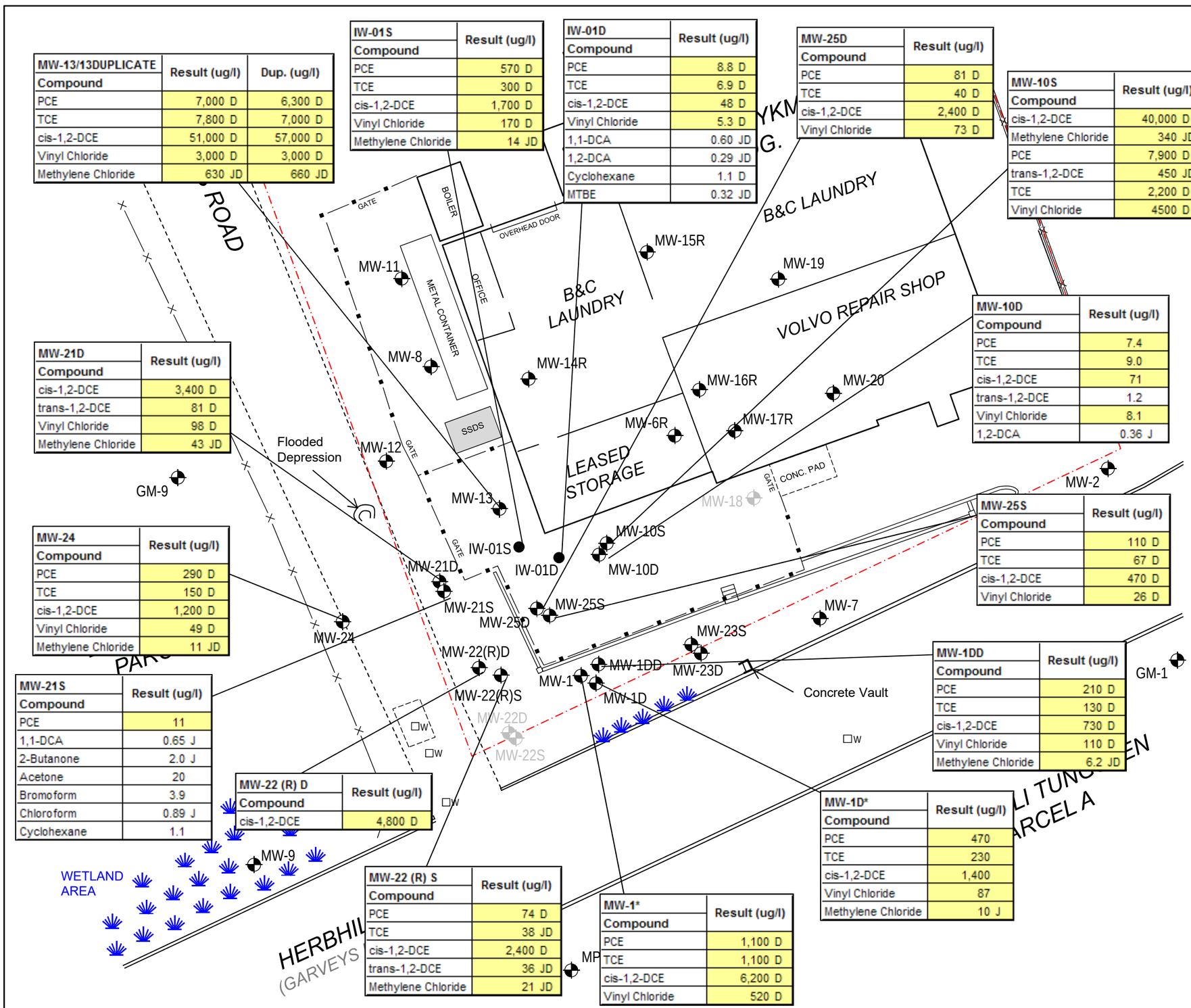
Infrastructure · Water · Environment · Buildings

5b
FIGURE



MW-13/13DUPLICATE	Result (ug/l)	Dup. (ug/l)
Compound		
PCE	7,000 D	6,300 D
TCE	7,800 D	7,000 D
cis-1,2-DCE	51,000 D	57,000 D
Vinyl Chloride	3,000 D	3,000 D
Methylene Chloride	630 JD	660 JD

IW-01S	Result (ug/l)
Compound	
PCE	570 D
TCE	300 D
cis-1,2-DCE	1,700 D
Vinyl Chloride	170 D
Methylene Chloride	14 JD

IW-01D	Result (ug/l)
Compound	
PCE	8.8 D
TCE	6.9 D
cis-1,2-DCE	48 D
Vinyl Chloride	5.3 D
1,1-DCA	0.60 JD
1,2-DCA	0.29 JD
Cyclohexane	1.1 D
MTBE	0.32 JD

MW-25D	Result (ug/l)
Compound	
PCE	81 D
TCE	40 D
cis-1,2-DCE	2,400 D
Vinyl Chloride	73 D

MW-10S	Result (ug/l)
Compound	
cis-1,2-DCE	40,000 D
Methylene Chloride	340 JD
PCE	7,900 D
trans-1,2-DCE	450 JD
TCE	2,200 D
Vinyl Chloride	4500 D

MW-10D	Result (ug/l)
Compound	
PCE	7.4
TCE	9.0
cis-1,2-DCE	71
trans-1,2-DCE	1.2
Vinyl Chloride	8.1
1,2-DCA	0.36 J

MW-21D	Result (ug/l)
Compound	
cis-1,2-DCE	3,400 D
trans-1,2-DCE	81 D
Vinyl Chloride	98 D
Methylene Chloride	43 JD

MW-25S	Result (ug/l)
Compound	
PCE	110 D
TCE	67 D
cis-1,2-DCE	470 D
Vinyl Chloride	26 D

MW-24	Result (ug/l)
Compound	
PCE	290 D
TCE	150 D
cis-1,2-DCE	1,200 D
Vinyl Chloride	49 D
Methylene Chloride	11 JD

MW-21S	Result (ug/l)
Compound	
PCE	11
1,1-DCA	0.65 J
2-Butanone	2.0 J
Acetone	20
Bromoform	3.9
Chloroform	0.89 J
Cyclohexane	1.1

MW-1DD	Result (ug/l)
Compound	
PCE	210 D
TCE	130 D
cis-1,2-DCE	730 D
Vinyl Chloride	110 D
Methylene Chloride	6.2 JD

MW-22 (R) D	Result (ug/l)
Compound	
cis-1,2-DCE	4,800 D

MW-1D*	Result (ug/l)
Compound	
PCE	470
TCE	230
cis-1,2-DCE	1,400
Vinyl Chloride	87
Methylene Chloride	10 J

MW-22 (R) S	Result (ug/l)
Compound	
PCE	74 D
TCE	38 JD
cis-1,2-DCE	2,400 D
trans-1,2-DCE	36 JD
Methylene Chloride	21 JD

MW-1*	Result (ug/l)
Compound	
PCE	1,100 D
TCE	1,100 D
cis-1,2-DCE	6,200 D
Vinyl Chloride	520 D

LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 GROUNDWATER MONITORING WELL
- MW-18 DAMAGED/MISSING WELL LOCATION

Data Qualifiers:

a) D – Based on dilution of original sample.

b) J – Result is estimated value, as result is below reporting limit for respective compound.

c) ▭ Indicates that compound exceeds the respective NYSDEC Class GA standard or guidance value.

N

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of Detected Compounds in Groundwater – Baseline Sampling (August 2014)

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6
FIGURE

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Figure 7a
Tetrachloroethene (PCE) in Groundwater
August 2013

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

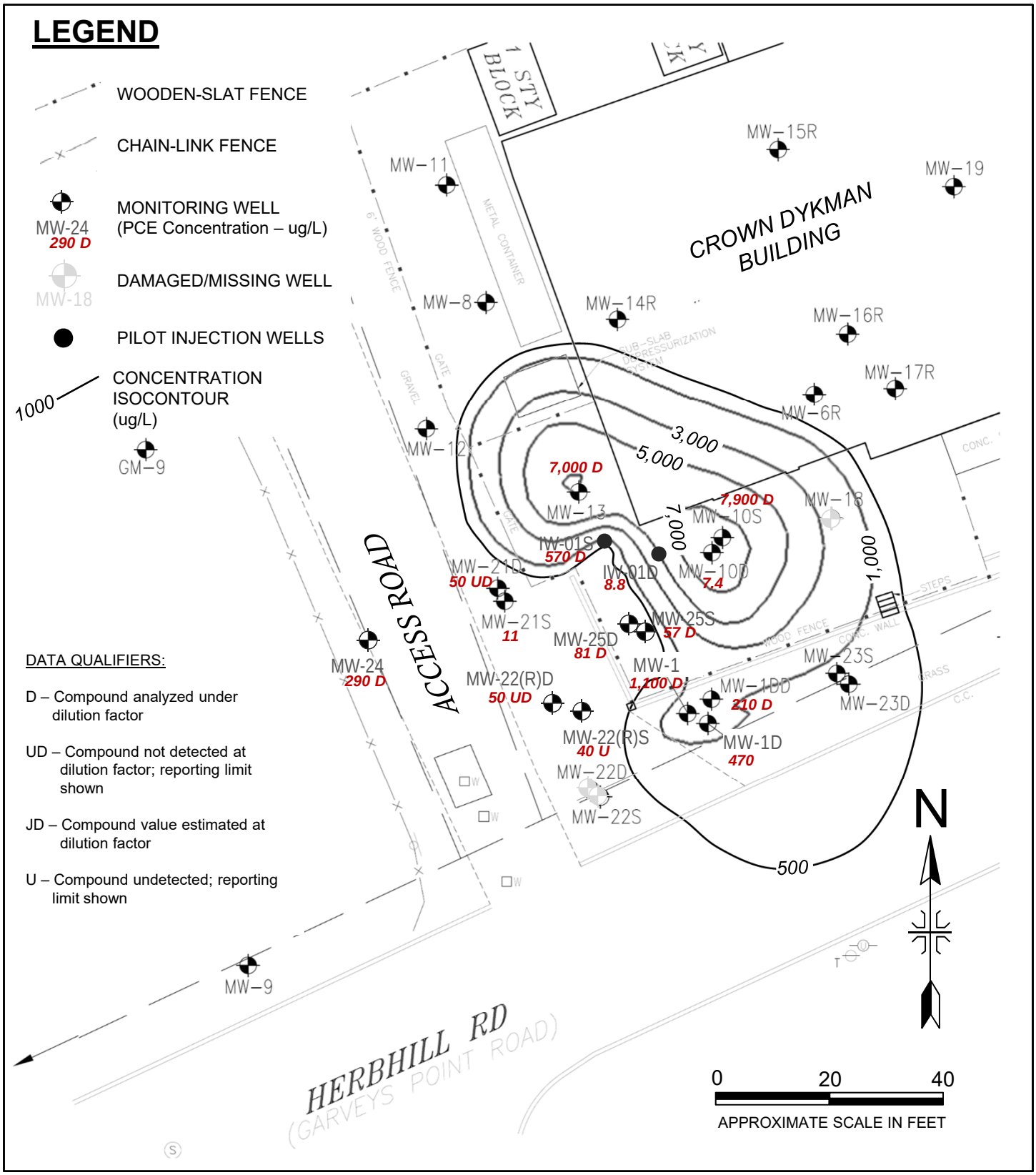

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Figure 7b
Tricholorethene (TCE) in Groundwater
August 2013

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

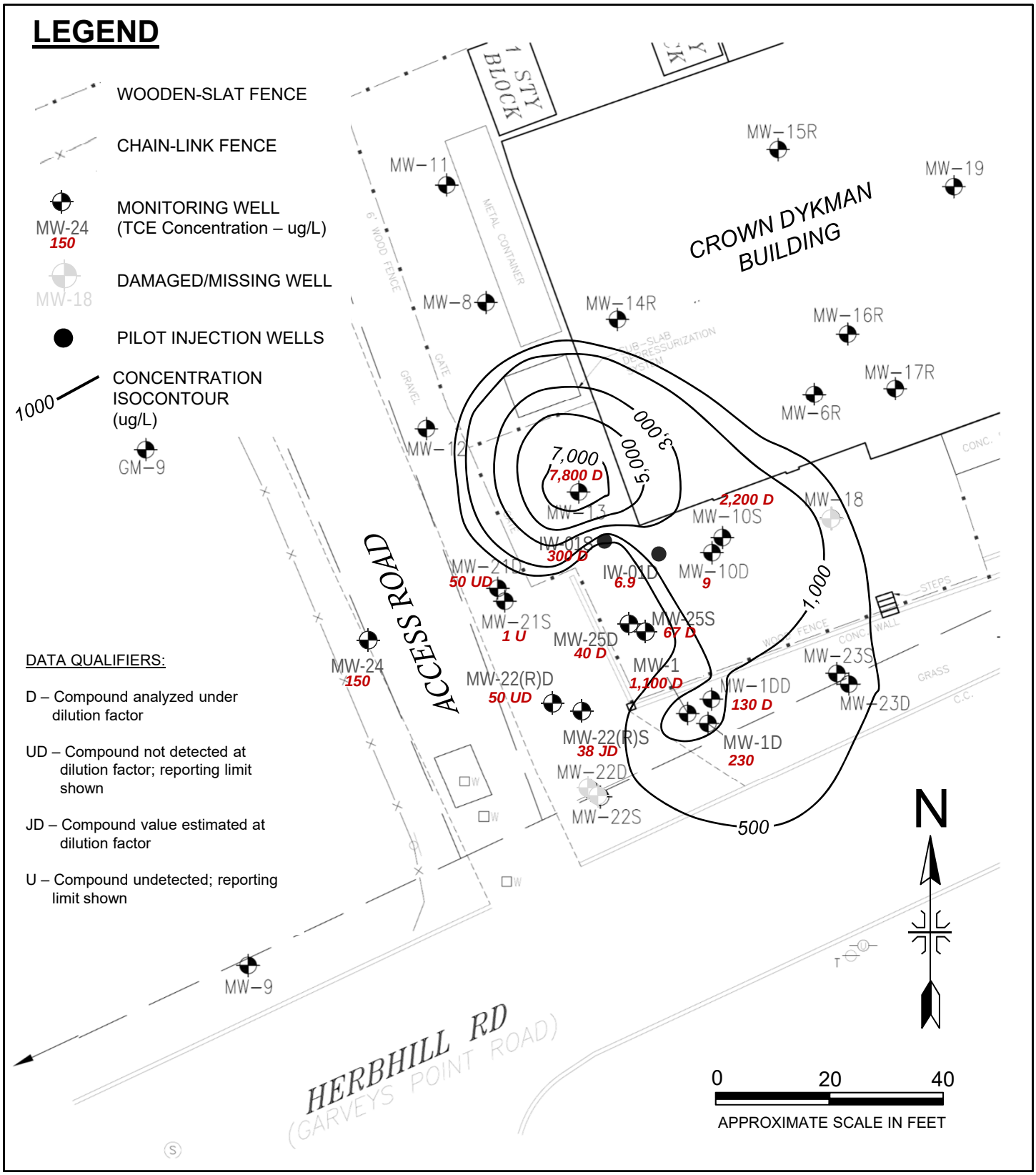

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Figure 7c
Cis-1,2-Dichloroethene (DCE) in Groundwater
August 2013

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

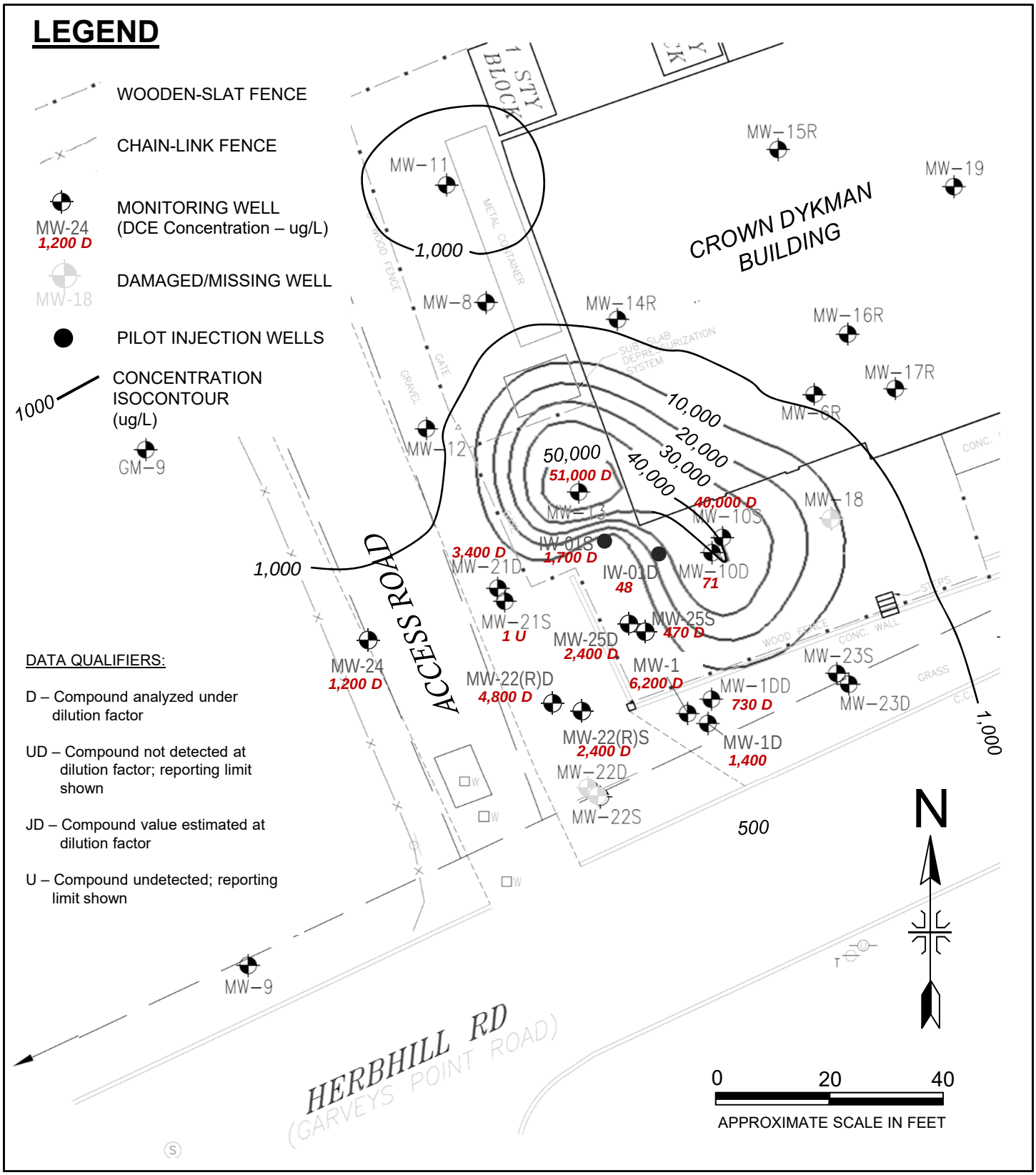

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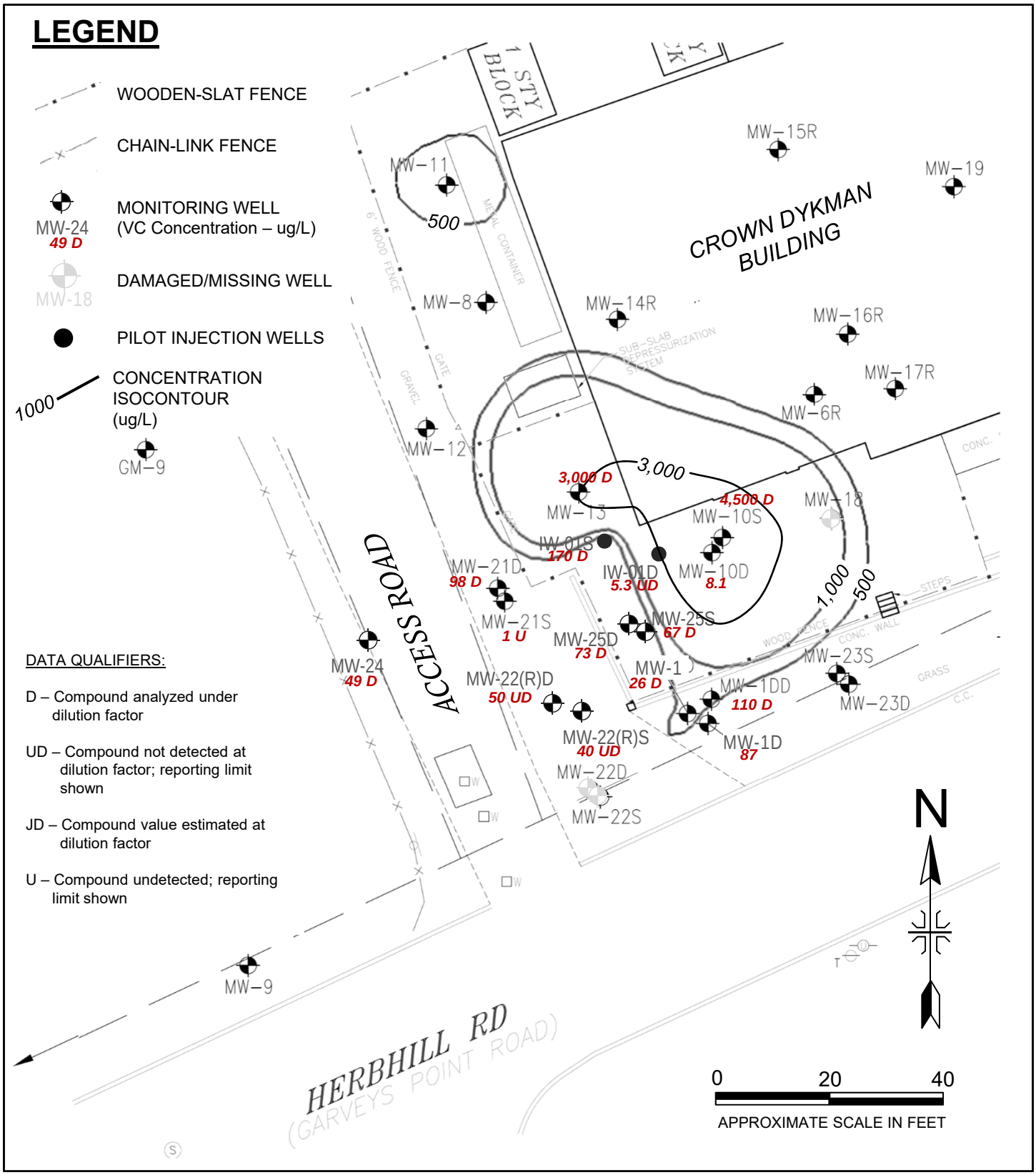
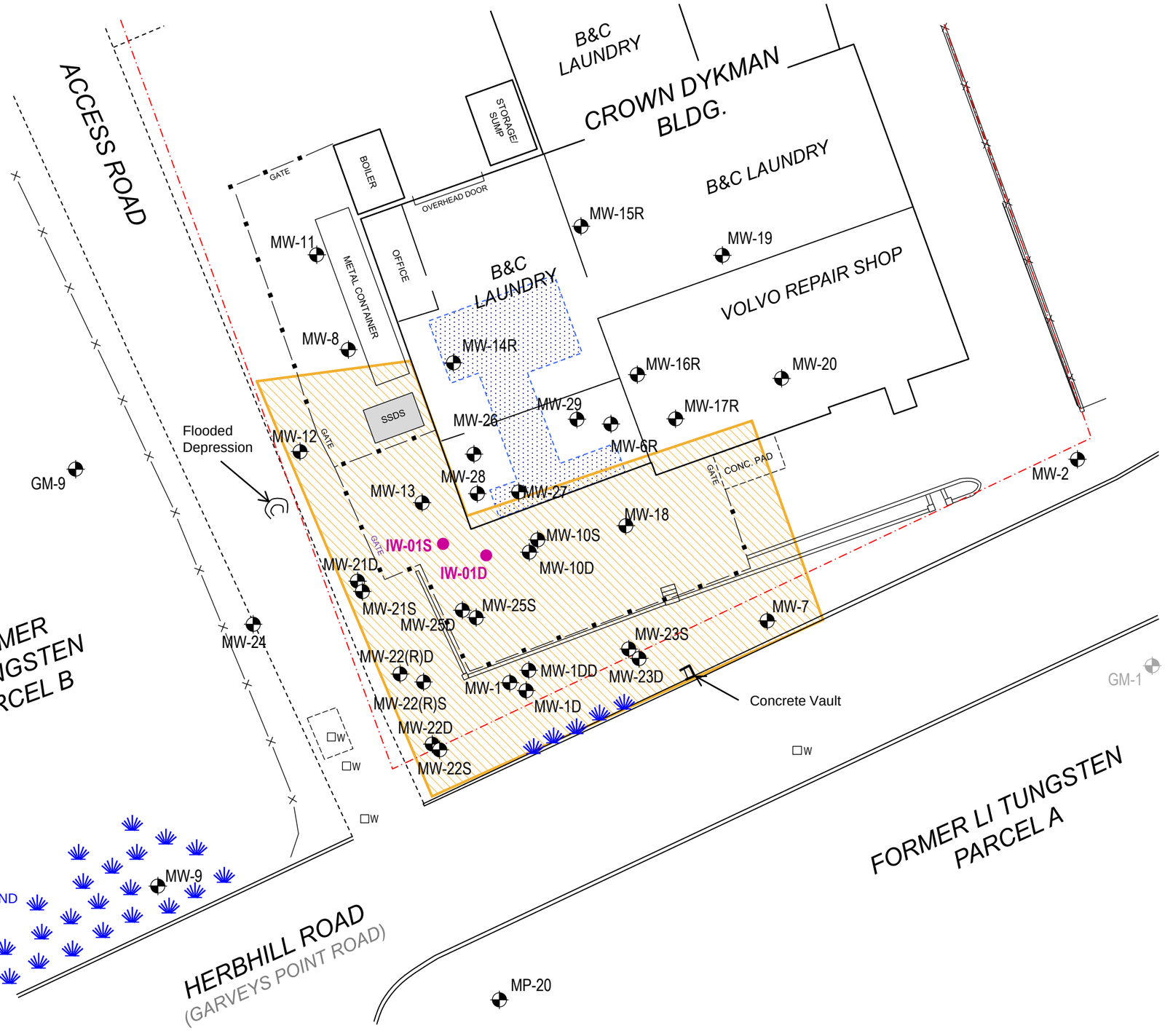
Figure 7d
Vinyl Chloride (VC) in Groundwater
August 2013

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York





LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 — GROUNDWATER MONITORING WELL
- GM-1 — DAMAGED/MISSING WELL LOCATION
- APPROXIMATE 2005 IRM EXCAVATION AREA/ SVE PIPING
- APPROXIMATE PROPOSED TREATMENT AREA (Crown Dykman Record of Decision)
- IW-01D — SODIUM PERMANGANATE INJECTION WELL

N

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

ISCO Pilot Study Area

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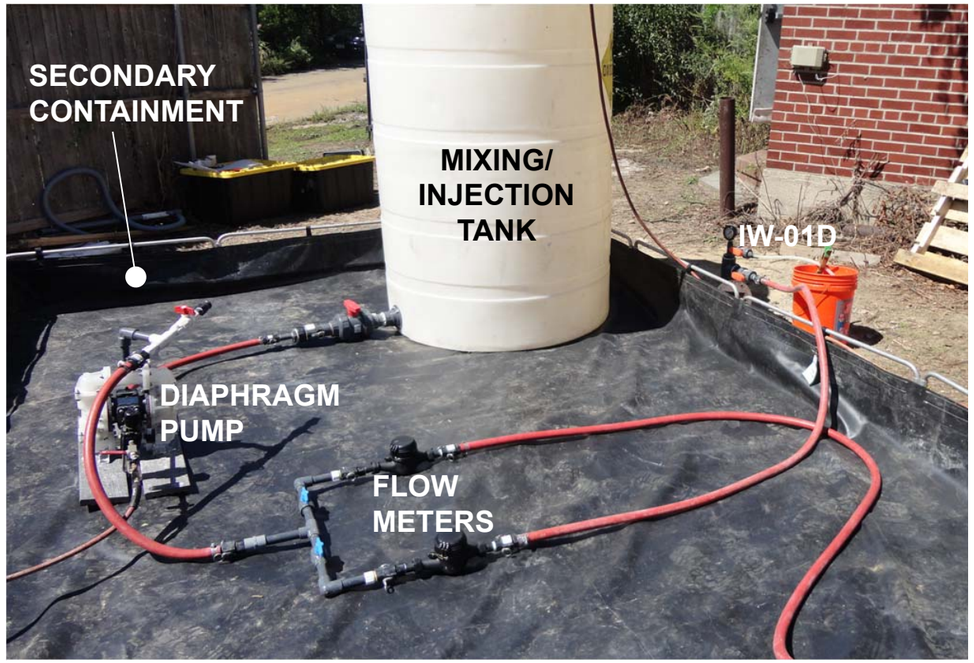
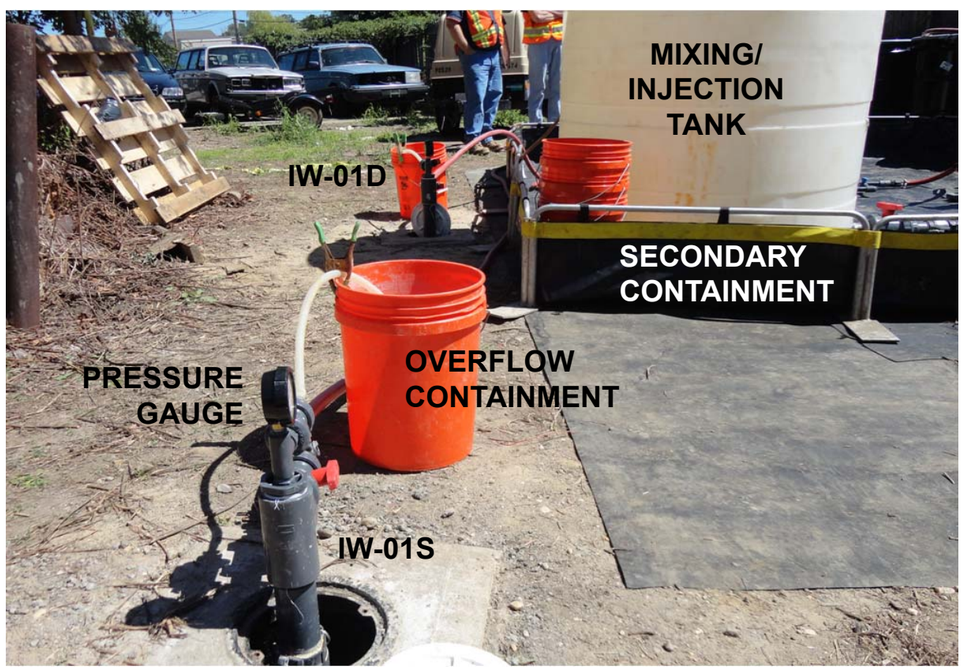
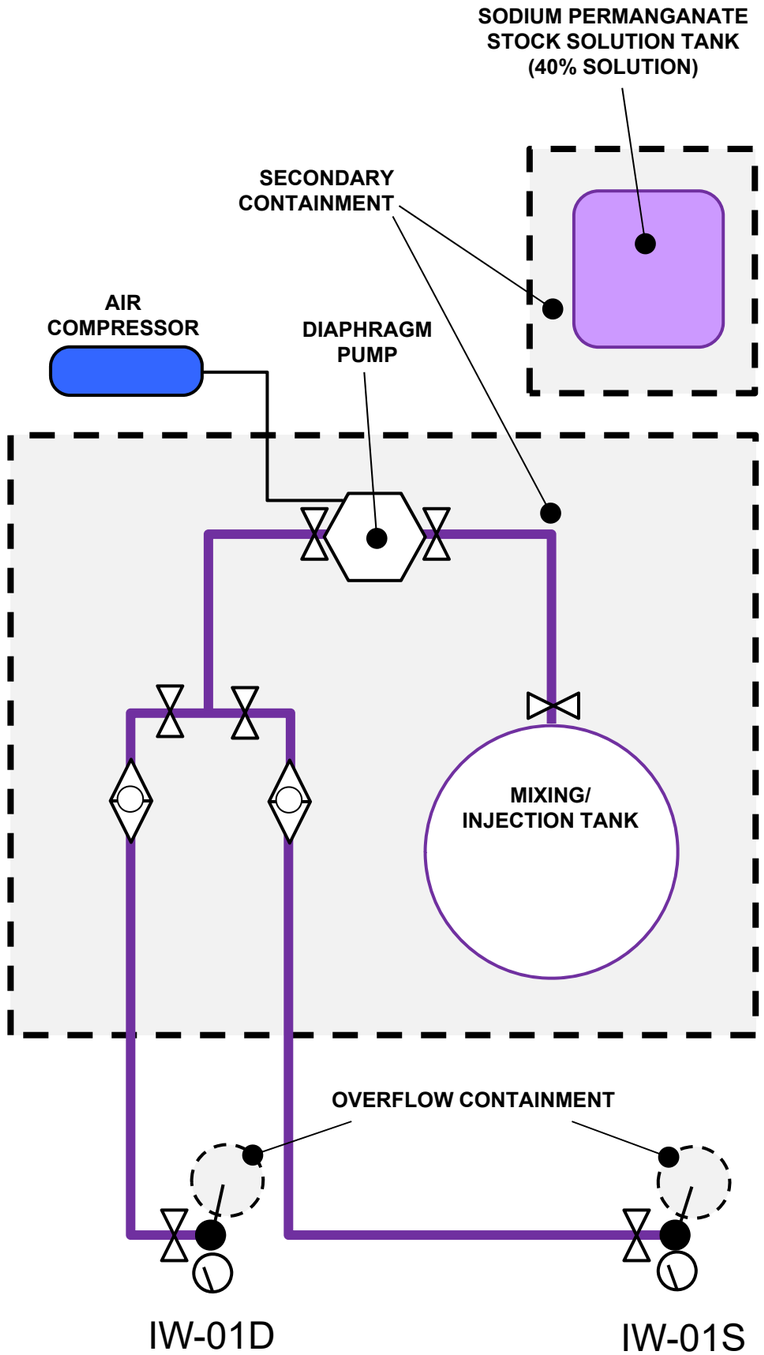
8
FIGURE







LEGEND

- FLOW METER
- FLOW CONTROL/ CUTOFF VALVE
- PRESSURE GAUGE

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Sodium Permanganate Pilot Injection System Schematic

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9
FIGURE

ARCADIS
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Figure 10a
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-1
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

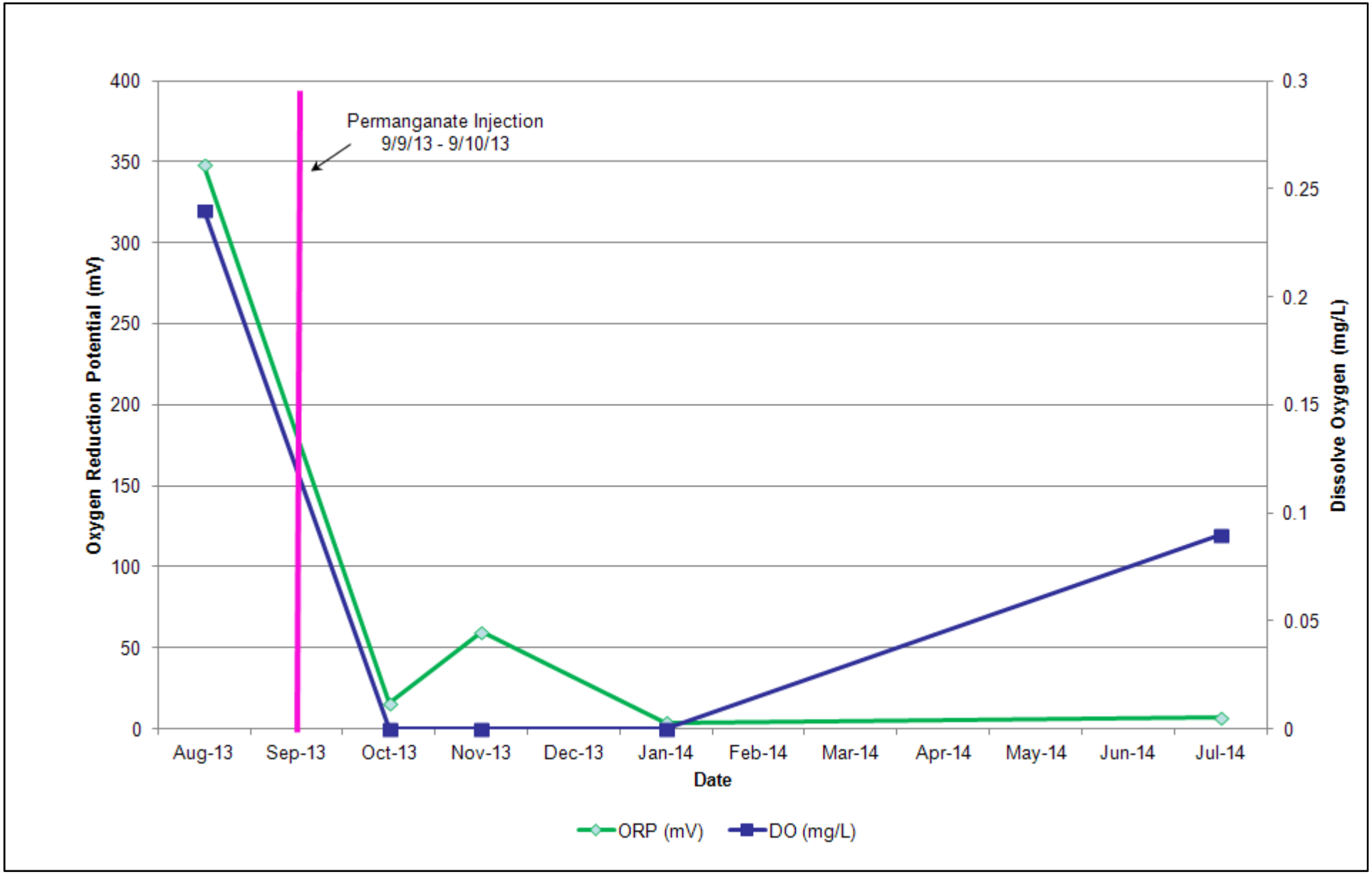

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Figure 10b
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-1D
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

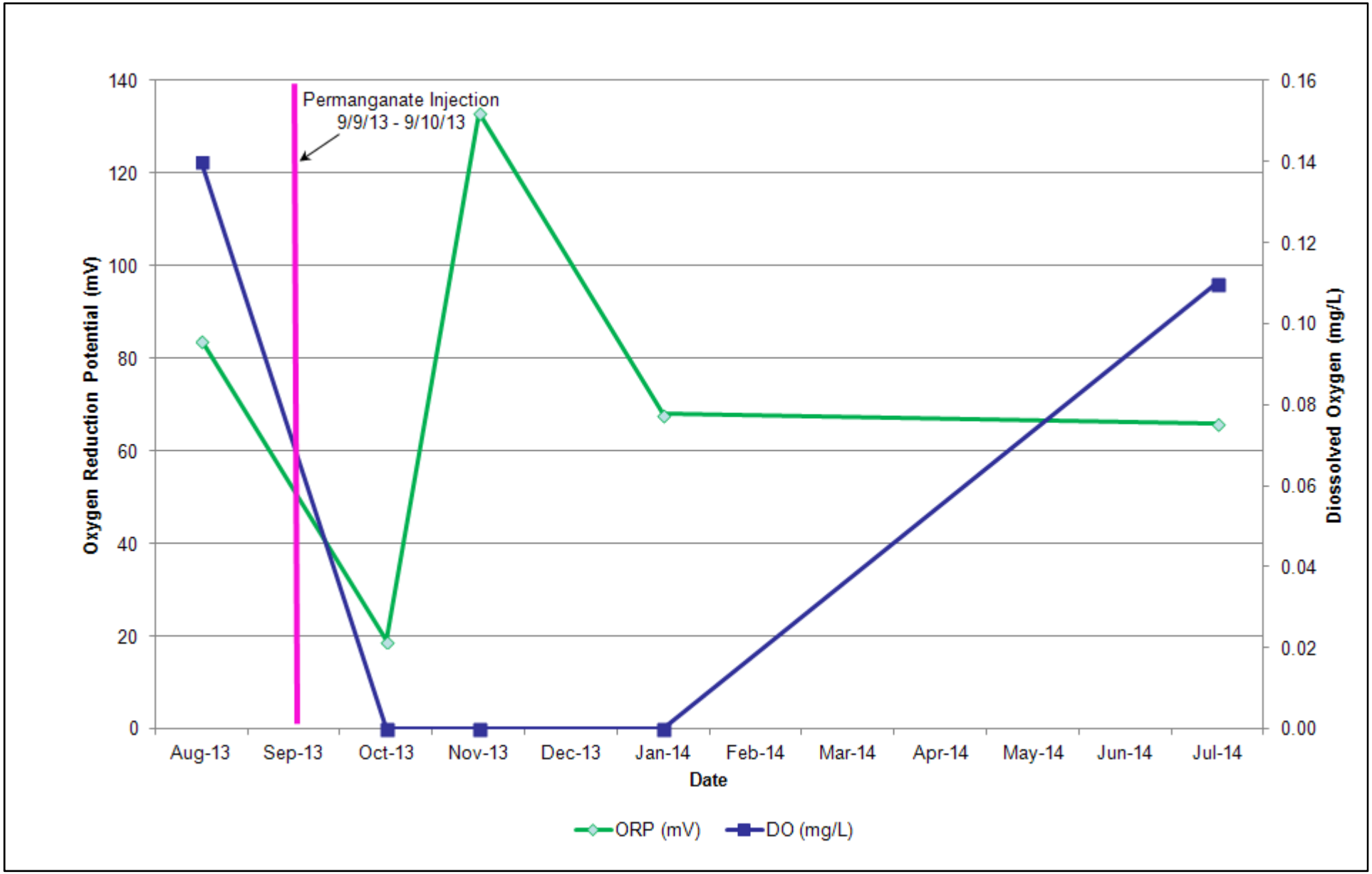

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Figure 10c
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-1DD
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

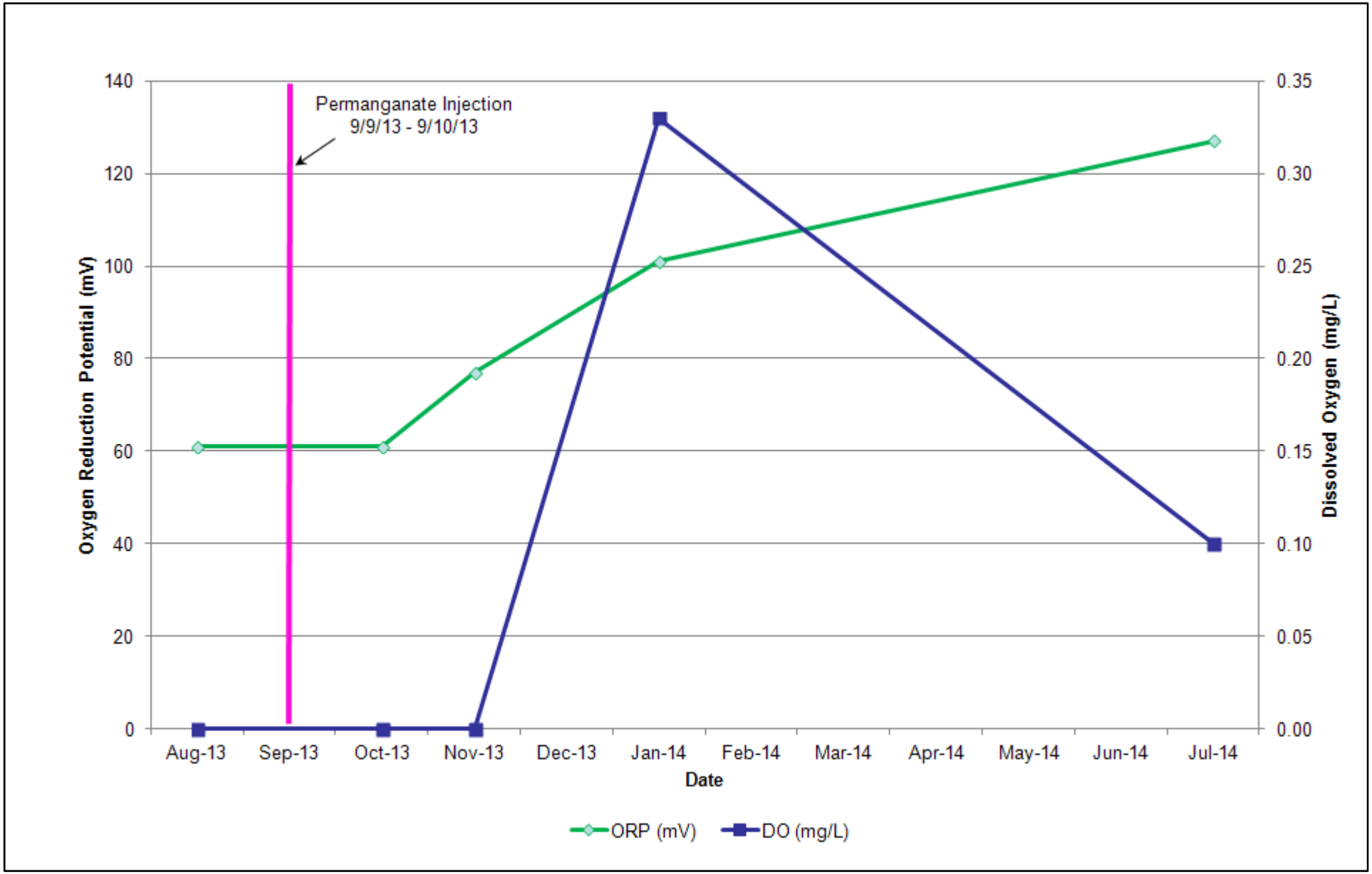

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Figure 10d
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-10S
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

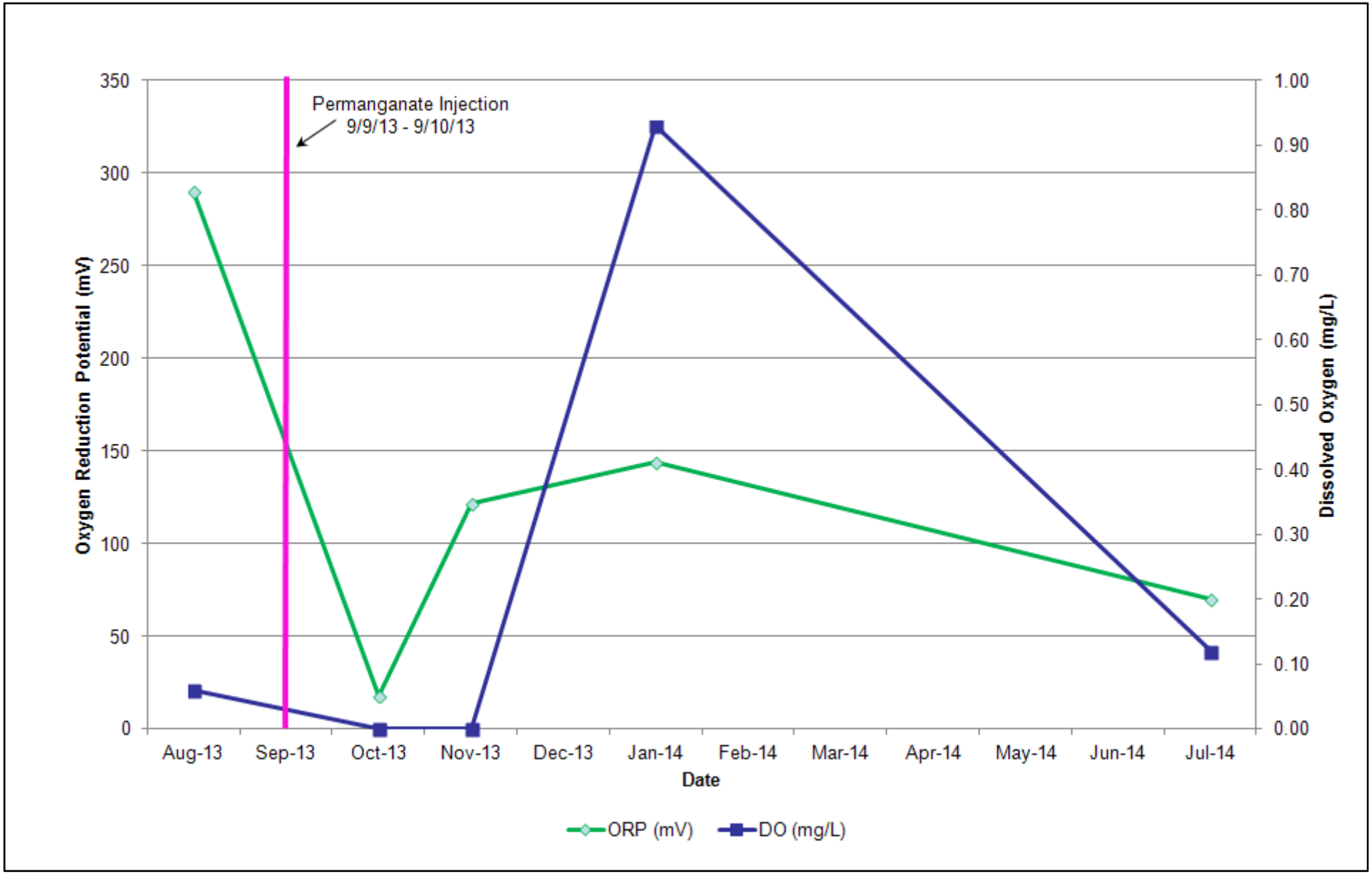

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Figure 10e
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-10D
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

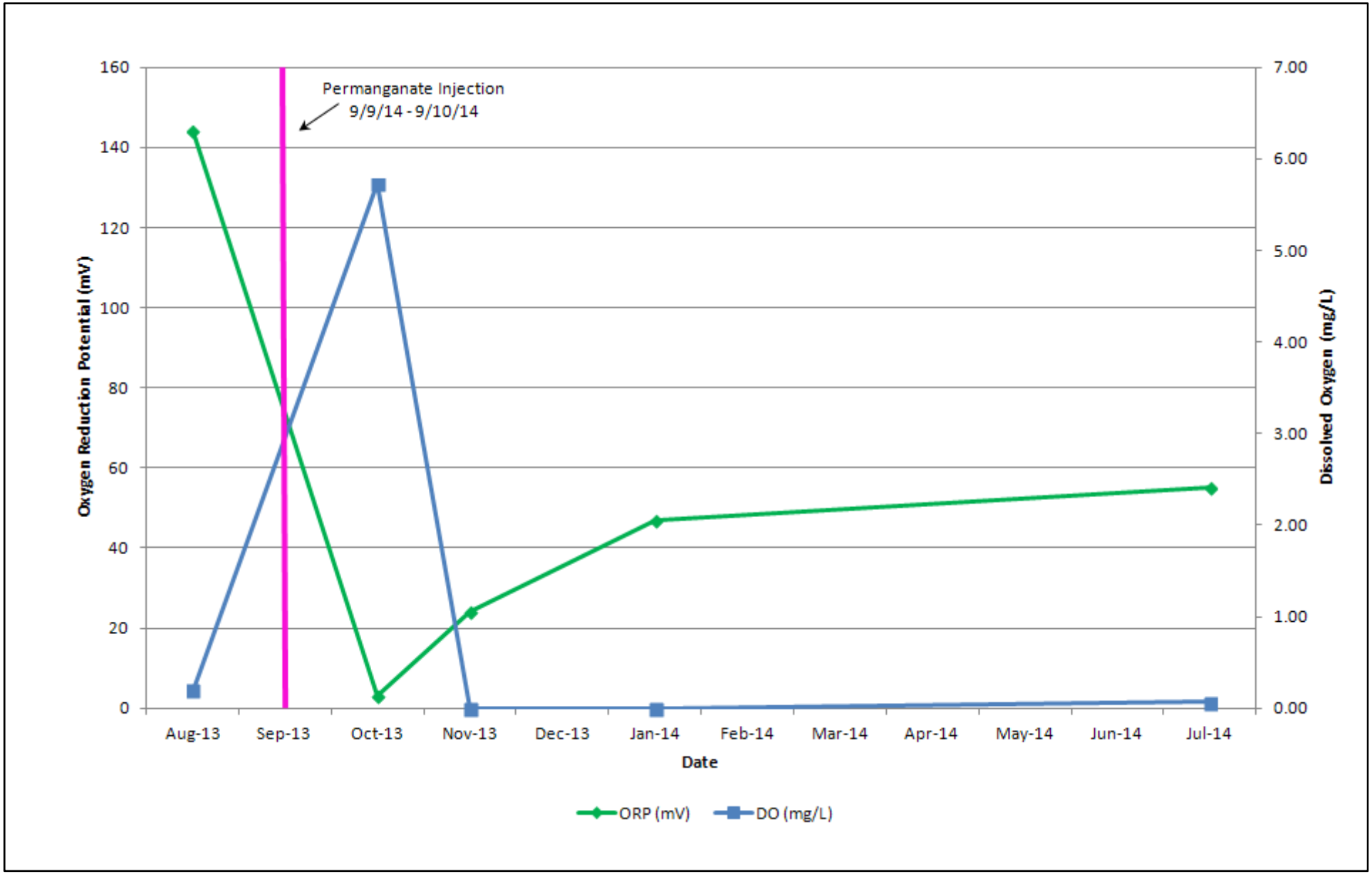

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Figure 10f
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-13
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

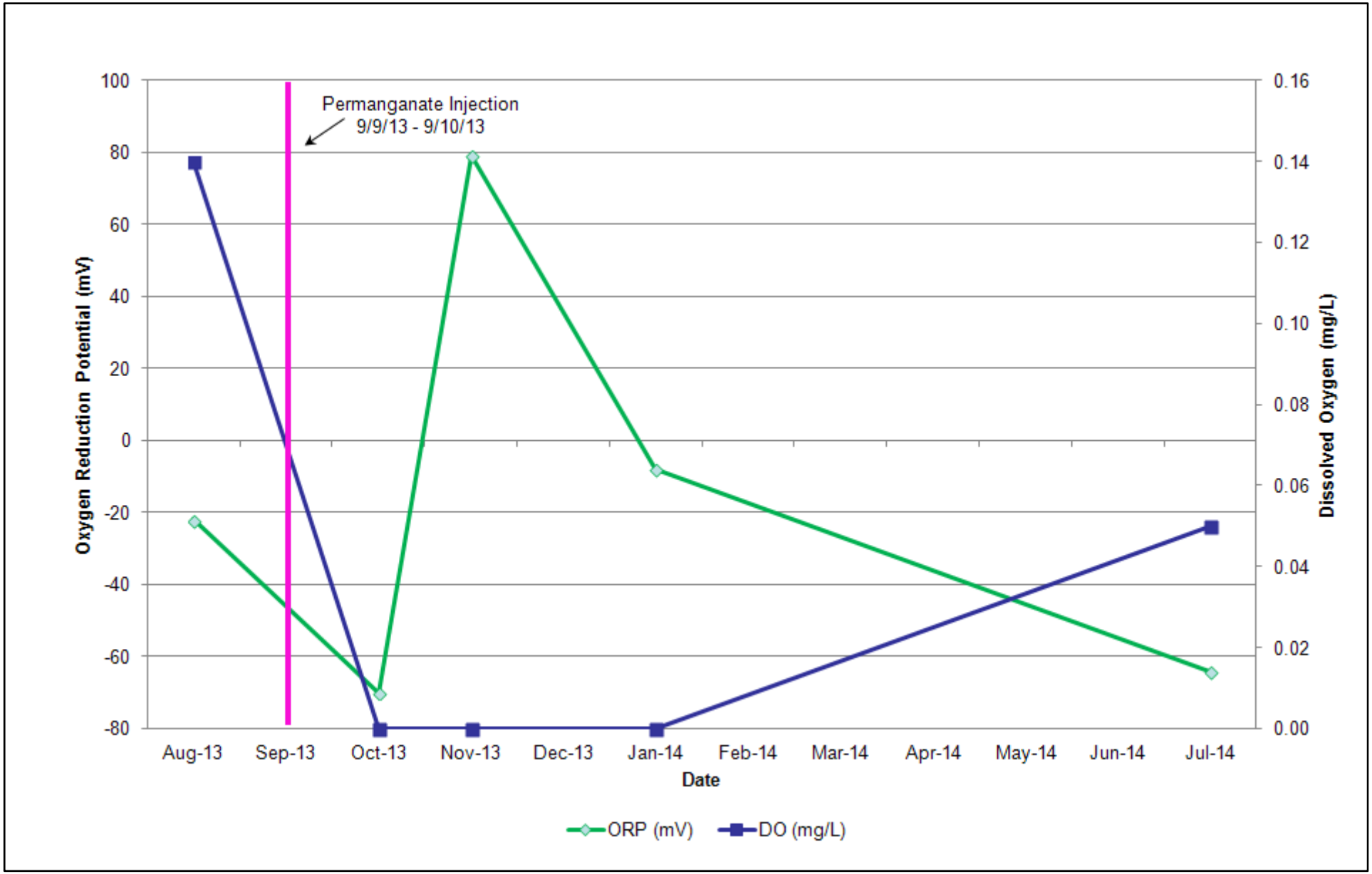

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Figure 10g
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-25S
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

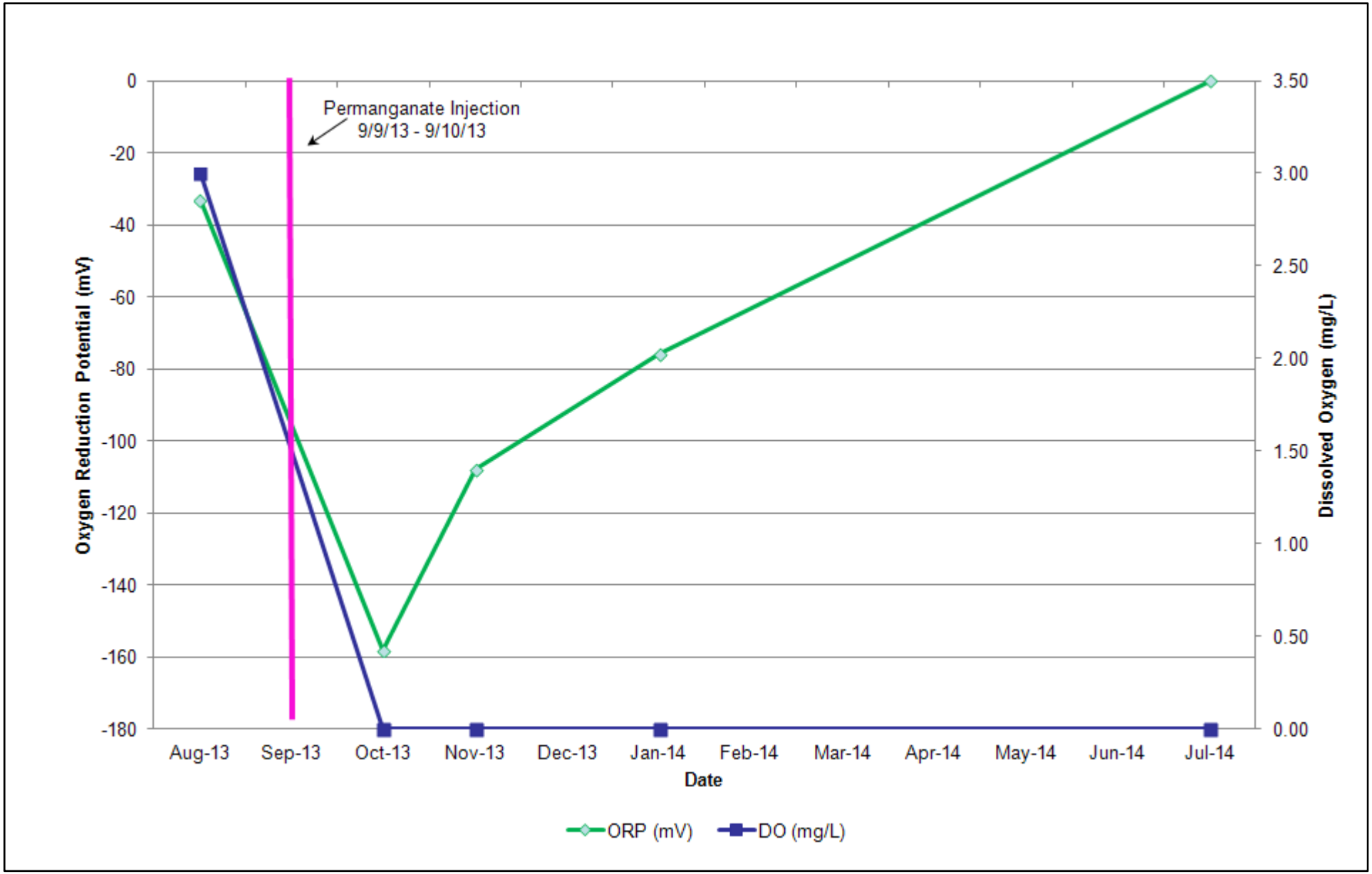

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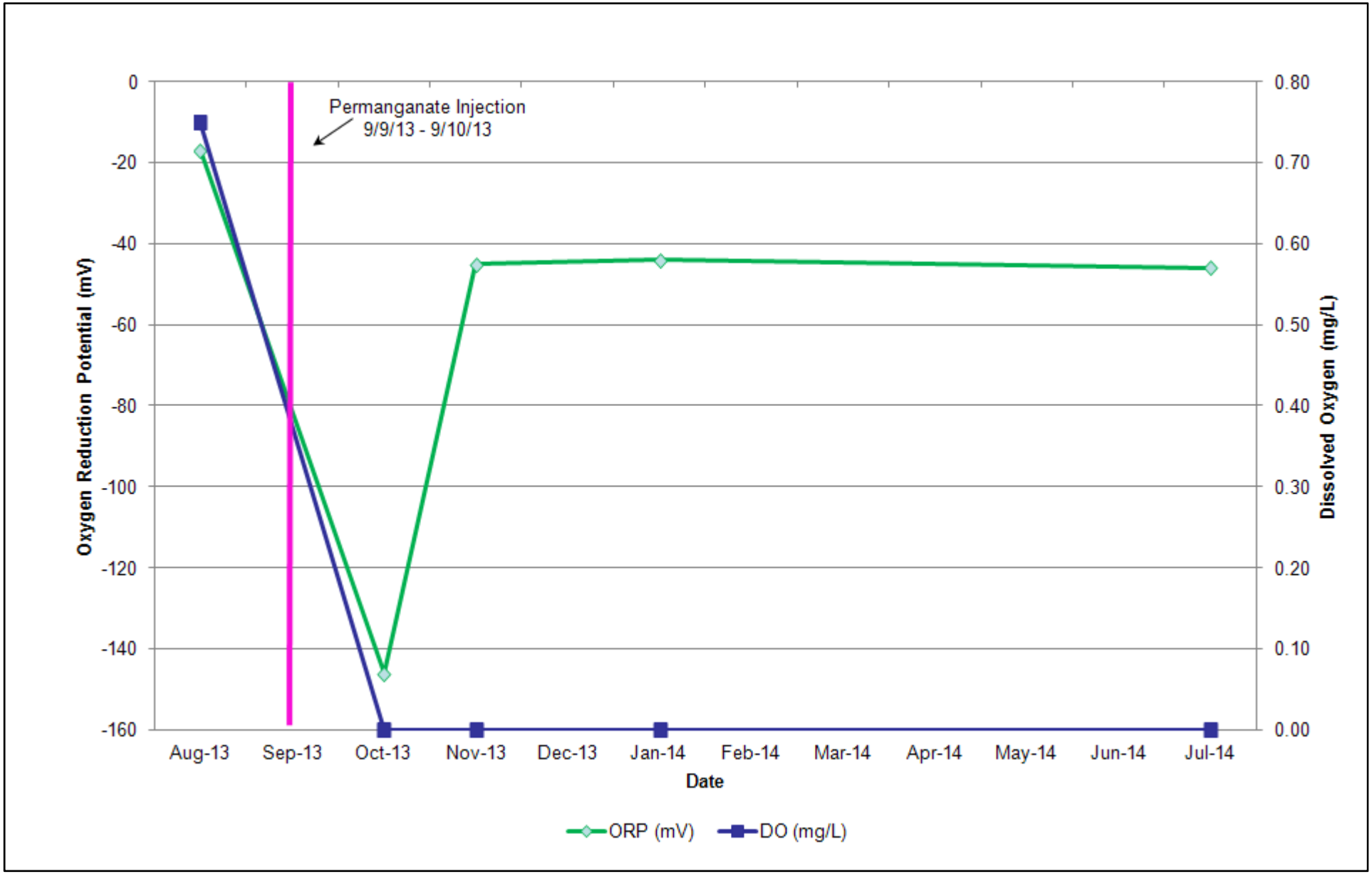
Figure 10h
Dissolved Oxygen and Oxidation-Reduction Potential Trends – Well MW-25D
Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York



MW-13	Baseline	1st PI		2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	Duplicate	11/21/2013	1/15/2014	7/15/2014
PCE	7,000 D	6,300 D	5,200 D	9,600	34,000	4,100
TCE	7,800 D	7,000 D	7,100 D	17,000	22,000	4,100
cis-1,2-DCE	51,000 D	57,000 D	54,000 D	140,000	120,000	25,000
Vinyl Chloride	3,000 D	3,000 D	2,100 JD	2,400 J	3,800	450 U

IW-01S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
PCE	570 D	NS	NS	NS	NS
TCE	300 D				
cis-1,2-DCE	1,700 D				
Vinyl Chloride	170 D				

MW-14R	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/14/2014
cis-1,2-DCE	NS	NS	1400	5.1	25
trans-1,2-DCE			25 U	1.0 U	2.2
Vinyl Chloride			920	4.0	32

MW-8	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/16/2014
PCE	NS	NS	1.0 U	1.3	10 U
TCE			1.0 U	0.55 J	10 U
cis-1,2-DCE			20	220 D	190
trans-1,2-DCE			1.0 U	2.8	10 U
Vinyl Chloride			3.0	25	38

IW-01D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
PCE	8.8 D	NS	NS	NS	NS
TCE	6.9 D				
cis-1,2-DCE	48 D				
Vinyl Chloride	5.3 D				

MW-12	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/9/2014
cis-1,2-DCE	NS	4.7	3.1	2.7	7.6
PCE		1.2	1.7	7.9	6.1
TCE		1.7	2.2	2.4	3.2
Vinyl Chloride		1.0	1.0 U	1.0 U	0.96 J

MW-10S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
PCE	7,900 D	5,200 D	9,700	7,000	1,900
TCE	2,200 D	1,300 D	2,700	2,000	1,000
cis-1,2-DCE	40,000 D	7,600 D	15,000	14,000	4,600
trans-1,2-DCE	450 JD	420 UD	200 U	200 U	100 U
Vinyl Chloride	4,500 D	790 D	1,500	810	250

MW-21D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/14/2014
cis-1,2-DCE	3,400 D	2,200 D	3,500	3,700	NS
trans-1,2-DCE	81 D	35 JD	50 U	50 U	
Vinyl Chloride	98 D	57 JD	130	52	

MW-10D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/14/2014	7/14/2014
PCE	7.4	9.3 D	2.9	0.69 J	9.5
TCE	9.0	6.5 D	2.3	0.96 J	6.8
cis-1,2-DCE	71	54 D	20	10	80
trans-1,2-DCE	1.2	0.59 JD	1.0 U	1.0 U	1.0 U
Vinyl Chloride	8.1	8.9 D	2.2	0.97 J	16

MW-21S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/14/2014
PCE	11	380 D	290	630	NS
TCE	1.0 U	210 D	150	460	
cis-1,2-DCE	1.0 U	1,100 D	1,400	3,500 D	
trans-1,2-DCE	1.0 U	28 J	20 U	27	
Vinyl Chloride	1.0 U	50 UD	32	82	

MW-24	Baseline	1st PI	2nd PI	3rd PI		4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	Duplicate	7/14/2014
PCE	290 D	96 D	97	220	240	34
TCE	150 D	69 D	91	170	200	21
cis-1,2-DCE	1,200 D	720 D	1100	1100	1200	740
Vinyl Chloride	49 D	38 JD	55	39	39	15

MW-25S	Baseline	1st PI		2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	Duplicate	11/22/2013	1/15/2014	7/14/2014
PCE	110 D	57 D	58 D	6.4	36	NS
TCE	67 D	28 D	29 D	4.2	16	
cis-1,2-DCE	470 D	260 D	270 D	110	170	
Vinyl Chloride	26 D	20 D	21 D	4.8	3.6	

MW-23S	Baseline	1st PI	2nd PI		3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	Duplicate	1/15/2014	7/10/2014
cis-1,2-DCE	NS	2,800 D	4800	4,800	1,900	610
PCE		700 D	1,000	1,000	590	320
TCE		550 D	820	820	420	190
Vinyl Chloride		140 D	210	180	40 U	10 U

MW-25D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
PCE	81 D	50 UD	110	300	180
TCE	40 D	40 UD	47	100	90
cis-1,2-DCE	2,400 D	1,000 D	800	620	910
Vinyl Chloride	73 D	20 JD	10 U	9.4 J	41

MW-23D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
cis-1,2-DCE	NS	1,100 D	380	790	170
PCE		270 D	140	170	40
TCE		120 D	61	120	28
Vinyl Chloride		22 JD	47	110	30

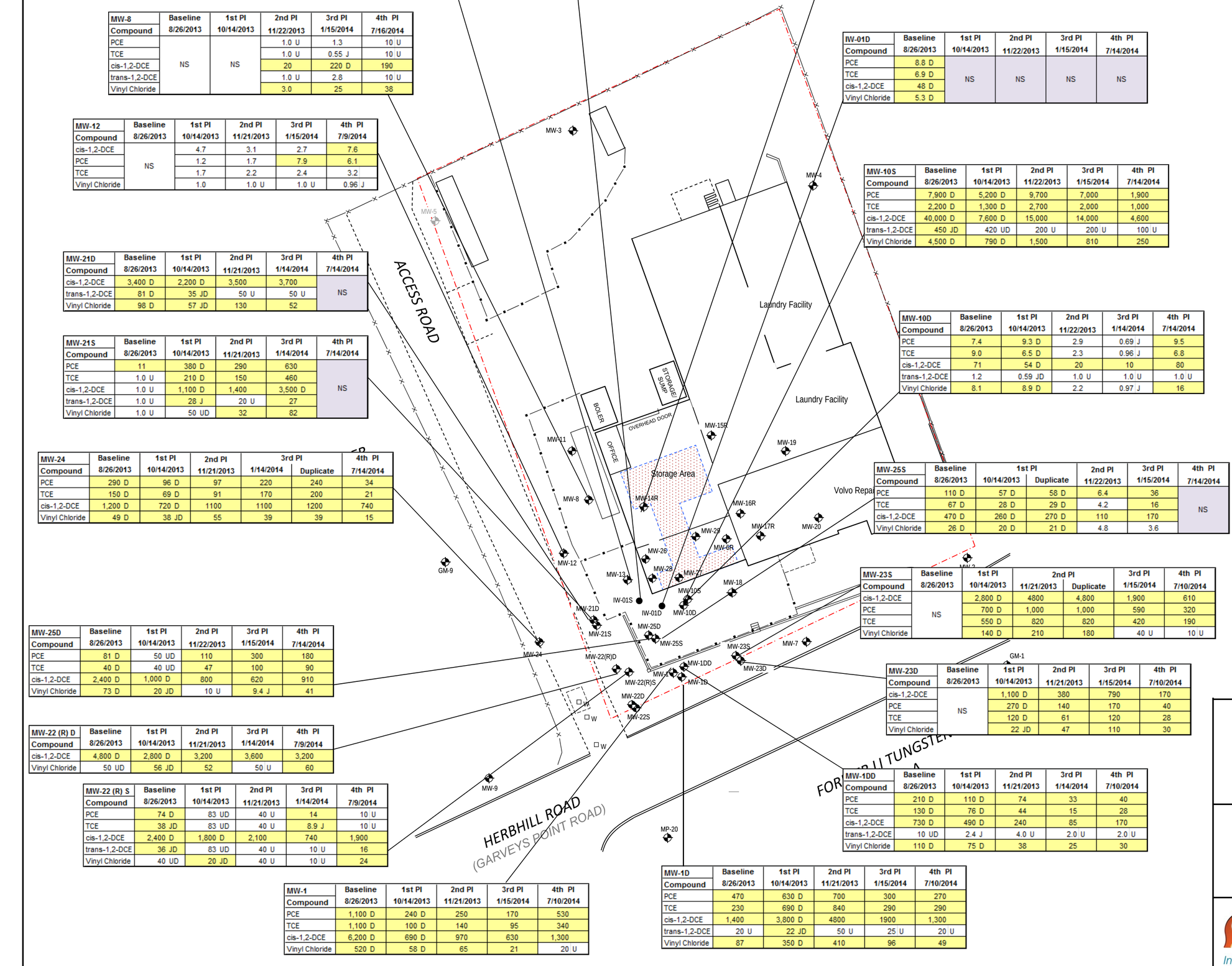
MW-22 (R) D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/9/2014
cis-1,2-DCE	4,800 D	2,800 D	3,200	3,600	3,200
Vinyl Chloride	50 UD	56 JD	52	50 U	60

MW-22 (R) S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/9/2014
PCE	74 D	83 UD	40 U	14	10 U
TCE	38 JD	83 UD	40 U	8.9 J	10 U
cis-1,2-DCE	2,400 D	1,800 D	2,100	740	1,900
trans-1,2-DCE	36 JD	83 UD	40 U	10 U	16
Vinyl Chloride	40 UD	20 JD	40 U	10 U	24

MW-1D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
PCE	470	630 D	700	300	270
TCE	230	690 D	840	290	290
cis-1,2-DCE	1,400	3,800 D	4800	1900	1,300
trans-1,2-DCE	20 U	22 JD	50 U	25 U	20 U
Vinyl Chloride	87	350 D	410	96	49

MW-1	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
PCE	1,100 D	240 D	250	170	530
TCE	1,100 D	100 D	140	95	340
cis-1,2-DCE	6,200 D	690 D	970	630	1,300
Vinyl Chloride	520 D	58 D	65	21	20 U

MW-1DD	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2013	7/10/2014
PCE	210 D	110 D	74	33	40
TCE	130 D	76 D	44	15	28
cis-1,2-DCE	730 D	490 D	240	85	170
trans-1,2-DCE	10 UD	2.4 J	4.0 U	2.0 U	2.0 U
Vinyl Chloride	110 D	75 D	38	25	30



LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 — GROUNDWATER MONITORING WELL
- MW-18 — DAMAGED/MISSING WELL LOCATION
- SVE SYSTEM SUB-SLAB PIPING

PI – POST INJECTION SAMPLING EVENT

NS – NOT SAMPLED

NS – NOT SAMPLED DUE TO THE PRESENCE OF PERMANGANATE

All concentrations reported in ug/l

Data Qualifiers:

a) D – Based on dilution of original sample.

b) J – Result is estimated value, as result is below reporting limit for respective compound.

c) U – Result is not detected, Reporting limit provided.

d) NA – Not Analyzed

e) Indicates that compound exceeds the respective NYSDEC Class GA standard or guidance value.

N

0 30 60

Approximate Scale in Feet

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of Detected CVOCs in Groundwater

Baseline and Post-Injection Sampling Rounds

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11
FIGURE

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Figure 12a
CVOC Trends in Groundwater – Well MW-1

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

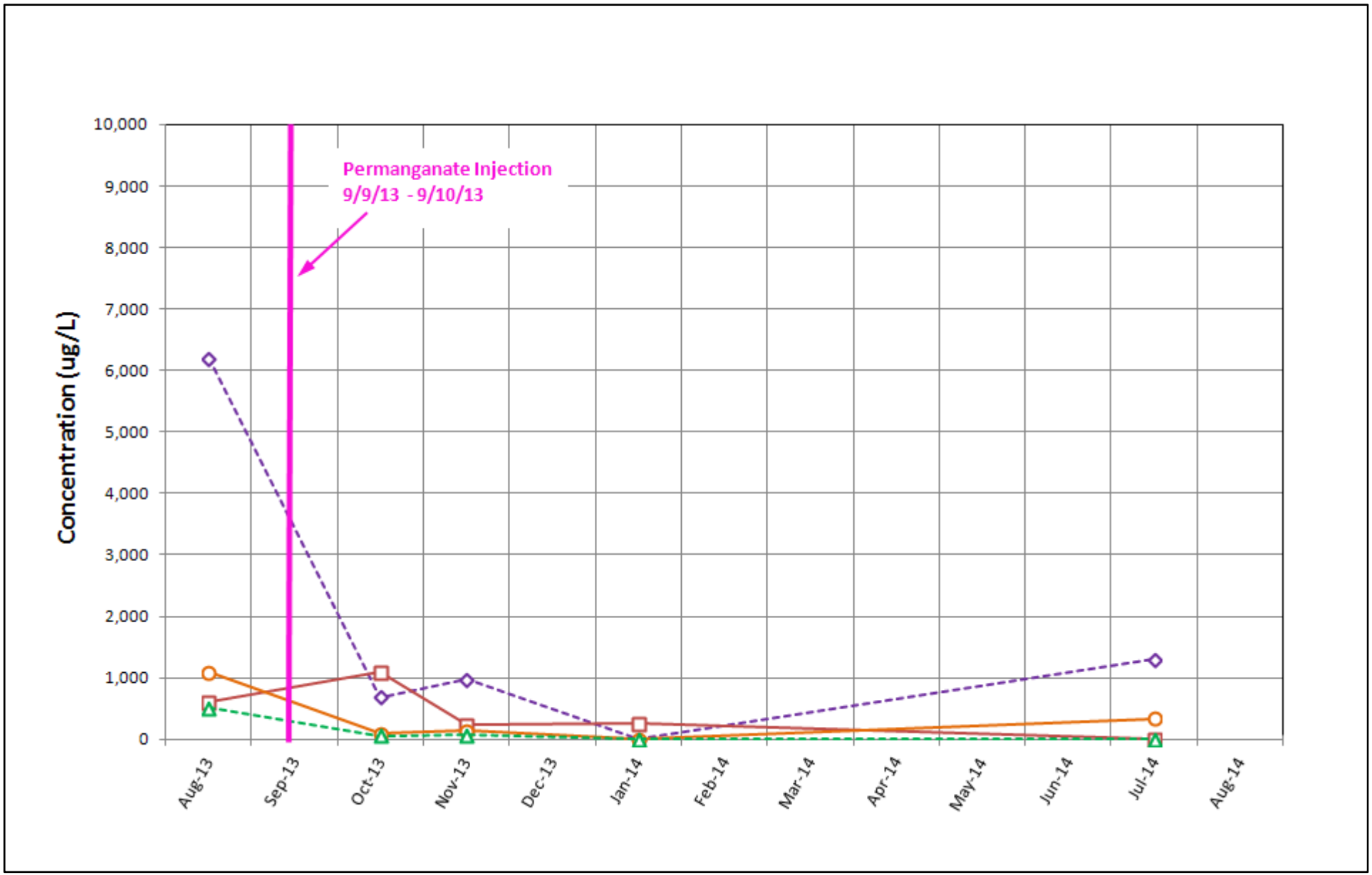

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Figure 12b
CVOC Trends in Groundwater – Well MW-1D

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

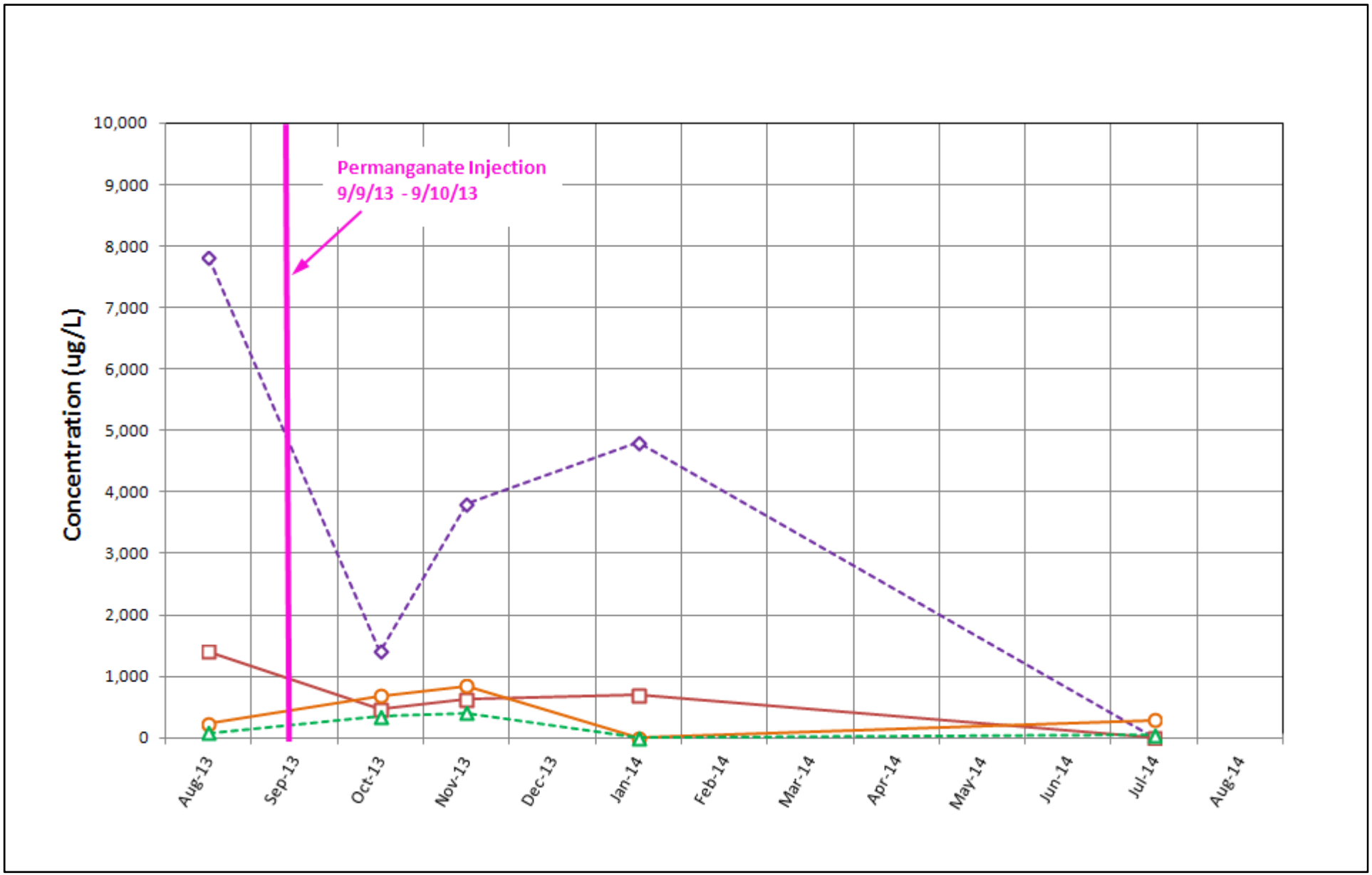

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Figure 12c
CVOC Trends in Groundwater – Well MW-1DD

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Glen Cove, New York

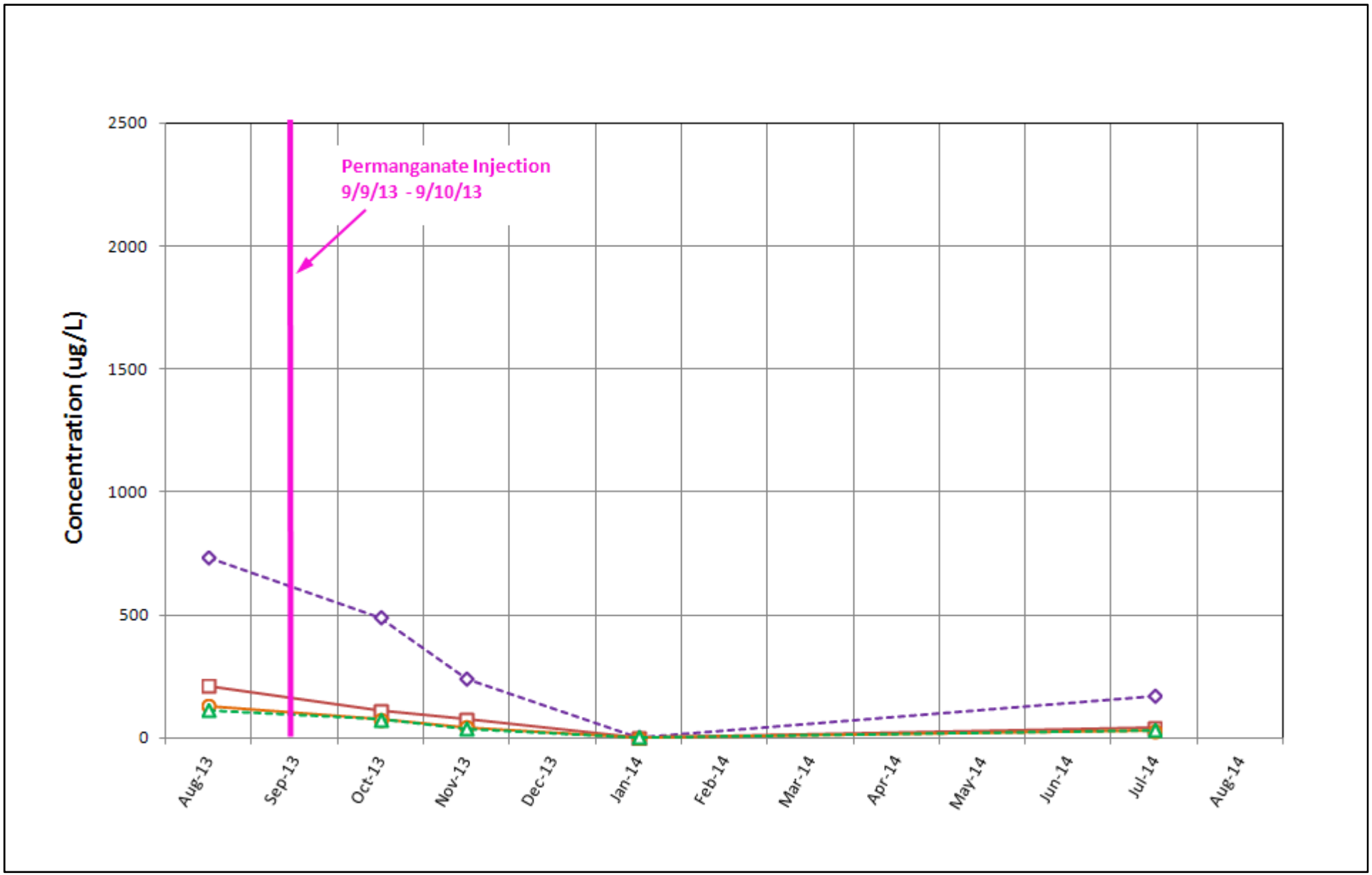

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Figure 12d
CVOC Trends in Groundwater – Well MW-10S

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

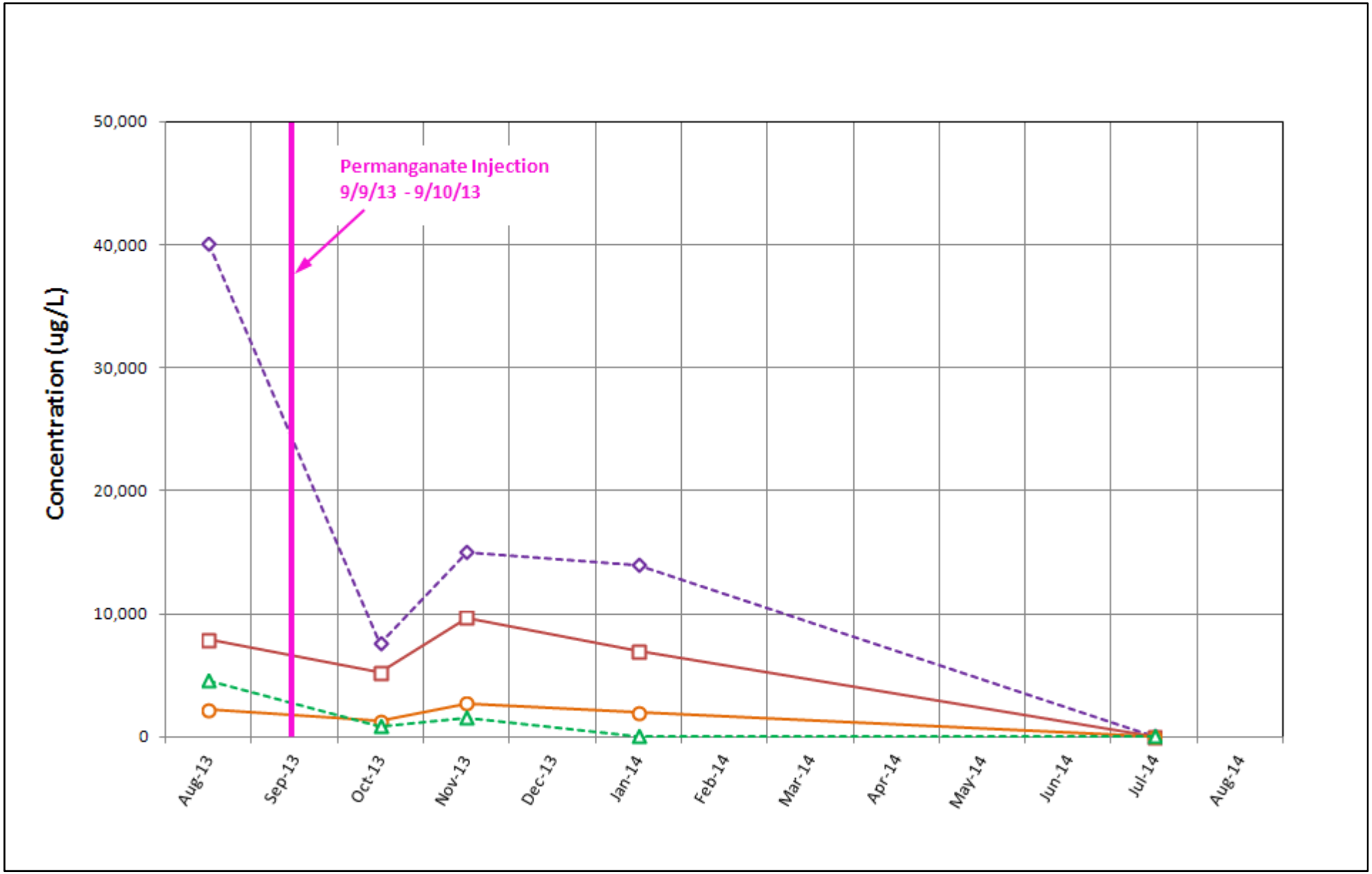

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Figure 12e
CVOC Trends in Groundwater – Well MW-10D

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

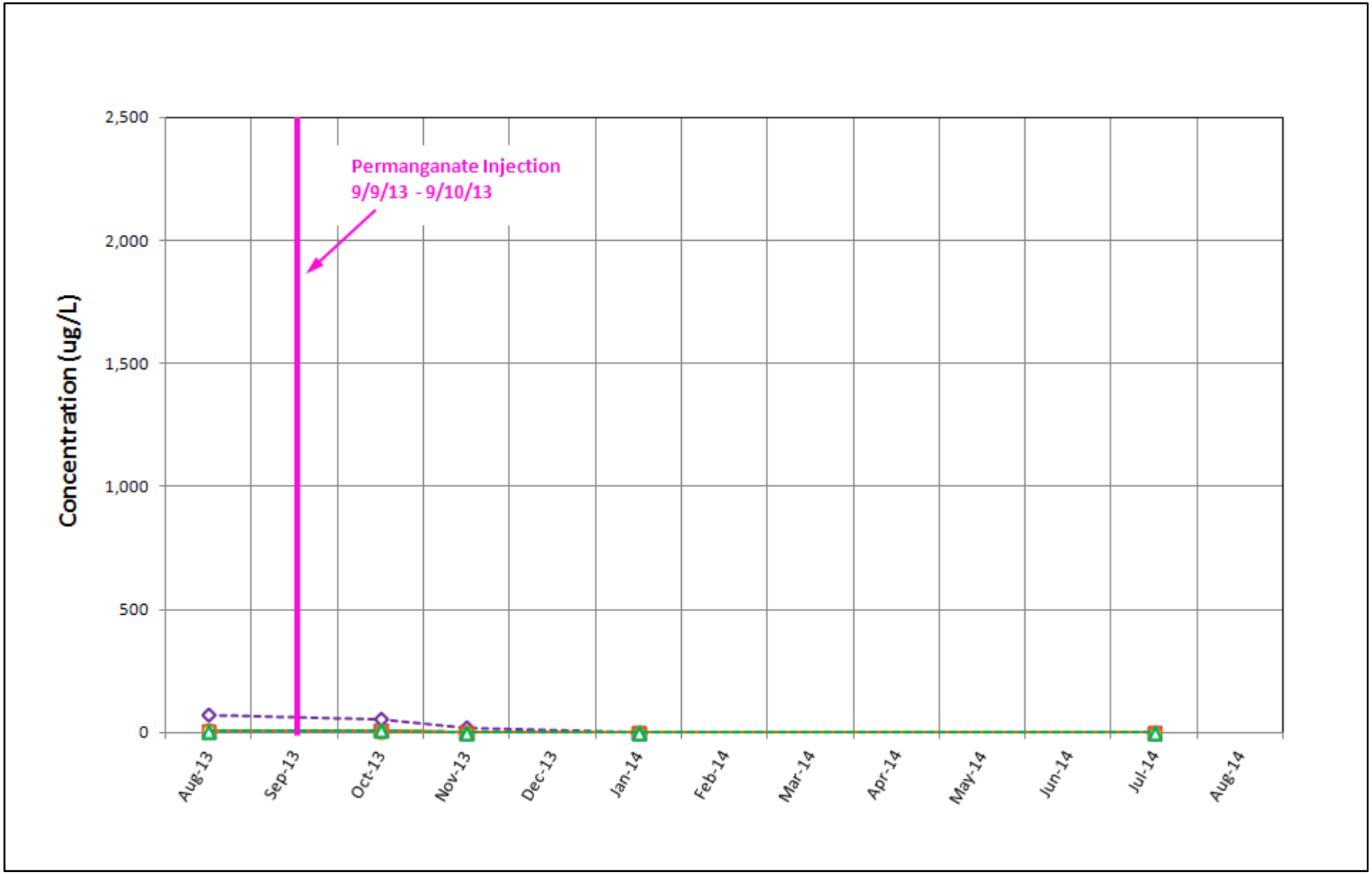

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Figure 12f
CVOC Trends in Groundwater – Well MW-13

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

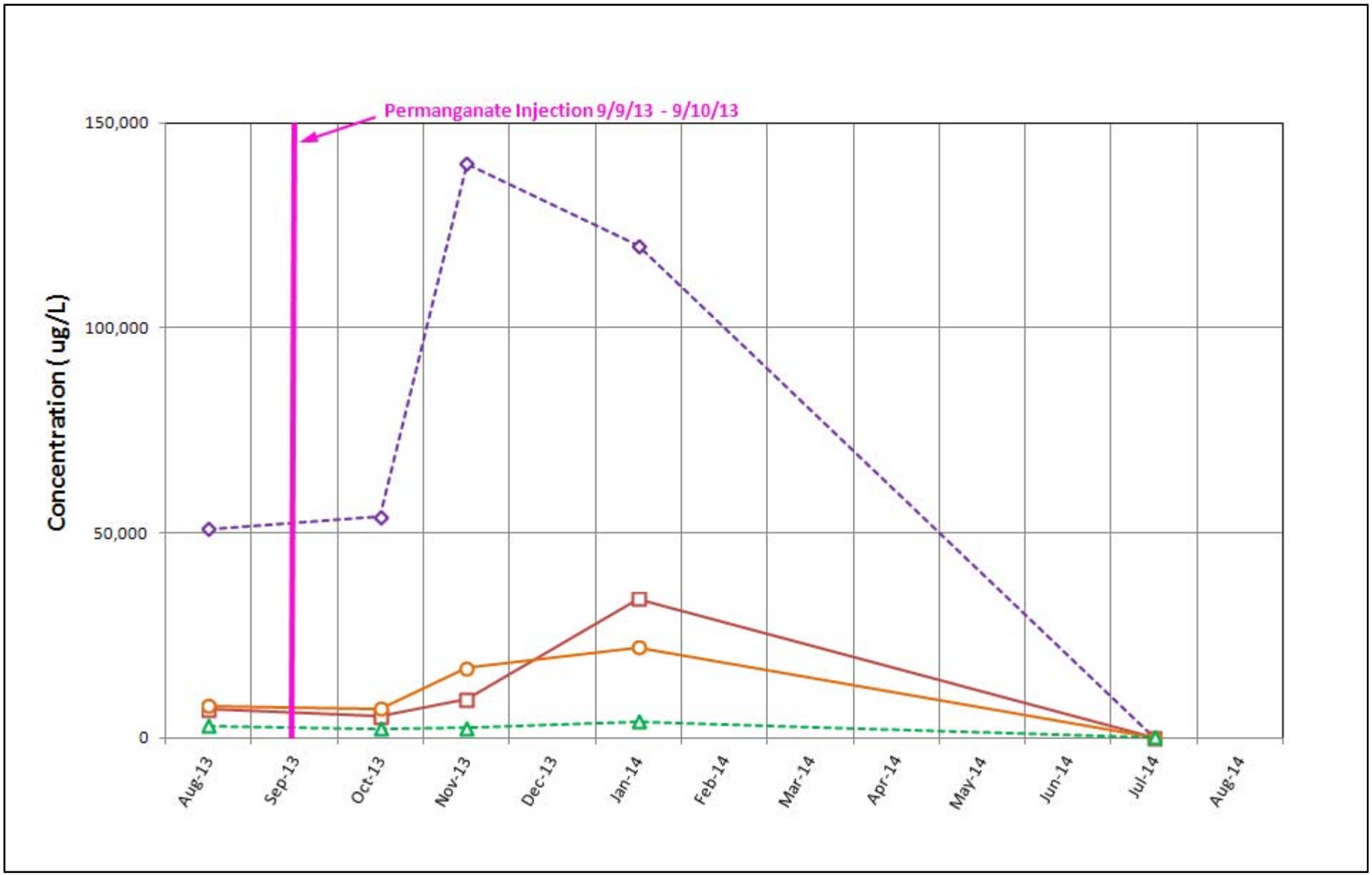

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Figure 12g
CVOC Trends in Groundwater – Well MW-25S

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York

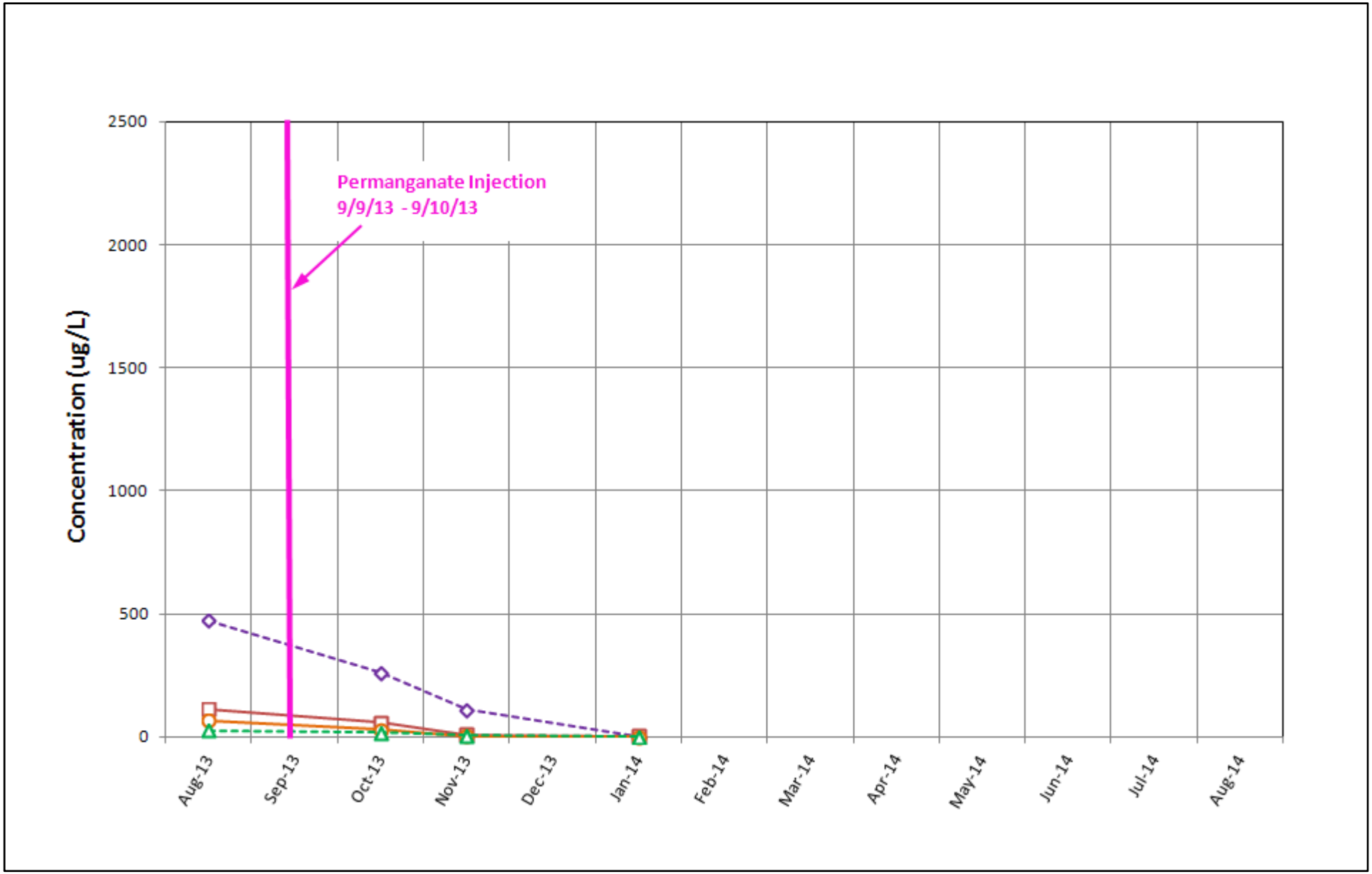

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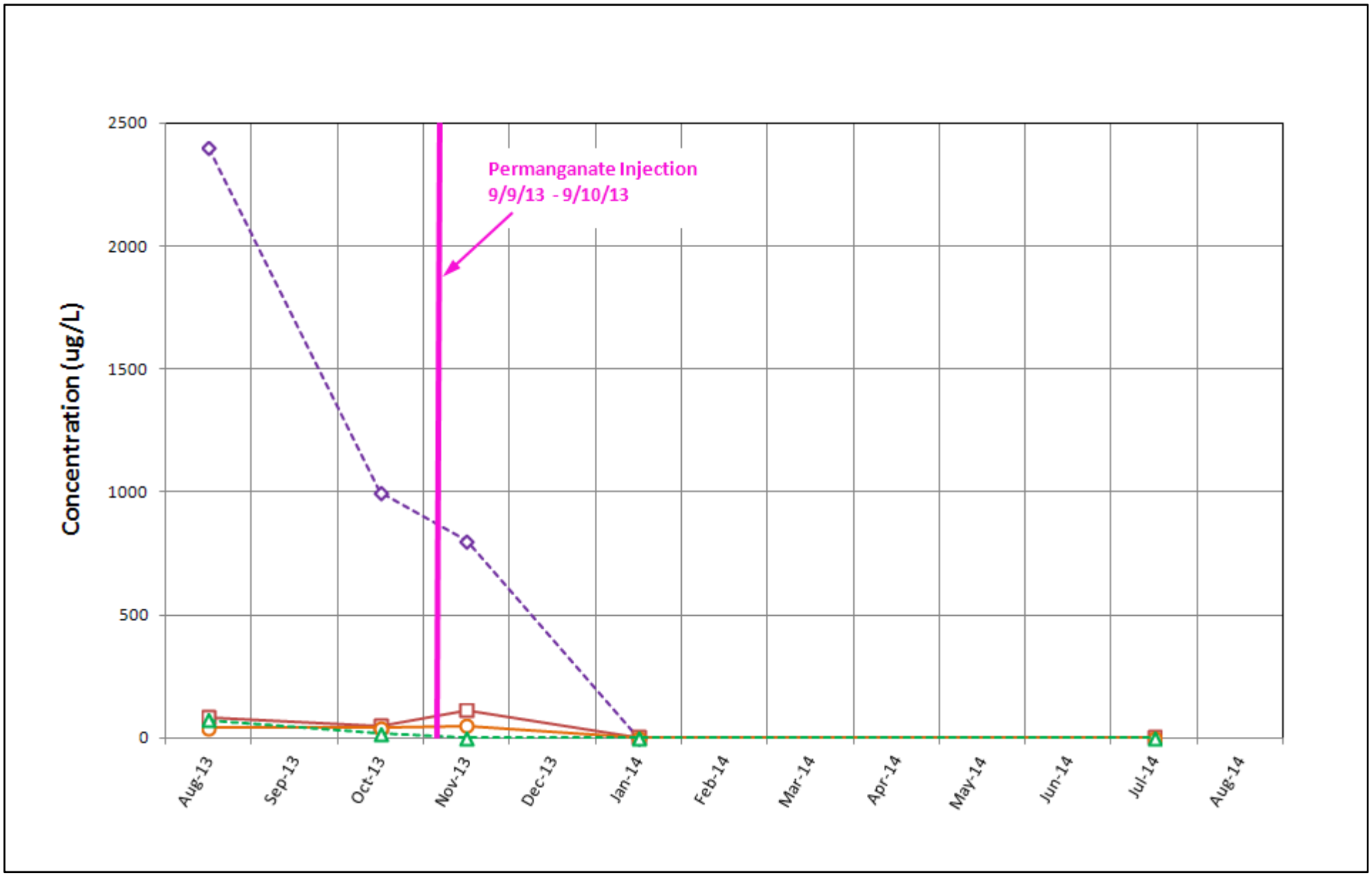
Figure 12h
CVOC Trends in Groundwater – Well MW-25D

Pre-Design Investigation Report
Crown Dykman (NYSDEC Site No.130054)
Glen Cove, New York



IW-01S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
Methylene Chloride	14 JD	NS	NS	NS	NS

MW-13	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/15/2014
Methylene Chloride	630 JD	2,500 UD	2,500 U	2,500 U	230 J

MW-8	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/16/2014
Ethyl Benzene	NS	NS	14	120 D	130
Isopropylbenzene			8.9	65	86
Methylcyclohexane			1.3	8.3	11
Methyl tert-butyl Ether			1.2	5.9	13
Xylene (Total)			120	1200	1400

MW-14R	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/14/2014
Ethyl Benzene	NS	NS	36	5.2	22
Isopropylbenzene			20 J	4.5	8.6
Methylcyclohexane			25 U	1.5	0.91 J
Toluene			50	2.0	39
Xylene (Total)			390	48	170

MW-12	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/9/2014
1,1-Dichloroethene	NS	0.49 J	0.63 J	1.0 U	1.0 U
Acetone		10 U	21	10 U	3.6 J
Benzene		0.95 J	0.50 J	1.0 U	0.42 J
Dichlorodifluoromethane		1.0 U	1.0 U	1.0 U	26

IW-01D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
1,1-Dichloroethane	0.60 JD	NS	NS	NS	NS
1,2-Dichloroethane	0.29 JD				
Cyclohexane	1.1				
Methyl tert-butyl Ether	0.32 J				

MW-21D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/14/2014
Methylene Chloride	43 J D	130 UD	50 U	50 U	NS

MW-10S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
Methylene Chloride	340 JD	420 UD	200 U	200 U	100 U

MW-10D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/14/2014	7/14/2014
1,1-Dichloroethane	1.0 U	0.58 J	0.52 J	0.57 J	0.85 J
Acetone	10.0 U	46 D	10 U	10 U	10 U

MW-21S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/14/2014
1,1-Dichloroethane	0.65 J	50 UD	20 U	20 U	NS

MW-25S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
Methyl tert-butyl Ether	10 UD	10 UD	2.8 JD	1.2 BJ	0.53 J

MW-24	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/14/2014
Methylene Chloride	11 JD	40 UD	20 U	20 U	20 U

MW-23S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
Dichlorodifluoromethane	NS	130 UD	80 U	40 U	270

MW-25D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/22/2013	1/15/2014	7/14/2014
1,2,4-Trichlorobenzene	100 UD	50 UD	4.9 J	10 U	10 U

MW-23D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
1,1,1-Trichloroethane	NS	40 U	8.4	8.0 U	8.0 U
1,1-Dichloroethane		50 U	9.2 JD	4.1 J	3.7 J

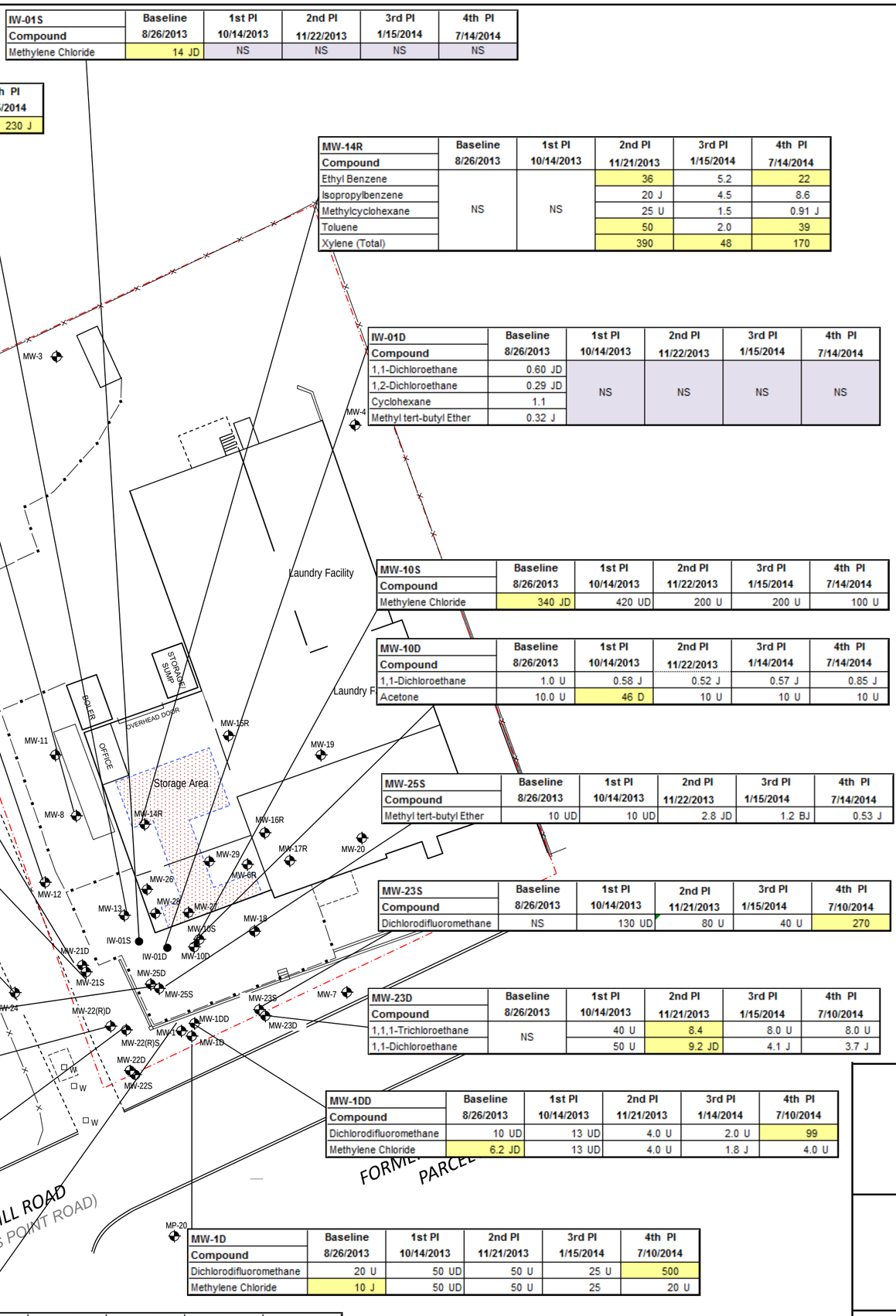
MW-22 (R) D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/9/2014
Dichlorodifluoromethane	50 UD	130 UD	50 U	50 U	1300

MW-1DD	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/10/2014
Dichlorodifluoromethane	10 UD	13 UD	4.0 U	2.0 U	99
Methylene Chloride	6.2 JD	13 UD	4.0 U	1.8 J	4.0 U

MW-22 (R) S	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/14/2014	7/9/2014
Dichlorodifluoromethane	40 UD	83 UD	40 U	10 U	1000
Methylene Chloride	21 JD	83 UD	40 U	4.8 J	10 U

MW-1D	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
Dichlorodifluoromethane	20 U	50 UD	50 U	25 U	500
Methylene Chloride	10 J	50 UD	50 U	25	20 U

MW-1	Baseline	1st PI	2nd PI	3rd PI	4th PI
Compound	8/26/2013	10/14/2013	11/21/2013	1/15/2014	7/10/2014
Dichlorodifluoromethane	80 UD	40 UD	20 U	10 U	500
Methylene Chloride	80 UD	40 UD	20 U	7.7 J	20 U



LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 GROUNDWATER MONITORING WELL
- MW-18 DAMAGED/MISSING WELL LOCATION
- SVE SYSTEM SUB-SLAB PIPING

PI – POST INJECTION SAMPLING EVENT

NS – NOT SAMPLED

NS – NOT SAMPLED DUE TO THE PRESENCE OF PERMANGANATE

All concentrations reported in ug/l

Data Qualifiers:

a) D – Based on dilution of original sample.

b) J – Result is estimated value, as result is below reporting limit for respective compound.

c) U – Result is not detected, Reporting limit provided.

d) NA – Not Analyzed

e) Indicates that compound exceeds the respective NYSDEC Class GA standard or guidance value.

N

0 30 60

Approximate Scale in Feet

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of Detected Non-CVOC Compounds in Groundwater
Baseline and Post-Injection Sampling Rounds

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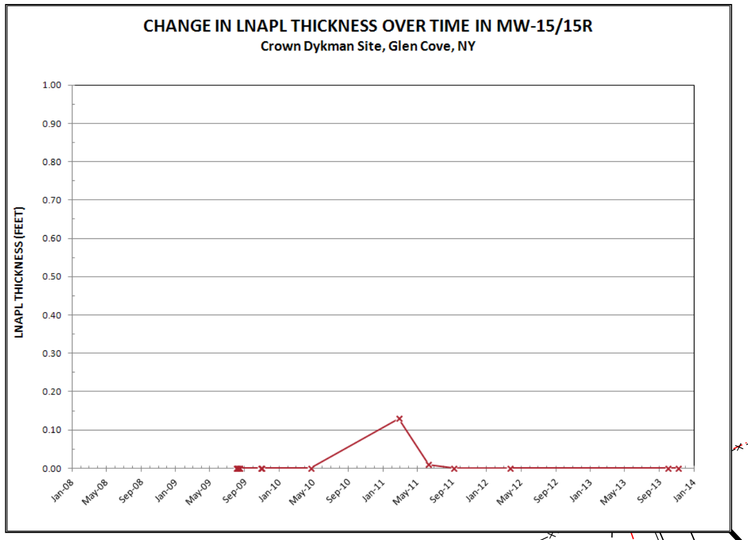
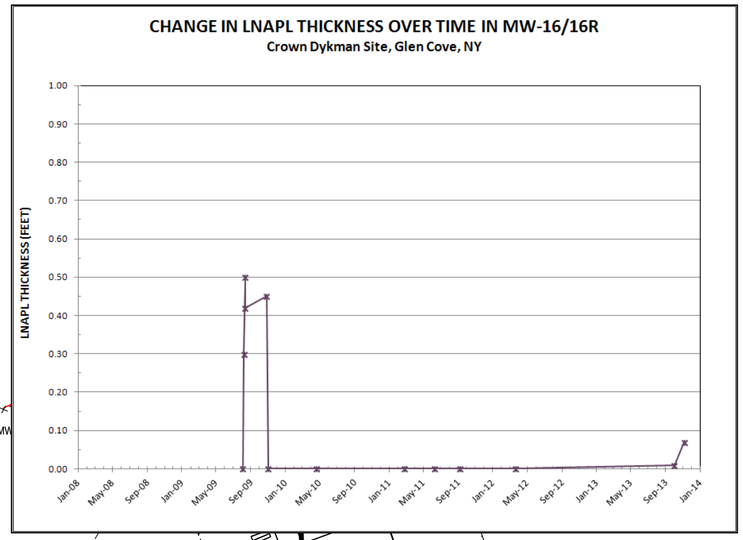
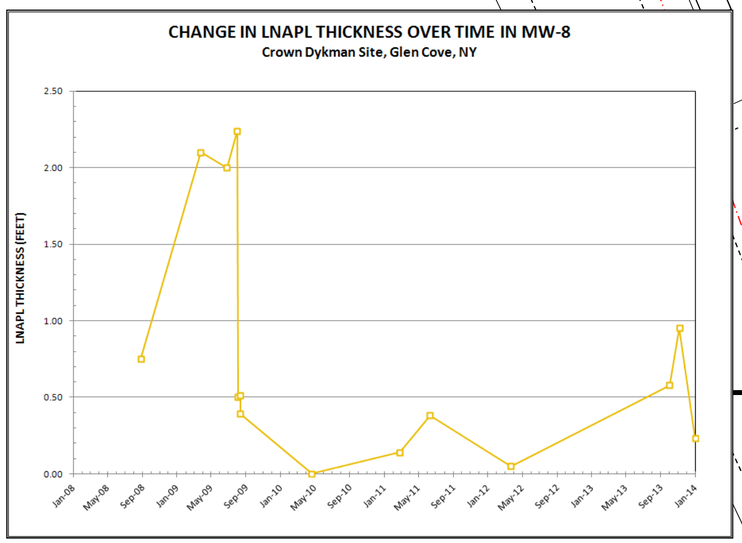
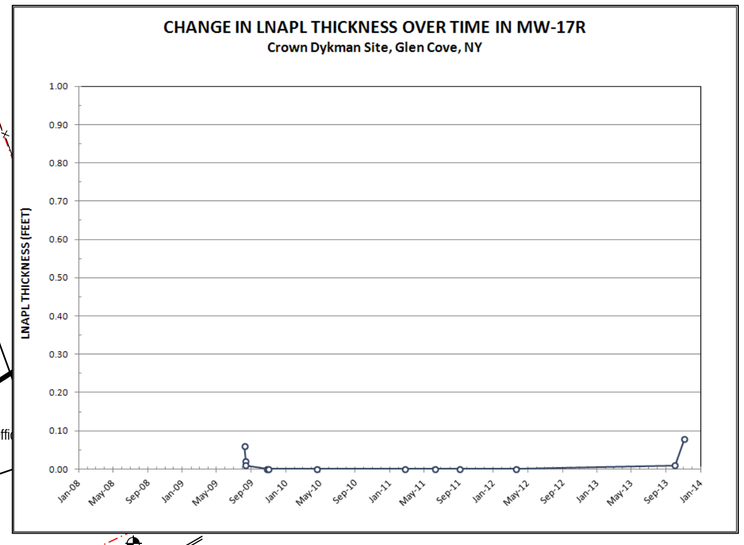
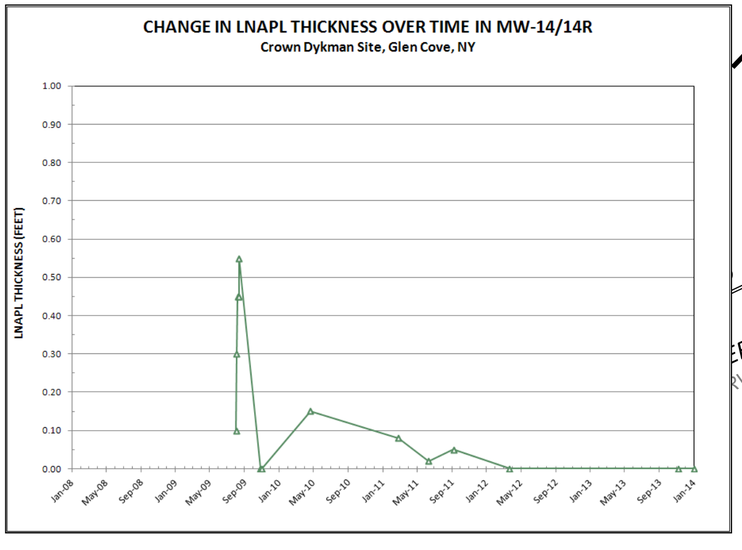
13
FIGURE

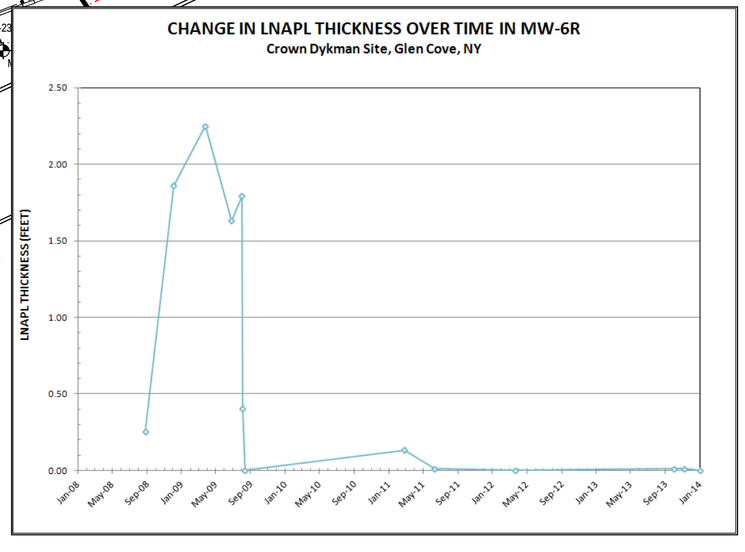


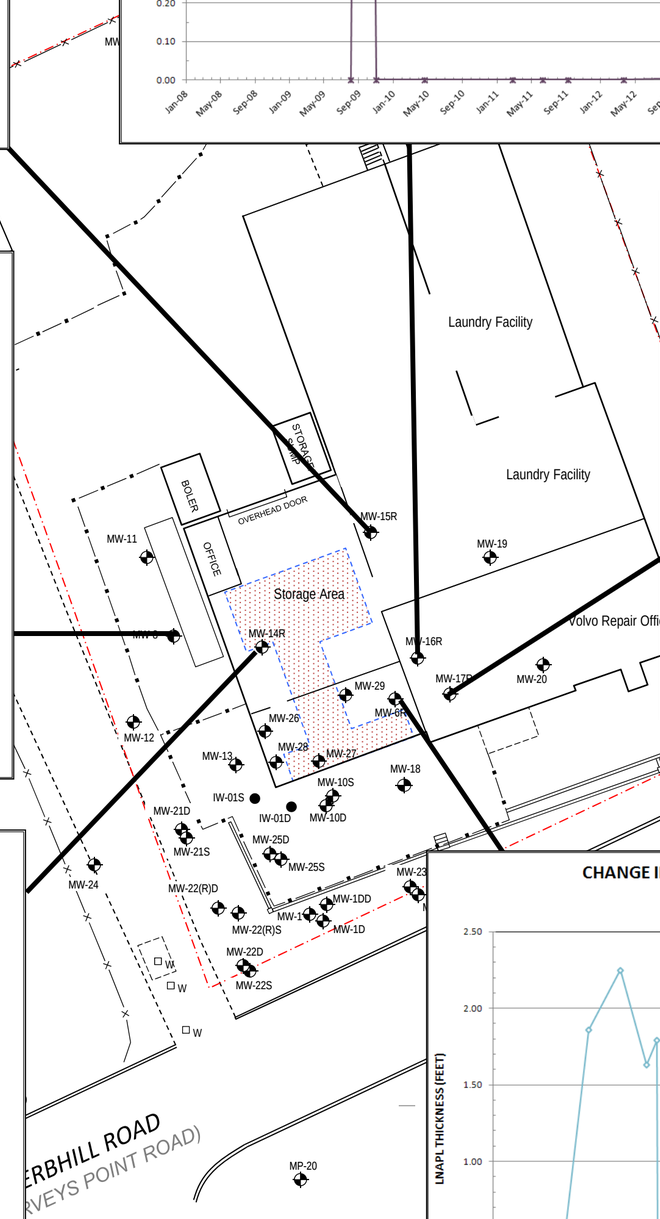












LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 — GROUNDWATER MONITORING WELL
- MW-18 — DAMAGED/MISSING WELL LOCATION
- SVE SYSTEM SUB-SLAB PIPING

N

0 30 60

Approximate Scale in Feet

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of LNAPL Thickness from 2008 to 2014

ARCADIS
Infrastructure · Water · Environment · Buildings

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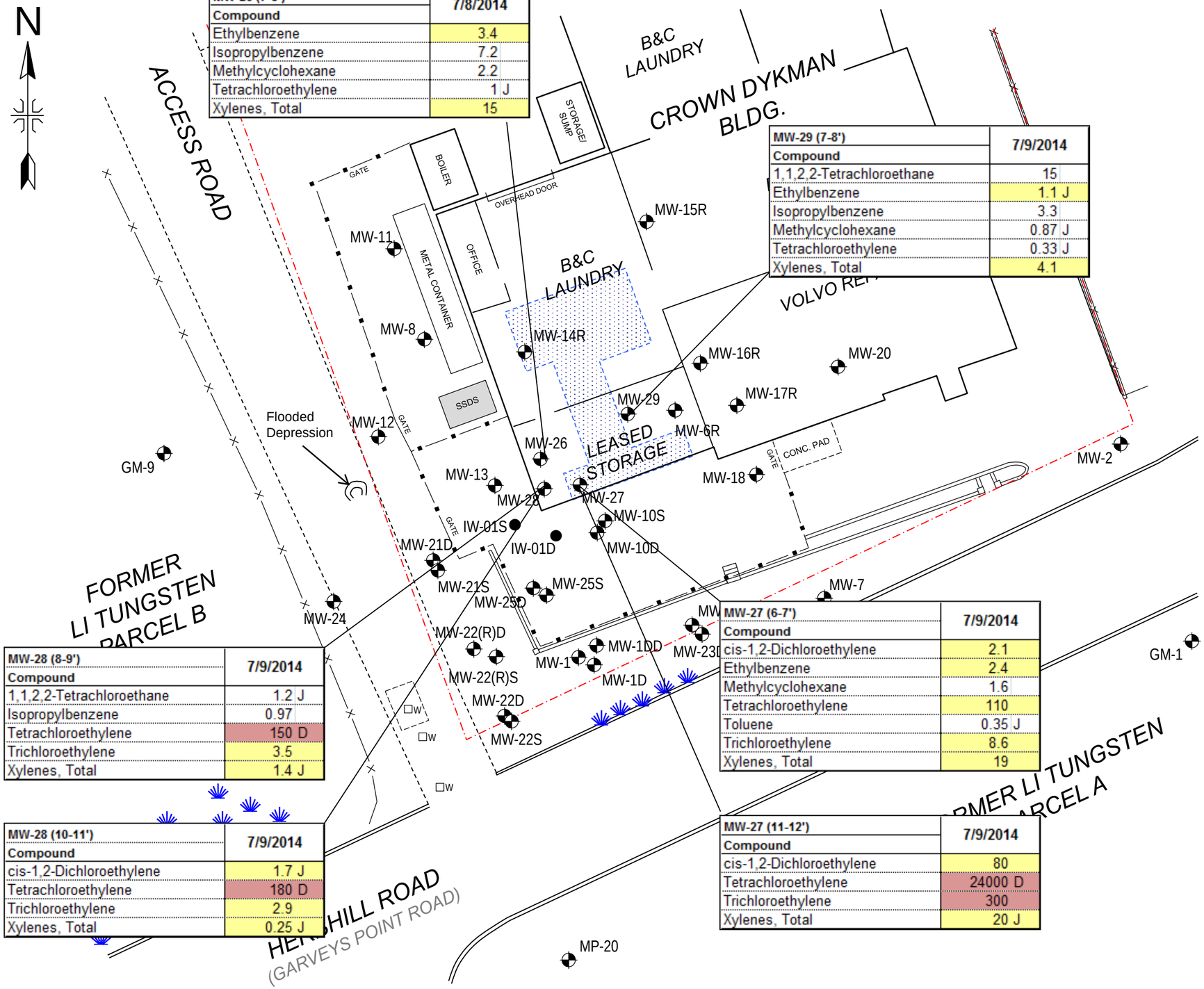
FIGURE



MW-26 (7-8')	7/8/2014
Compound	
Ethylbenzene	3.4
Isopropylbenzene	7.2
Methylcyclohexane	2.2
Tetrachloroethylene	1 J
Xylenes, Total	15

MW-29 (7-8')	7/9/2014
Compound	
1,1,2,2-Tetrachloroethane	15
Ethylbenzene	1.1 J
Isopropylbenzene	3.3
Methylcyclohexane	0.87 J
Tetrachloroethylene	0.33 J
Xylenes, Total	4.1

MW-28 (8-9')	7/9/2014
Compound	
1,1,2,2-Tetrachloroethane	1.2 J
Isopropylbenzene	0.97
Tetrachloroethylene	150 D
Trichloroethylene	3.5
Xylenes, Total	1.4 J

MW-28 (10-11')	7/9/2014
Compound	
cis-1,2-Dichloroethylene	1.7 J
Tetrachloroethylene	180 D
Trichloroethylene	2.9
Xylenes, Total	0.25 J

MW-27 (6-7')	7/9/2014
Compound	
cis-1,2-Dichloroethylene	2.1
Ethylbenzene	2.4
Methylcyclohexane	1.6
Tetrachloroethylene	110
Toluene	0.35 J
Trichloroethylene	8.6
Xylenes, Total	19

MW-27 (11-12')	7/9/2014
Compound	
cis-1,2-Dichloroethylene	80
Tetrachloroethylene	24000 D
Trichloroethylene	300
Xylenes, Total	20 J

LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 GROUNDWATER MONITORING WELL
- APPROXIMATE 2005 IRM EXCAVATION AREA/ SVE PIPING

Data Qualifiers:

a) D – Based on dilution of original sample.

b) J – Result is estimated value, as result is below reporting limit for respective compound.

c) U – Result is not detected, Reporting limit provided.

d) NA – Not Analyzed

e) Exceeds NYSDEC Unrestricted Soil Cleanup Standards

f) Exceeds NYSDEC Commercial Soil Cleanup Standards

All concentrations reported in mg/Kg

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of Detected Compounds in Soil – July 2014

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FIGURE

MW-8	7/16/2014
Compound	
cis-1,2-Dichloroethene	190
Cyclohexane	2.2 J
Ethyl Benzene	130
Isopropylbenzene	86
Methylcyclohexane	11
Tert-Butyl Methyl Ether	13
Toluene	85
Vinyl Chloride	38
Xylene (Total)	1400

MW-11	7/15/2014
Compound	
Benzene	19
cis-1,2-Dichloroethene	1400 D
Dichlorodifluoromethane	250
Isopropylbenzene	60
Methyl Acetate	24
Tert-Butyl Methyl Ether	120
Toluene	38
trans-1,2-Dichloroethene	11
Vinyl Chloride	450
Xylene (Total)	310

MW-29	7/15/2014
Compound	
1,1-Dichloroethene	4.9 J
Chloroethane	12
cis-1,2-Dichloroethene	3100 D
Ethyl Benzene	31
Isopropylbenzene	24
Tert-Butyl Methyl Ether	4.4 J
Tetrachloroethene	1700 D
Toluene	6.1 J
trans-1,2-Dichloroethene	13
Trichloroethene	260
Vinyl Chloride	550
Xylene (Total)	130

MW-15R	7/15/2014
Compound	
1,1,2,2-Tetrachloroethane	6.8
2-Hexanone	3.0 J
Acetone	4.6 J
Carbon Disulfide	0.24 J
cis-1,2-Dichloroethene	32
Cyclohexane	0.26 J
Ethyl Benzene	2.1
Isopropylbenzene	10
Methylcyclohexane	2.3
Tetrachloroethene	0.96 J
Trichloroethene	1.8
Vinyl Chloride	1.7

MW-16R	7/14/2014
Compound	
1,1,2,2-Tetracholroethane	13
cis-1,2-Dichloroethene	10
Ethyl Benzene	17
Isopropylbenzene	17
Methylcyclohexane	2.7 J
Trichloroethene	15

MW-4	7/9/2014
Compound	
1,1-Dichloroethane	1.3
cis-1,2-Dichloroethene	2.6
Dichlorodifluoromethane	26

MW-19	7/15/2014
Compound	
Acetone	3.9 J
cis-1,2-Dichloroethene	12
Tetrachloroethene	2.0
Trichloroethene	1.9

MW-3	7/9/2014
Compound	
Carbon Disulfide	0.49 BJ
Dichlorodifluoromethane	26

MW-6R	7/14/2014
Compound	
1,1,2,2-Tetrachloroethane	0.84 J
Acetone	5.1 J
Chloroethane	2.4
cis-1,2-Dichloroethene	41
Ethyl Benzene	7.1
Isopropylbenzene	9.3
Methylcyclohexane	0.88 J
Tetrachloroethene	1.4
Toluene	0.54 J
trans-1,2-Dichloroethene	0.97 J
Trichloroethene	0.91 J
Vinyl Chloride	11
Xylene (Total)	3.4

MW-26	7/15/2014
Compound	
1,1-Dichloroethene	17 J
cis-1,2-Dichloroethene	54000 D
Ethyl Benzene	110
Isopropylbenzene	52
Tetrachloroethene	8100 D
Toluene	90
trans-1,2-Dichloroethene	220
Trichloroethene	5500 D
Vinyl Chloride	3600 D
Xylene (Total)	520

MW-27	7/15/2014
Compound	
cis-1,2-Dichloroethene	130000 D
Tetrachloroethene	150000 D
Trichloroethene	13000
Vinyl Chloride	4900

MW-14R	7/14/2014
Compound	
Benzene	1.4 J
cis-1,2-Dichloroethene	25
Ethyl Benzene	22
Isopropylbenzene	8.6
Methylcyclohexane	0.91 J
Tert-Butyl Methyl Ether	0.37 J
Toluene	39
trans-1,2-Dichloroethene	2.2
Vinyl Chloride	32
Xylene (Total)	170

MW-18	7/14/2014
Compound	
1,1-Dichloroethane	4.5
1,1-Dichloroethene	2.4
Benzene	0.73 J
Chloroethane	13
cis-1,2-Dichloroethene	3900 D
Isopropylbenzene	1.1
Methylcyclohexane	0.35 J
Tert-Butyl Methyl Ether	2.2
Tetrachloroethene	490 D
trans-1,2-Dichloroethene	22
Trichloroethene	520 D
Vinyl Chloride	830 D

MW-28	7/15/2014
Compound	
cis-1,2-Dichloroethene	110000 D
Methylene Chloride	660 J
Tetrachloroethene	77000
Trichloroethene	28000
Vinyl Chloride	3000

MW-12	7/9/2014
Compound	
Acetone	3.6 J
Benzene	0.42 J
cis-1,2-Dichloroethene	7.6
Dichlorodifluoromethane	26
Methyl Acetate	6.7
Tert-Butyl Methyl Ether	2
Tetrachloroethene	6.1
Trichloroethene	3.2
Vinyl Chloride	0.96 J
Xylene (Total)	0.79 J

MW-13	7/15/2014
Compound	
cis-1,2-Dichloroethene	25000
Methylene Chloride	230 J
Tetrachloroethene	4100
Trichloroethene	4100

MW-20	7/15/2014
Compound	
cis-1,2-Dichloroethene	15
Toluene	2.0
Trichloroethene	2.1

MW-10S	7/14/2014
Compound	
cis-1,2-Dichloroethene	4600
Tetrachloroethene	1900
Trichloroethene	1000
Vinyl Chloride	250

MW-2	7/9/2014
Compound	
1,1,1-Trichloroethane	1.9
cis-1,2-Dichloroethene	3.3
Dichlorodifluoromethane	25
Tetrachloroethene	52
Trichloroethene	8.6
Vinyl Chloride	30

MW-10D	7/14/2014
Compound	
1,1-Dichloroethane	0.85 J
Chloroethane	0.50 J
cis-1,2-Dichloroethene	80
Tetrachloroethene	9.5
Trichloroethene	6.8
Vinyl Chloride	16

MW-1DD	7/10/2014
Compound	
cis-1,2-Dichloroethene	170
Dichlorodifluoromethane	99
Tert-Butyl Methyl Ether	0.9 J
Tetrachloroethene	40
Trichloroethene	28
Vinyl Chloride	30

MW-24	7/14/2014
Compound	
cis-1,2-Dichloroethene	910
Tetrachloroethene	180
Trichloroethene	90
Vinyl Chloride	41

MW-25D	7/14/2014
Compound	
cis-1,2-Dichloroethene	740
Tetrachloroethene	34
Trichloroethene	21
Vinyl Chloride	15

MW-22(R)D	7/9/2014
Compound	
cis-1,2-Dichloroethene	3200
Dichlorodifluoromethane	1300
Vinyl Chloride	60

MW-22(R)S	7/9/2014
Compound	
cis-1,2-Dichloroethene	1900 D
Dichlorodifluoromethane	1000
trans-1,2-Dichloroethene	16
Vinyl Chloride	24

MW-7	7/10/2014
Compound	
Chloroethane	3.8 J
Chloroform	0.54 J
Tert-Butyl Methyl Ether	2.3 J
Tetrachloroethene	58
trans-1,2-Dichloroethene	0.92 J
Trichloroethene	40
Vinyl Chloride	1.2

MW-1	7/10/2014
Compound	
cis-1,2-Dichloroethene	1300
Dichlorodifluoromethane	500
Tetrachloroethene	530
Trichloroethene	340

MW-1D	7/10/2014
Compound	
cis-1,2-Dichloroethene	1300
Dichlorodifluoromethane	500
Tetrachloroethene	270
Trichloroethene	290
Vinyl Chloride	49

MW-9	7/16/2014
Compound	
cis-1,2-Dichloroethene	910
Vinyl Chloride	210

MW-22D	7/11/2014
Compound	
cis-1,2-Dichloroethene	1100 D
Dichlorodifluoromethane	670
Tert-Butyl Methyl Ether	3.2 J
Tetrachloroethene	71
trans-1,2-Dichloroethene	7.8
Trichloroethene	98
Vinyl Chloride	170

MW-22S	7/11/2014
Compound	
1,1-Dichloroethene	0.4 J
Acetone	5.8 J
cis-1,2-Dichloroethene	430 D
Dichlorodifluoromethane	260
Methylcyclohexane	0.41 J
Tetrachloroethene	0.64 J
trans-1,2-Dichloroethene	6.1
Trichloroethene	0.84 J
Vinyl Chloride	420 D

MP-20	7/16/2014
Compound	
1,2-Dichloroethane	0.61 J
cis-1,2-DCE	46
Tetrachloroethene	4.9
trans-1,2-Dichloroethene	0.99 J
Trichloroethene	5.0
Vinyl Chloride	3.8

MW-23S	7/10/2014
Compound	
cis-1,2-Dichloroethene	610
Dichlorodifluoromethane	270
Tetrachloroethene	320
Trichloroethene	190

MW-23D	7/10/2014
Compound	
cis-1,2-Dichloroethene	560
Dichlorodifluoromethane	200
Tert-Butyl Methyl Ether	1.6 J
Tetrachloroethene	160
Trichloroethene	150
Vinyl Chloride	11

ACCESS ROAD

FORMER LI TUNGSTEN PARCEL B

FORMER LI TUNGSTEN PARCEL A

HERBHILL ROAD

(KEYS POINT ROAD)

Laundry Facility

Laundry Facility

Storage Area

Volvo Repair Office

BOILER

OFFICE

OVERHEAD DOOR

STORAGE SUMP

MW-1 MW-1D MW-1DD MW-2 MW-3 MW-4 MW-5 MW-6R MW-7 MW-8 MW-9 MW-10D MW-10S MW-11 MW-12 MW-13 MW-14R MW-15R MW-16R MW-17R MW-18 MW-19 MW-20 MW-21D MW-21S MW-22D MW-22S MW-22(R)D MW-22(R)S MW-23D MW-23S MW-24 MW-25D MW-25S MW-26 MW-27 MW-28 MW-29 GM-1 GM-9 IW-01D IW-01S MP-20

LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- MW-9 GROUNDWATER MONITORING WELL
- MW-18 DAMAGED/MISSING WELL LOCATION
- SVE SYSTEM SUB-SLAB PIPING

PI – POST INJECTION SAMPLING EVENT

NS – NOT SAMPLED

NS – NOT SAMPLED DUE TO THE PRESENCE OF PERMANGANATE

All concentrations reported in ug/l

Data Qualifiers:

a) D – Based on dilution of original sample.

b) J – Result is estimated value, as result is below reporting limit for respective compound.

c) U – Result is not detected, Reporting limit provided.

d) NA – Not Analyzed

e) Indicates that compound exceeds the respective NYSDEC Class GA standard or guidance value.

N

0 30 60

Approximate Scale in Feet

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Supplemental Investigation Groundwater Analytical Summary – July 2014

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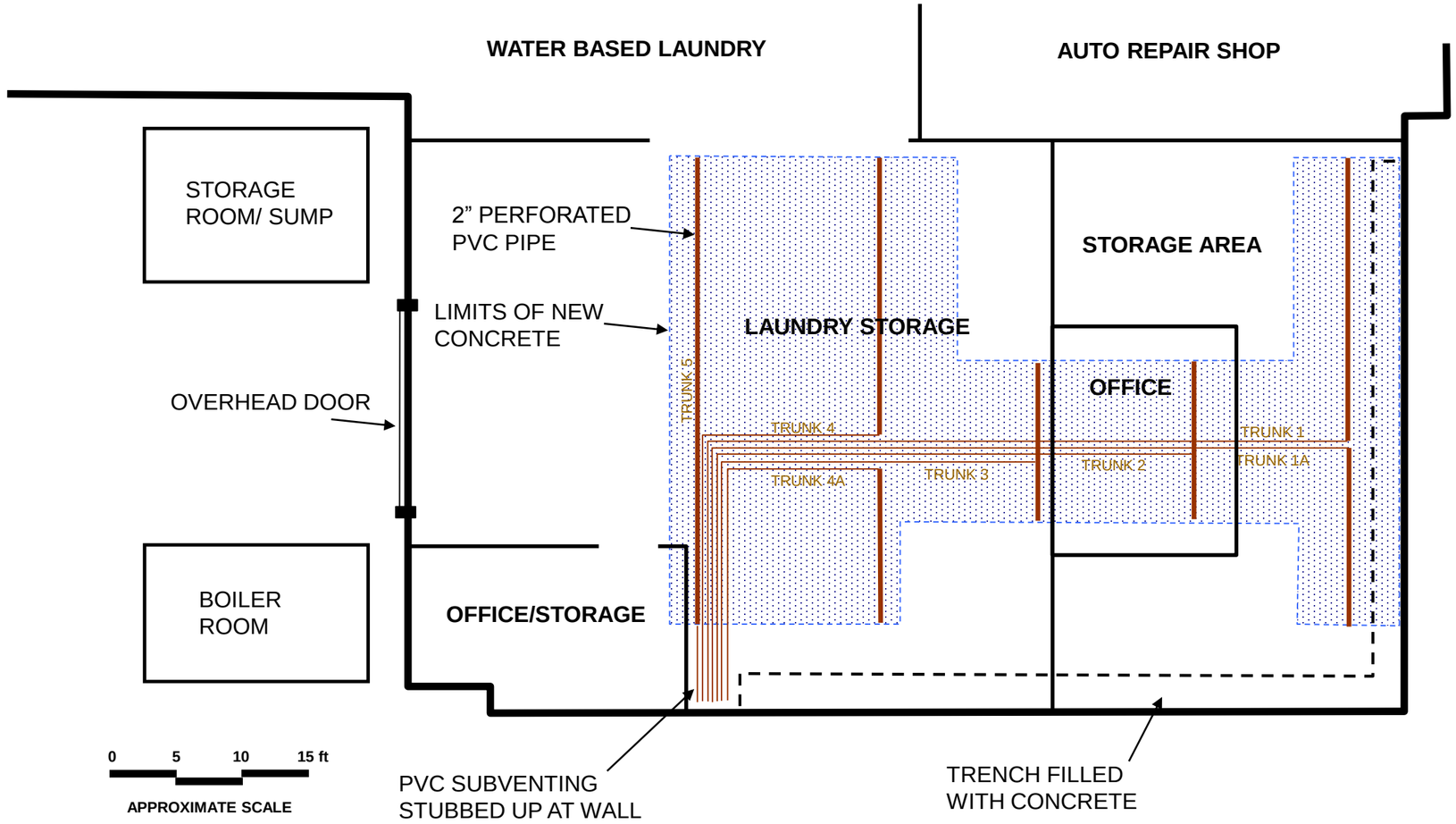
FIGURE



LEGEND

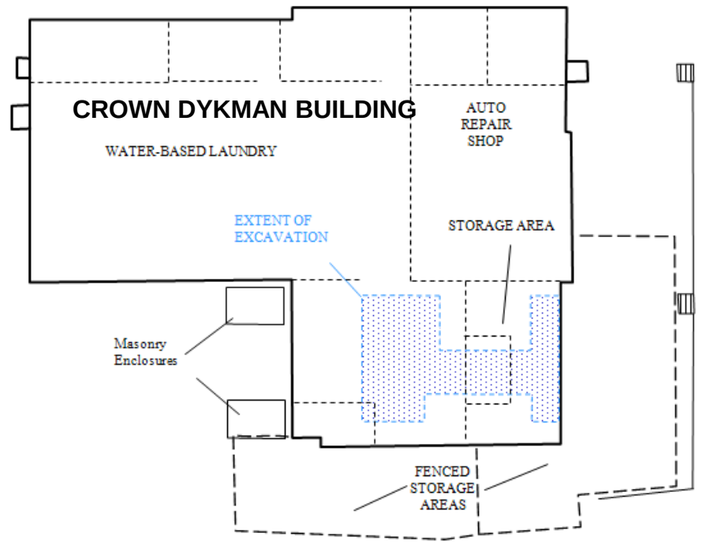
AREA OF SUB-SLAB EXCAVATION WITH NEW CONCRETE FLOOR

2" PVC PIPING - SOILD

2" PVC PIPING - PERFORATED

Source: June 2006 On-site Source Area Removal IRM Report, Walden Associates

N



Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Soil Vapor Extraction System Piping Schematic

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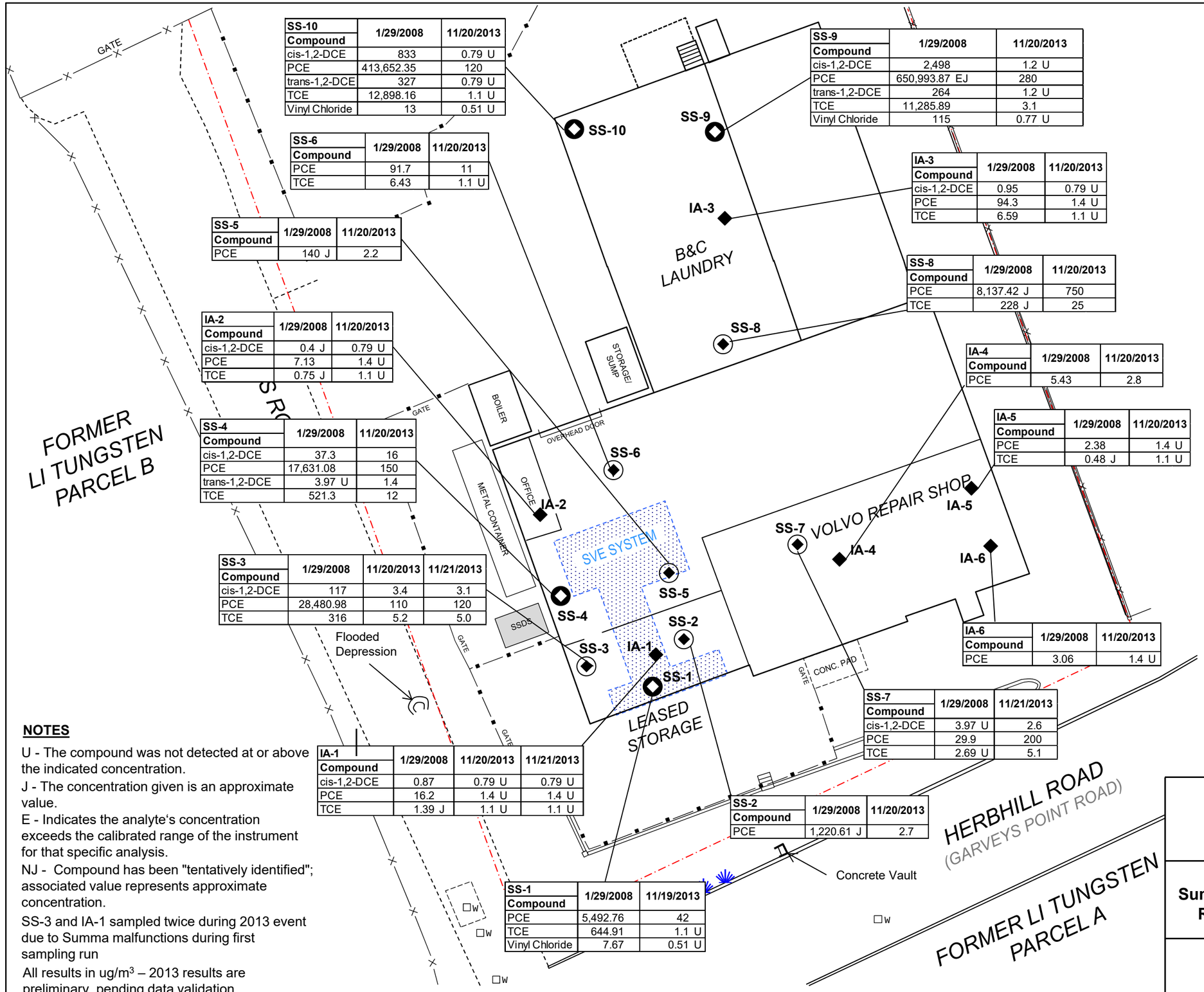
FIGURE



SS-10 Compound	1/29/2008	11/20/2013
cis-1,2-DCE	833	0.79 U
PCE	413,652.35	120
trans-1,2-DCE	327	0.79 U
TCE	12,898.16	1.1 U
Vinyl Chloride	13	0.51 U

SS-9 Compound	1/29/2008	11/20/2013
cis-1,2-DCE	2,498	1.2 U
PCE	650,993.87 EJ	280
trans-1,2-DCE	264	1.2 U
TCE	11,285.89	3.1
Vinyl Chloride	115	0.77 U

SS-6 Compound	1/29/2008	11/20/2013
PCE	91.7	11
TCE	6.43	1.1 U

IA-3 Compound	1/29/2008	11/20/2013
cis-1,2-DCE	0.95	0.79 U
PCE	94.3	1.4 U
TCE	6.59	1.1 U

SS-5 Compound	1/29/2008	11/20/2013
PCE	140 J	2.2

SS-8 Compound	1/29/2008	11/20/2013
PCE	8,137.42 J	750
TCE	228 J	25

IA-2 Compound	1/29/2008	11/20/2013
cis-1,2-DCE	0.4 J	0.79 U
PCE	7.13	1.4 U
TCE	0.75 J	1.1 U

IA-4 Compound	1/29/2008	11/20/2013
PCE	5.43	2.8

IA-5 Compound	1/29/2008	11/20/2013
PCE	2.38	1.4 U
TCE	0.48 J	1.1 U

SS-4 Compound	1/29/2008	11/20/2013
cis-1,2-DCE	37.3	16
PCE	17,631.08	150
trans-1,2-DCE	3.97 U	1.4
TCE	521.3	12

SS-3 Compound	1/29/2008	11/20/2013	11/21/2013
cis-1,2-DCE	117	3.4	3.1
PCE	28,480.98	110	120
TCE	316	5.2	5.0

IA-6 Compound	1/29/2008	11/20/2013
PCE	3.06	1.4 U

SS-7 Compound	1/29/2008	11/21/2013
cis-1,2-DCE	3.97 U	2.6
PCE	29.9	200
TCE	2.69 U	5.1

IA-1 Compound	1/29/2008	11/20/2013	11/21/2013
cis-1,2-DCE	0.87	0.79 U	0.79 U
PCE	16.2	1.4 U	1.4 U
TCE	1.39 J	1.1 U	1.1 U

SS-2 Compound	1/29/2008	11/20/2013
PCE	1,220.61 J	2.7

SS-1 Compound	1/29/2008	11/19/2013
PCE	5,492.76	42
TCE	644.91	1.1 U
Vinyl Chloride	7.67	0.51 U

LEGEND

- CHAIN-LINK FENCE
- WOOD-PICKET FENCE
- PROPERTY BOUNDARY (SURVEY)
- SS-6 — PERMENANT SUB-SLAB POINT
- SS-4 — TEMPORARY SUB-SLAB POINT
- IA-5 — INDOOR AIR POINT

N

0 25 50

APPROXIMATE SCALE IN FEET (1" = 25')

NOTES

U - The compound was not detected at or above the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentatively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

All results in ug/m^3 – 2013 results are preliminary, pending data validation.

Pre-Design Investigation Report
Crown Dykman
(NYSDEC Site No.130054)
Glen Cove, New York

Summary of Soil Vapor and Indoor Air Analytical Results (January 2008 and November 2013)

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FIGURE

ARCADIS

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Pre-Design Investigation Report

Crown Dykman (Site #130054)
Glen Cove, Nassau County, New York

Tables

Table 1.
Hydraulic Testing Summary

Well ID	Primary Unit	Falling Head Test		Rising Head Test		Average (Rising/Falling)	
		(ft/day)	(cm/sec)	(ft/day)	(cm/sec)	(ft/day)	(cm/sec)
MW-1S	med-coarse sand	28	1.00E-02	35	1.25E-02	32	1.12E-02
MW-1D	med-coarse sand	33	1.16E-02	20	7.12E-03	27	9.37E-03
MW-2	med-fine sand	7.5	2.63E-03	0.31	1.08E-04	3.9	1.37E-03
MW-3	med-fine sand	2.8	9.87E-04	1.7	6.17E-04	2.3	8.02E-04
MW-7	med-fine sand	3.0	1.05E-03	14	4.78E-03	8.3	2.91E-03
MW-9	fine silty sand	0.53	1.89E-04	0.29	1.04E-04	0.41	1.46E-04
GM-9	med-coarse sand	60	2.12E-02	104	3.67E-02	82	2.89E-02
MW-10S	med-coarse sand	19	6.80E-03	1.8	6.42E-04	11	3.72E-03
MW-10D	fine silty sand	0.34	1.20E-04	0.28	9.81E-05	0.31	1.09E-04
MP-20	fine silty sand	0.67	2.37E-04	1.2	4.16E-04	0.93	3.26E-04

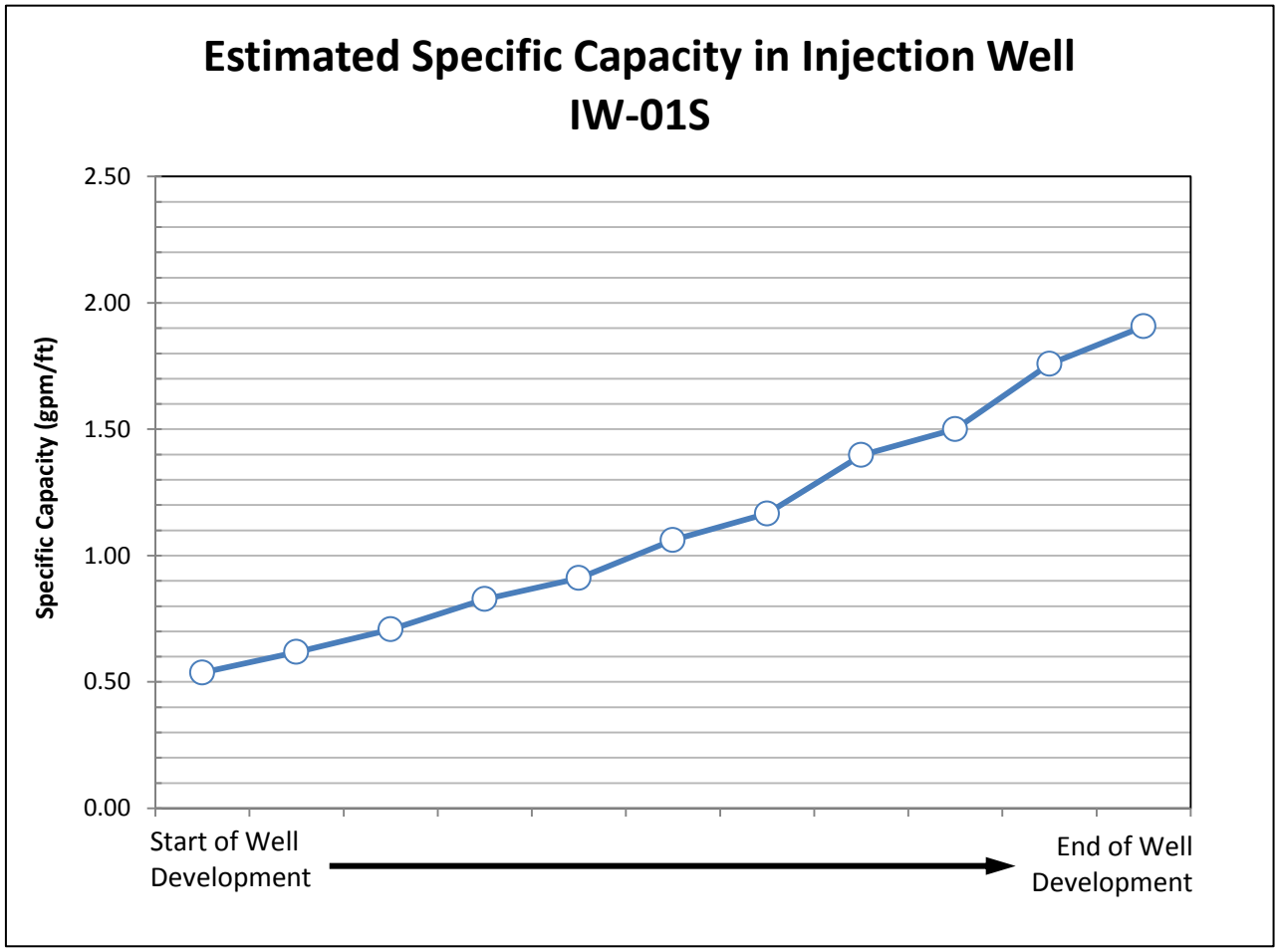
Average K (med-coarse sand):	47	1.65E-02	54	1.90E-02	50	1.78E-02
Average K (med-fine sand):	4.4	1.56E-03	5.2	1.83E-03	4.8	1.69E-03
Average K (fine silty sand):	0.52	1.82E-04	0.58	2.06E-04	0.55	1.94E-04

NOTE: values based on Bouwer and Rice slug testing analysis.

Table 2.
Summary of New Well Construction

Well ID	Ground Surface Elevation (Feet AMSL)	Measuring Point Elevation (Feet AMSL)	Total Depth (Feet BGS)	Screen Top Elevation (Feet ± MSL)	Screen Bottom Elevation (Feet ± MSL)	Screen Length (Feet)	Well Diameter (inches)	Well Material
MW-26	NM	NM	14.00	3.00	13.00	10	2	PVC
MW-27	NM	NM	15.00	5.00	15.00	10	2	PVC
MW-28	NM	NM	14.00	4.00	14.00	10	2	PVC
MW-29	NM	NM	14.00	4.00	14.00	10	2	PVC

Table 3a. Injection Well IW-01S Drawdown and Estimated Well Specific Capacity During Well Development.



Well Purge Rate (gpm)	Static Water Level (ft)	Depth to Water at Drawdown (ft)	Total Drawdown (ft)	Specific Capacity (gpm/ft)
2.25	5.78	9.97	4.19	0.54
2.25	5.78	9.42	3.64	0.62
2.25	5.78	8.96	3.18	0.71
2.25	5.78	8.50	2.72	0.83
2.25	5.78	8.25	2.47	0.91
2.25	5.78	7.90	2.12	1.06
2.25	5.78	7.71	1.93	1.17
2.25	5.81	7.42	1.61	1.40
2.25	5.81	7.31	1.50	1.50
2.25	5.81	7.09	1.28	1.76
2.25	5.8	6.98	1.18	1.91

gpm/ft - gallons per minute, per foot of saturated thickness.

Table 4
Summary of Basline TOC and COD Data

Sample ID Depth or Screen Interval (feet) Sampling Date Units	MW-1 8/27/2013 ug/L	MW-1D 8/26/2013 ug/L	MW-1DD 8/26/2013 ug/L	MW-10S 8/26/2013 ug/L	MW-10D 8/26/2013 ug/L	MW-13 8/26/2013 ug/L	MW-21S 8/27/2013 ug/L	MW-21D 8/27/2013 ug/L
General Chemistry								
Chemical Oxygen Demand	14.5	11.3	13.2	58.3	15.7	62.1	5.5 J	15.7
Total Organic Carbon	2.7	2.4	2.6	11.5	2.4	11.2	3.0	5.1

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

B - The analyte was found in an associated blank, as well as in the sample.

Table 4
Summary of Basline TOC and COD Data

Sample ID Depth or Screen Interval (feet) Sampling Date Units	MW-22(R)S 8/27/2013 ug/L	MW-22(R)D 8/27/2013 ug/L	MW-24 8/27/2013 ug/L	MW-25D 8/27/2013 ug/L	MW-25S 8/27/2013 ug/L	IW-01S 8/27/2013 ug/L	IW-01D 8/27/2013 ug/L
General Chemistry							
Chemical Oxygen Demand	18.9	37.5	26.3	12.6	18.6	11.0	14.5
Total Organic Carbon	3.4	5.1	9.2	3.3	3.0	2.7	3.7

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

B - The analyte was found in an associated blank, as well as in the sample.

Table 5.
Summary of Well DO and ORP Data

Well ID	Date	ORP (mV)	DO (mg/L)
MW-1	8/27/2013	348	0.24
	10/14/2013	16	0.00
	11/21/2013	60	0.00
	1/15/2014	4	0.00
	7/10/2014	7	0.09
MW-1D	8/26/2013	84	0.14
	10/14/2013	19	0.00
	11/21/2013	133	0.00
	1/14/2014	68	0.00
	7/10/2014	66	0.11
MW-1DD	8/26/2013	61	0.00
	10/14/2013	61	0.00
	11/21/2013	77	0.00
	1/14/2014	101	0.33
	7/10/2014	127	0.10
MW-8	8/26/2013	--	--
	10/14/2013	*	*
	11/22/2013	-95	0.00
	1/15/2014	-91	0.00
	7/15/2014	-58	0.17
MW-10D	8/26/2013	144	0.20
	10/15/2013	3	5.73
	11/22/2013	24	0.00
	1/15/2014	47	0.00
	7/14/2014	55	0.07
MW-10S	8/26/2013	290	0.06
	10/15/2013	18	0.00
	11/22/2013	122	0.00
	1/15/2014	144	0.93
	7/14/2014	70	0.12
MW-12	8/27/2014	--	--
	10/15/2013	-99	6.47
	11/21/2013	157***	0.48***
	1/15/2014	93	2.37
	7/9/2014	7	0.28

Notes:

--Well not sampled during Baseline event

*Readings not collected due to the presence of product in well.

**DO reading not recorded due to Horiba malfunction.

*** Well went dry after intial purge. Only one round of parameters recorded.

**** Readings not collected due to the presence of permanganate.

Table 5.
Summary of Well DO and ORP Data

Well ID	Date	ORP (mV)	DO (mg/L)
MW-13	8/26/2013	-22	0.14
	10/15/2013	-70	**
	11/21/2013	79	0.00
	1/15/2014	-8	0.00
	7/15/2014	-64	0.05
MW-14R	8/27/2014	--	--
	10/15/2013	-89	**
	11/21/2013	-94	0.00
	1/15/2014	4	0.00
	7/15/2014	-81	0.15
MW-21S	8/27/2013	402	0.14
	10/14/2013	97	0.00
	11/21/2013	-31	0.00
	1/14/2014	253	3.29
	7/14/2014	682	0.16
MW-21D	8/27/2013	396	0.20
	10/14/2013	130	1.07
	11/21/2013	-3	1.24
	1/14/2014	158	6.56
	7/17/2014	****	****
MW-22(R)D	8/26/2013	68	2.21
	10/14/2013	-61	0.00
	11/21/2013	54	0.95
	1/14/2014	-69	0.00
	7/9/2014	-27	0.00
MW-22(R)S	8/26/2013	-12	1.15
	10/14/2013	-72	0.00
	11/21/2013	90	0.00
	1/14/2014	-4	3.51
	7/9/2014	-43	0.00
MW-23D	8/27/2014	--	--
	10/14/2013	99	0.00
	11/21/2013	167	0.00
	1/14/2014	80	0.00
	7/10/2014	52	0.21

Notes:

--Well not sampled during Baseline event

*Readings not collected due to the presence of product in well.

**DO reading not recorded due to Horiba malfunction.

*** Well went dry after intial purge. Only one round of parameters recorded.

**** Readings not collected due to the presence of permanganate.

Table 5.
Summary of Well DO and ORP Data

Well ID	Date	ORP (mV)	DO (mg/L)
MW-23S	8/27/2014	--	--
	10/14/2013	90	0.00
	11/21/2013	295	0.00
	1/14/2014	223	4.34
	7/10/2014	208	0.26
MW-24	8/27/2013	350	0.09
	10/14/2013	-65	0.00
	11/21/2013	72	0.00
	1/14/2014	550	0.00
	7/14/2014	31	0.00
MW-25D	8/26/2013	-17	0.75
	10/15/2013	-146	*
	11/22/2013	-45	0.00
	1/14/2014	-44	0.00
	7/14/2014	-46	0.00
MW-25S	8/26/2013	-33	3.00
	10/15/2013	-158	*
	11/22/2013	-108	0.00
	1/14/2014	-76	0.00
	7/14/2014	****	****

Notes:

--Well not sampled during Baseline event

*Readings not collected due to the presence of product in well.

**DO reading not recorded due to Horiba malfunction.

*** Well went dry after intial purge. Only one round of parameters recorded.

**** Readings not collected due to the presence of permanganate.

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-1† 8/27/2013 ug/L	MW-1 10/14/2013 ug/L	MW-1 11/21/2013 ug/L	MW-1 1/15/2014 ug/L	MW-1 7/10/2014 ug/L	MW-1D† 8/26/2013 ug/L	MW-1D 10/14/2013 ug/L	MW-1D 11/21/2013 ug/L	MW-1D 1/14/2014 ug/L	MW-1D 7/10/2014 ug/L	MW-1DD 8/26/2013 ug/L	MW-1DD 10/14/2013 ug/L	MW-1DD 11/21/2013 ug/L
VOCs														
1,1,1,2-Tetrachloroethane	5	80 UD			10 U		20 U	50 UD				10 UD		
1,1,1-Trichloroethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,1,2,2-Tetrachloroethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,1,2-Trichloro-1,2,2-trifluoroethane			40 UD	20 U	10 U	20 U		50 UD	50 U	25 U	20 U		13 UD	4.0 U
1,1,2-Trichloroethane	1	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,1-Dichloroethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,1-Dichloroethene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,2,3-Trichlorobenzene	5	80 UD	40 UD				20 U	50 UD				10 UD	13 UD	
1,2,4-Trichlorobenzene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,2-Dibromo-3-Chloropropane	0.04	80 UD	80 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	25 UD	4.0 U
1,2-Dibromoethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,2-Dichlorobenzene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,2-Dichloroethane	0.04	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,2-Dichloropropane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,3-Dichlorobenzene	3	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
1,4-Dichlorobenzene	0.6	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
2-Butanone	1	800 UD	400 UD	100 U	100 U	200 U	200 U	500 UD	500 U	250 U	200 U	100 UD	130 UD	40 U
2-Hexanone	3	400 UD	400 UD	100 U	50 U	100 U	100 U	500 UD	250 U	130 U	100 U	50 UD	130 UD	20 U
4-Methyl-2-Pentanone	5	400 UD	400 UD	20 U	50 U	100 U	100 U	500 UD	250 U	130 U	100 U	50 UD	130 UD	20 U
Acetone	50	800 UD	400 UD	200 U	100 U	200 U	200 U	500 UD	500 U	250 U	200 U	100 UD	130 UD	40 U
Benzene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Bromodichloromethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Bromoform		80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Bromomethane	50*	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Carbon Disulfide	1	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Carbon Tetrachloride	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Chlorobenzene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Chloroethane	50*	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Chloroform	50*	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Chloromethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
cis-1,2-Dichloroethene	5	6200 D	690 D	970	630	1300	1400	3800 D	4800	1900	1300	730 D	490 D	240
cis-1,3-Dichloropropene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Cyclohexane		80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Dibromochloromethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Dichlorodifluoromethane	7	80 UD	40 UD	20 U	10 U	500	20 U	50 UD	50 U	25 U	500	10 UD	13 UD	4.0 U
Ethyl Benzene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Isopropylbenzene	50	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Methyl Acetate			100 UD	20 U	10 U	20 U		500 UD	50 U	25 U	20 U		130 UD	4.0 U
Methyl tert-butyl Ether	5	80 UD	40 UD			50 U	20 U	50 UD			50 U	2.1 JD	13 UD	
Methylcyclohexane			40 UD	20 U	50 U	20 U		50 UD	50 U	25 U	20 U		13 UD	4.0 U
Methylene Chloride	5	80 UD	40 UD	20 U	7.7 J	20 U	10 J	50 UD	50 U	25	20 U	6.2 JD	13 UD	4.0 U
Styrene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Tert-Butyl Methyl Ether	5			20 U	2.0 J	20 U			50 U	25 U	20 U			1.0 J
Tetrachloroethene	5	1100 D	240 D	250	170	530	470	630 D	700	300	270	210 D	110 D	74
Toluene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
trans-1,2-Dichloroethene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	22 JD	50 U	25 U	20 U	10 UD	2.4 J	4.0 U
trans-1,3-Dichloropropene	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Trichloroethene	5	1100 D	100 D	140	95	340	230	690 D	840	290	290	130 D	76 D	44
Trichlorofluoromethane	5	80 UD	40 UD	20 U	10 U	20 U	20 U	50 UD	50 U	25 U	20 U	10 UD	13 UD	4.0 U
Vinyl Chloride	5	520 D	58 D	65	21	20 U	87	350 D	410	96	49	110 D	75 D	38
Xylene (Total)	5	80 UD	80 UD	40 U	20 U	40 U	40 U	100 UD	100 U	50 U	40 U	20 UD	13 UD	8.0 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the field.

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-1DD 1/14/2014 ug/L	MW-1DD 7/10/2014 ug/L	MW-2 7/11/2014 ug/L	MW-3 7/9/2014 ug/L	MW-4 7/9/2014 ug/L	MW-6R 7/15/2014 ug/L	MW-7 7/10/2014 ug/L	MW-8 11/22/2013 ug/L	MW-8 1/15/2014 ug/L	MW-8 7/15/2014 ug/L	MW-9 7/16/2014 ug/L	MW-10S 8/26/2013 ug/L
VOCs													
1,1,1,2-Tetrachloroethane	5												500 UD
1,1,1-Trichloroethane	5	2.0 U	4.0 U	1.9	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,1,2,2-Tetrachloroethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	0.84 J	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,1,2-Trichloro-1,2,2-trifluoroethane		2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	
1,1,2-Trichloroethane	1	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,1-Dichloroethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.3	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,1-Dichloroethene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,2,3-Trichlorobenzene	5										10 U		500 UD
1,2,4-Trichlorobenzene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,2-Dibromo-3-Chloropropane	0.04	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,2-Dibromoethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,2-Dichlorobenzene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,2-Dichloroethane	0.04	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U		20 U	500 UD
1,2-Dichloropropane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,3-Dichlorobenzene	3	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
1,4-Dichlorobenzene	0.6	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
2-Butanone	1	20 U	40 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	200 U	5000 UD
2-Hexanone	3	10 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	100 U	2500 UD
4-Methyl-2-Pentanone	5	10 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	100 U	2,500 UD
Acetone	50	20 U	40 U	10 U	10 U	10 U	5.1 J	10 U	10 U	5.8 J	100 U	200 U	5,000 UD
Benzene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.4	10 U	20 U	500 UD
Bromodichloromethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Bromoform		2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Bromomethane	50*	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Carbon Disulfide	1	2.0 U	4.0 U	1.0 U	0.49 BJ	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Carbon Tetrachloride	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Chlorobenzene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Chloroethane	50*	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.4	3.8 J	1.0 U	1.0 U	10 U	20 U	500 UD
Chloroform	50*	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.54 J	1.0 U	1.0 U	10 U	20 U	500 UD
Chloromethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
cis-1,2-Dichloroethene	5	85	170	3.3	1.0 U	2.6	41	360 D	20	220 D	190	910	40,000 D
cis-1,3-Dichloropropene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Cyclohexane		2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	2.3	2.2 J	20 U	500 UD
Dibromochloromethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Dichlorodifluoromethane	7	2.0 U	99	25	26	26	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Ethyl Benzene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	7.1	8.0 U	14	120 D	130	20 U	500 UD
Isopropylbenzene	50	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	9.3	8.0 U	8.9	65	86	20 U	500 UD
Methyl Acetate		2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.5 U	8.0 U	1.0 U	1.0 U	25 U	50 U	
Methyl tert-butyl Ether	5		10 U	2.5 U	2.5 U	2.5 U		2.5 U					500 UD
Methylcyclohexane		2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	0.88 J	8.0 U	1.3	8.3	11	20 U	
Methylene Chloride	5	1.8 J	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	340 JD
Styrene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 UD
Tert-Butyl Methyl Ether	5	0.47 J	0.9 J	1.0 U	1.0 U	1.0 U	1.0 U	2.3 J	1.2	5.9	13	20 U	
Tetrachloroethene	5	33	40	52	1.0 U	1.4	1.4	58	1.0 U	1.3	10 U	20 U	7,900 D
Toluene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	0.54 J	8.0 U	8.7	79	85	20 U	500 UD
trans-1,2-Dichloroethene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	0.97 J	0.92 J	1.0 U	2.8	10 U	20 U	450 JD
trans-1,3-Dichloropropene	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1.0 U	10 U	20 U	500 JD
Trichloroethene	5	15	28	8.6	1.0 U	1.4	0.91 J	40	1.0 U	0.55 J	10 U	20 U	2,200 D
Trichlorofluoromethane	5	2.0 U	4.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0 U	1.0 U	1 U	10 U	20 U	500 UD
Vinyl Chloride	5	25	30	1.0 U	1.0 U	1.0 U	11	1.2	3.0	25	38	210	4500 D
Xylene (Total)	5	4.0 U	8.0 U	2.0 U	2.0 U	2.0 U	3.4	2.0 U	120	1200	1400	40 U	1000 UD

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the l

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-10S 10/14/2013 ug/L	MW-10S 11/22/2013 ug/L	MW-10S 1/15/2014 ug/L	MW-10S 7/14/2014 ug/L	MW-10D 8/26/2013 ug/L	MW-10D 10/14/2013 ug/L	MW-10D 11/22/2013 ug/L	MW-10D 1/15/2014 ug/L	MW-10D 7/14/2014 ug/L	MW-11 7/15/2014 ug/L	MW-12 10/14/2013 ug/L	MW-12 11/21/2013 ug/L
VOCs													
1,1,1,2-Tetrachloroethane	5					1.0 U							
1,1,1-Trichloroethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-trifluoroethane		420 UD	200 U	200 U	100 U		2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,1-Dichloroethane	5	420 UD	200 U	200 U	100 U	1.0 U	0.58 J	0.52 J	0.57 J	0.85 J	10 U	1.0 U	1.0 U
1,1-Dichloroethene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	0.49 J	0.63 J
1,2,3-Trichlorobenzene	5	420 UD				1.0 U	2.0 UD					1.0 U	
1,2,4-Trichlorobenzene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	0.04	830 UD	200 U	200 U	100 U	1.0 U	4.0 UD	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U
1,2-Dibromoethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,2-Dichlorobenzene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,2-Dichloroethane	0.04	420 UD	200 U	200 U	100 U	0.36 J	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,2-Dichloropropane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
1,4-Dichlorobenzene	0.6	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
2-Butanone	1	4,200 UD	2000 U	2000 U	1000 U	10 U	20 UD	10 U	10 U	10 U	100 U	10 U	10 U
2-Hexanone	3	4,200 UD	1000 U	1000 U	500 U	5.0 U	20 UD	5.0 U	5.0 U	5.0 U	50 U	10 U	5.0 U
4-Methyl-2-Pentanone	5	4,200 UD	1000 U	1000 U	500 U	5.0 U	20 UD	5.0 U	5.0 U	5.0 U	50 U	10 U	5.0 U
Acetone	50	4,200 UD	2000 U	2000 U	1000 U	10.0 U	46 D	10 U	10 U	10 U	100 U	10 U	21
Benzene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	19	0.95 J	0.50 J
Bromodichloromethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Bromoform		420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Bromomethane	50*	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Carbon Disulfide	1	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Carbon Tetrachloride	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Chlorobenzene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Chloroethane	50*	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	0.50 J	10 U	1.0 U	1.0 U
Chloroform	50*	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Chloromethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	7,600 D	15,000	14,000	4600	71	54 D	20	10	80	1400 D	4.7	3.1
cis-1,3-Dichloropropene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Cyclohexane		420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Dibromochloromethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Dichlorodifluoromethane	7	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	250	1.0 U	1.0 U
Ethyl Benzene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0	1.0 U
Isopropylbenzene	50	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	60	27	11
Methyl Acetate		420 UD	200 U	200 U	250 U		20 UD	1.0 U	1.0 U	2.5 U	24	10 U	1.0 U
Methyl tert-butyl Ether	5	420 UD				1.0 U	2.0 UD				25 U	4.0	
Methylcyclohexane		420 UD	200 U	200 U	100 U		2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Methylene Chloride	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Styrene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Tert-Butyl Methyl Ether	5		200 U	200 U	100 U			1.0 U	1.0 U	1.0 U	120		2.0
Tetrachloroethene	5	5,200 D	9,700	7,000	1900	7.4	9.3 D	2.9	0.69 J	9.5	10 U	1.2	1.7
Toluene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	38	1.0 U	1.0 U
trans-1,2-Dichloroethene	5	420 UD	200 U	200 U	100 U	1.2	0.59 JD	1.0 U	1.0 U	1.0 U	11	1.0 U	1.0 U
trans-1,3-Dichloropropene	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Trichloroethene	5	1,300 D	2,700	2,000	1000	9.0	6.5 D	2.3	0.96 J	6.8	10 U	1.7	2.2
Trichlorofluoromethane	5	420 UD	200 U	200 U	100 U	1.0 U	2.0 UD	1.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U
Vinyl Chloride	5	790 D	1,500	810	250	8.1	8.9 D	2.2	0.97 J	16	450	1.0	1.0 U
Xylene (Total)	5	830 UD	400 U	400 U	200 U	2.0 U	4.0 UD	2.0 U	2.0 U	2.0 U	310	0.54 J	0.85 J

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the l

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-12 1/15/2014 ug/L	MW-12 7/9/2014 ug/L	MW-13 8/26/2013 ug/L	MW-13 10/14/2013 ug/L	MW-13 11/21/2013 ug/L	MW-13 1/15/2014 ug/L	MW-13D (DUP) 8/26/2013 ug/L	MW-13 7/15/2014 ug/L	MW-14R 11/21/2013 ug/L	MW-14R 1/15/2014 ug/L	MW-14R 7/15/2014 ug/L	MW-15R 7/15/2014 ug/L
VOCs													
1,1,1,2-Tetrachloroethane	5			1,000 UD				1,000 UD					
1,1,1-Trichloroethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	410 U	25 U	1.0 U	2.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	110 U	25 U	1.0 U	2.0 U	6.8
1,1,2-Trichloro-1,2,2-trifluoroethane		1.0 U	1.0 U		2,500 UD	2,500 U	2,500 U		160 U	25 U	1.0 U	2.0 U	1.0 U
1,1,2-Trichloroethane	1	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	120 U	25 U	1.0 U	2.0 U	1.0 U
1,1-Dichloroethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	190 U	25 U	1.0 U	2.0 U	1.0 U
1,1-Dichloroethene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	150 U	25 U	1.0 U	2.0 U	1.0 U
1,2,3-Trichlorobenzene	5			1,000 UD	2,500 UD			1,000 UD					
1,2,4-Trichlorobenzene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	210 U	25 U	1.0 U	2.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	0.04	1.0 U	1.0 U	1,000 UD	5,000 UD	2,500 U	2,500 U	1,000 UD	200 U	25 U	1.0 U	2.0 U	1.0 U
1,2-Dibromoethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	370 U	25 U	1.0 U	2.0 U	1.0 U
1,2-Dichlorobenzene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	400 U	25 U	1.0 U	2.0 U	1.0 U
1,2-Dichloroethane	0.04	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	110 U	25 U	1.0 U	2.0 U	1.0 U
1,2-Dichloropropane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	360 U	25 U	1.0 U	2.0 U	1.0 U
1,3-Dichlorobenzene	3	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	390 U	25 U	1.0 U	2.0 U	1.0 U
1,4-Dichlorobenzene	0.6	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	420 U	25 U	1.0 U	2.0 U	1.0 U
2-Butanone	1	10 U	10 U	10,000 UD	25,000 UD	25,000 U	25,000 U	10,000 UD	660 U	250 U	10 U	20 U	10 U
2-Hexanone	3	5.0 U	5.0 U	5,000 UD	25,000 UD	13,000 U	13,000 U	5,000 UD	620 U	130 U	5.0 U	10 U	3.0 J
4-Methyl-2-Pentanone	5	5.0 U	5.0 U	5,000 UD	25,000 UD	13,000 U	13,000 U	5,000 UD	1100 U	130 U	5.0 U	10 U	5.0 U
Acetone	50	10 U	3.6 J	10,000 UD	25,000 UD	25,000 U	25,000 U	10,000 UD	1500 U	250 U	10 U	20 U	4.6 J
Benzene	5	1.0 U	0.42 J	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	210 U	25 U	1.0 U	1.4 J	1.0 U
Bromodichloromethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	200 U	25 U	1.0 U	2.0 U	1.0 U
Bromoform		1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	130 U	25 U	1.0 U	2.0 U	1.0 U
Bromomethane	50*	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	350 U	25 U	1.0 U	2.0 U	1.0 U
Carbon Disulfide	1	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	95 U	25 U	1.0 U	2.0 U	0.24 J
Carbon Tetrachloride	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	140 U	25 U	1.0 U	2.0 U	1.0 U
Chlorobenzene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	380 U	25 U	1.0 U	2.0 U	1.0 U
Chloroethane	50*	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	160 U	25 U	1.0 U	2.0 U	1.0 U
Chloroform	50*	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	170 U	25 U	1.0 U	2.0 U	1.0 U
Chloromethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	180 U	25 U	1.0 U	2.0 U	1.0 U
cis-1,2-Dichloroethene	5	2.7	7.6	51,000 D	54,000 D	140,000	120,000	57,000 D	25000	1400	5.1	25	32
cis-1,3-Dichloropropene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	180 U	25 U	1.0 U	2.0 U	1.0 U
Cyclohexane		1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	90 U	25 U	1.0 U	2.0 U	0.26 J
Dibromochloromethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	160 U	25 U	1.0 U	2.0 U	1.0 U
Dichlorodifluoromethane	7	1.0 U	26	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	340 U	25 U	1.0 U	2.0 U	1.0 U
Ethyl Benzene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	370 U	36	5.2	22	2.1
Isopropylbenzene	50	1.8	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	400 U	20 J	4.5	8.6	10
Methyl Acetate		1.0 U	6.7		25,000 UD	2,500 U	2,500 U		250 U	25 U	1.0 U	5.0 U	2.5 U
Methyl tert-butyl Ether	5		2.5 U	4,000 UD	2,500 UD			1,000 UD					
Methylcyclohexane		1.0 U	1.0 U		2,500 UD	2,500 U	2,500 U		80 U	25 U	1.5	0.91 J	2.3
Methylene Chloride	5	1.0 U	1.0 U	630 JD	2,500 UD	2,500 U	2,500 U	660 JD	230 J	25 U	1.0 U	2.0 U	1.0 U
Styrene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	370 U	25 U	1.0 U	2.0 U	1.0 U
Tert-Butyl Methyl Ether	5	1.0 U	2			2,500 U	2,500 U		80 U	4.4 J	1.0 U	0.37 J	1.0 U
Tetrachloroethene	5	7.9	6.1	7,000 D	5,200 D	9,600	34,000	6,300 D	4100	25 U	0.83 J	2.0 U	0.96 J
Toluene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	260 U	50	2.0	39	1.0 U
trans-1,2-Dichloroethene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	450 U	25 U	1.0 U	2.2	1.0 U
trans-1,3-Dichloropropene	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	190 U	25 U	1.0 U	2.0 U	1.0 U
Trichloroethene	5	2.4	3.2	7,800 D	7,100 D	17,000	22,000	7,000 D	4100	25 U	0.67 J	2.0 U	1.8
Trichlorofluoromethane	5	1.0 U	1.0 U	1,000 UD	2,500 UD	2,500 U	2,500 U	1,000 UD	440 U	25 U	1.0 U	2.0 U	1.0 U
Vinyl Chloride	5	1.0 U	0.96 J	3,000 D	2,100 JD	2,400 J	3,800	3,000 D	450 U	920	4.0	32	1.7
Xylene (Total)	5	2.0 U	0.79 J	2,000 UD	5,000 UD	5,000 U	5,000 U	2,000 UD	330 U	390	48	170	2.0 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the f

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-16R 7/15/2014 ug/L	MW-18 7/14/2014 ug/L	MW-19 7/15/2014 ug/L	MW-20 7/15/2014 ug/L	MW-21S 8/27/2013 ug/L	MW-21S 10/14/2013 ug/L	MW-21S 11/21/2013 ug/L	MW-21S 1/14/2014 ug/L	MW-21D 8/27/2013 ug/L	MW-21D 10/14/2013 ug/L	MW-21D 11/21/2013 ug/L	MW-21D 1/14/2014 ug/L	MW-22S 7/11/2014 ug/L
VOCs														
1,1,1,2-Tetrachloroethane	5					1.0 U				50 UD				
1,1,1-Trichloroethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,1,2,2-Tetrachloroethane	5	13	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,1,2-Trichloro-1,2,2-trifluoroethane		10 U	1.0 U	1.0 U	1.0 U		50 UD	20 U	20 U		130 UD	50 U	50 U	1.0 U
1,1,2-Trichloroethane	1	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,1-Dichloroethane	5	10 U	4.5	1.0 U	1.0 U	0.65 J	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,1-Dichloroethene	5	10 U	2.4	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	0.4 J
1,2,3-Trichlorobenzene	5					1.0 U	50 UD			50 UD	130 UD			
1,2,4-Trichlorobenzene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,2-Dibromo-3-Chloropropane	0.04	10 U	1.0 U	1.0 U	1.0 U	1.0 U	100 UD	20 U	20 U	50 UD	250 UD	50 U	50 U	1.0 U
1,2-Dibromoethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,2-Dichlorobenzene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,2-Dichloroethane	0.04	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,2-Dichloropropane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,3-Dichlorobenzene	3	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
1,4-Dichlorobenzene	0.6	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
2-Butanone	1	100 U	10 U	10 U	10 U	2.0 J	500 UD	200 U	200 U	500 UD	1,300 UD	500 U	500 U	10 U
2-Hexanone	3	50 U	5.0 U	5.0 U	5.0 U	5.0 U	500 UD	100 U	100 U	250 UD	1,300 UD	250 U	250 U	5.0 U
4-Methyl-2-Pentanone	5	50 U	5.0 U	5.0 U	5.0 U	5.0 U	500 UD	100 U	100 U	250 UD	1,300 UD	250 U	250 U	5.0 U
Acetone	50	100 U	10 U	3.9 J	10 U	20	500 UD	200 U	200 U	500 UD	1,300 UD	500 U	500 U	5.8 J
Benzene	5	10 U	0.73 J	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Bromodichloromethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Bromoform		10 U	1.0 U	1.0 U	1.0 U	3.9	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Bromomethane	50*	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Carbon Disulfide	1	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Carbon Tetrachloride	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Chlorobenzene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Chloroethane	50*	10 U	13	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Chloroform	50*	10 U	1.0 U	1.0 U	1.0 U	0.89 J	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Chloromethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
cis-1,2-Dichloroethene	5	10	3900 D	12	15	1.0 U	1,100 D	1,400	3500 D	3,400 D	2,200 D	3,500	3,700	430 D
cis-1,3-Dichloropropene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Cyclohexane		10 U	1.0 U	1.0 U	1.0 U	1.1	50 UD	20 U	20 U	42 JD	130 UD	50 U	50 U	1.0 U
Dibromochloromethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Dichlorodifluoromethane	7	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	260
Ethyl Benzene	5	17	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Isopropylbenzene	50	17	1.1	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Methyl Acetate		25 U	2.5 U	2.5 U	2.5 U		500 UD	20 U	20 U		1,300 UD	50 U	50 U	1.0 U
Methyl tert-butyl Ether	5					1.0 U	50 UD			50 UD	130 UD			2.5 U
Methylcyclohexane		2.7 J	0.35 J	1.0 U	1.0 U		50 UD	20 U	20 U		130 UD	50 U	50 U	0.41 J
Methylene Chloride	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	43 J D	130 UD	50 U	50 U	1.0 U
Styrene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Tert-Butyl Methyl Ether	5	10 U	2.2	1.0 U	1.0 U			20 U	20 U			50 U	50 U	1.0 U
Tetrachloroethene	5	10 U	490 D	2.0	2	11	380 D	290	630	50 UD	130 UD	50 U	50 U	0.64 J
Toluene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
trans-1,2-Dichloroethene	5	10 U	22	1.0 U	1.0 U	1.0 U	28 J	20 U	27	81 D	35 JD	50 U	50 U	6.1
trans-1,3-Dichloropropene	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Trichloroethene	5	15	520 D	1.9	2.1	1.0 U	210 D	150	460	50 UD	130 UD	50 U	50 U	0.84 J
Trichlorofluoromethane	5	10 U	1.0 U	1.0 U	1.0 U	1.0 U	50 UD	20 U	20 U	50 UD	130 UD	50 U	50 U	1.0 U
Vinyl Chloride	5	10 U	830 D	1.0 U	1.0 U	1.0 U	50 UD	32	82	98 D	57 JD	130	52	420 D
Xylene (Total)	5	20 U	2.0 U	2.0 U	2.0 U	2.0 U	100 UD	40 U	40 U	100 UD	250 UD	100 U	100 U	2.0 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the l

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-22D 7/11/2014 ug/L	MW-22(R)S 8/27/2013 ug/L	MW-22(R)S 10/14/2013 ug/L	MW-22(R)S 11/21/2013 ug/L	MW-22(R)S 1/14/2014 ug/L	MW-22(R)S 7/9/2014 ug/L	MW-22(R)D 8/27/2013 ug/L	MW-22(R)D 10/14/2013 ug/L	MW-22(R)D 11/21/2013 ug/L	MW-22(R)D 1/14/2014 ug/L	MW-22(R)D 7/9/2014 ug/L	MW-23D 10/14/2013 ug/L
VOCs													
1,1,1,2-Tetrachloroethane	5		40 U					50 UD					
1,1,1-Trichloroethane	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,1,2,2-Tetrachloroethane	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,1,2-Trichloro-1,2,2-trifluoroethane		4.0 U		83 UD	40 U	10 U	10 U		130 UD	50 U	50 U	50 U	40 U
1,1,2-Trichloroethane	1	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,1-Dichloroethane	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	9.2 JD
1,1-Dichloroethene	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,2,3-Trichlorobenzene	5		40 U	83 UD				50 UD	130 UD				40 U
1,2,4-Trichlorobenzene	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,2-Dibromo-3-Chloropropane	0.04	4.0 U	40 U	170 UD	40 U	10 U	10 U	50 UD	250 UD	50 U	50 U	50 U	80 U
1,2-Dibromoethane	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,2-Dichlorobenzene	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,2-Dichloroethane	0.04	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,2-Dichloropropane	5	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,3-Dichlorobenzene	3	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
1,4-Dichlorobenzene	0.6	4.0 U	40 U	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
2-Butanone	1	40 U	400 U	830 UD	400 U	100 U	100 U	500 UD	1300 UD	500 U	500 U	500 U	400 U
2-Hexanone	3	20 U	200 U	830 UD	200 U	50 U	50 U	250 UD	1300 UD	250 U	250 U	250 U	400 U
4-Methyl-2-Pentanone	5	20 U	200 U	830 UD	200 U	50 U	50 U	250 UD	1300 UD	250 U	250 U	250 U	400 U
Acetone	50	40 U	400 UD	830 UD	400 U	100 U	100 U	500 UD	1300 UD	500 U	500 U	500 U	400 U
Benzene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Bromodichloromethane	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Bromoform		4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Bromomethane	50*	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Carbon Disulfide	1	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Carbon Tetrachloride	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Chlorobenzene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Chloroethane	50*	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Chloroform	50*	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
Chloromethane	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	100 UD	130 UD	50 U	50 U	50 U	40 U
cis-1,2-Dichloroethene	5	1100 D	2400 D	1,800 D	2,100	740	1900 D	4,800 D	2800 D	3,200	3,600	3200	1,100 D
cis-1,3-Dichloropropene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Cyclohexane		4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Dibromochloromethane	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Dichlorodifluoromethane	7	670	40 UD	83 UD	40 U	10 U	1000	50 UD	130 UD	50 U	50 U	1300	40 U
Ethyl Benzene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Isopropylbenzene	50	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Methyl Acetate		10 U		830 UD	40 U	10 U	10 U		1300 UD	50 U	50 U	50 U	400 U
Methyl tert-butyl Ether	5		40 UD	83 UD			25 U	100 UD	130 UD			130 U	40 U
Methylcyclohexane		4.0 U		83 UD	40 U	10 U	10 U		130 UD	50 U	50 U	50 U	40 U
Methylene Chloride	5	4.0 U	21 JD	83 UD	40 U	4.8 J	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Styrene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Tert-Butyl Methyl Ether	5	3.2 J			40 U	10 U	10 U			50 U	50 U	50 U	
Tetrachloroethene	5	71	74 D	83 UD	40 U	14	10 U	50 UD	130 UD	50 U	50 U	50 U	270 D
Toluene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
trans-1,2-Dichloroethene	5	7.8	36 JD	83 UD	40 U	10 U	16	50 UD	130 UD	50 U	50 U	50 U	40 U
trans-1,3-Dichloropropene	5	4.0 U	40 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Trichloroethene	5	98	38 JD	83 UD	40 U	8.9 J	10 U	50 UD	130 UD	50 U	50 U	50 U	120 D
Trichlorofluoromethane	5	4.0 U	50 UD	83 UD	40 U	10 U	10 U	50 UD	130 UD	50 U	50 U	50 U	40 U
Vinyl Chloride	5	170	40 UD	20 J	40 U	10 U	24	50 UD	56 JD	52	50 U	60	22 JD
Xylene (Total)	5	8.0 U	80 UD	170 UD	80 U	20 U	20 U	100 UD	250 UD	100 U	100 U	100 U	80 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the l

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-23D 11/21/2013 ug/L	MW-23D 1/15/2014 ug/L	MW-23D 7/10/2014 ug/L	MW-23S 10/14/2013 ug/L	MW-23S 11/21/2013 ug/L	MW-23S (DUP) 11/20/2013 ug/L	MW-23S 1/15/2014 ug/L	MW-23S 7/10/2014 ug/L	MW-24 8/27/2013 ug/L	MW-24 10/14/2013 ug/L	MW-24 11/21/2013 ug/L
VOCs												
1,1,1,2-Tetrachloroethane	5									20 UD		
1,1,1-Trichloroethane	5	8.4	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,1,2,2-Tetrachloroethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,1,2-Trichloro-1,2,2-trifluoroethane		8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U		40 UD	20 U
1,1,2-Trichloroethane	1	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,1-Dichloroethane	5	4.1 J	3.7 J	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,1-Dichloroethene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,2,3-Trichlorobenzene	5				130 UD					20 UD	40 UD	
1,2,4-Trichlorobenzene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,2-Dibromo-3-Chloropropane	0.04	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	80 UD	20 U
1,2-Dibromoethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,2-Dichlorobenzene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,2-Dichloroethane	0.04	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,2-Dichloropropane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,3-Dichlorobenzene	3	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
1,4-Dichlorobenzene	0.6	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
2-Butanone	1	80 U	80 U	80 U	1300 UD	800 U	800 U	400 U	100 U	200 UD	400 UD	200 U
2-Hexanone	3	40 U	40 U	40 U	1300 UD	400 U	400 U	200 U	50 U	100 UD	400 UD	100 U
4-Methyl-2-Pentanone	5	40 U	40 U	40 U	1300 UD	400 U	400 U	200 U	50 U	100 UD	400 UD	100 U
Acetone	50	80 U	80 U	80 U	1300 UD	800 U	800 U	400 U	100 U	200 UD	400 UD	200 U
Benzene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Bromodichloromethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Bromoform		8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Bromomethane	50*	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Carbon Disulfide	1	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Carbon Tetrachloride	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Chlorobenzene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Chloroethane	50*	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Chloroform	50*	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Chloromethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
cis-1,2-Dichloroethene	5	380	790	560	2800 D	4,800	4,800	1900	610	1200 D	720 D	1100
cis-1,3-Dichloropropene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Cyclohexane		8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Dibromochloromethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Dichlorodifluoromethane	7	8.0 U	8.0 U	200	130 UD	80 U	80 U	40 U	270	20 UD	40 UD	20 U
Ethyl Benzene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Isopropylbenzene	50	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Methyl Acetate		8.0 U	8.0 U	8.0 U	1300 UD	80 U	80 U	40 U	10 U		40 UD	20 U
Methyl tert-butyl Ether	5			20 U	130 UD				25 U	20 UD	40 UD	
Methylcyclohexane		8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U		40 UD	20 U
Methylene Chloride	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	11 JD	40 UD	20 U
Styrene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Tert-Butyl Methyl Ether	5	3.6 J	3.0 J	1.6 J		80 U	80 U	40 U	10 U			20 U
Tetrachloroethene	5	140	170	160	700 D	1,000	1,000	590	320	290 D	96 D	97
Toluene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
trans-1,2-Dichloroethene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
trans-1,3-Dichloropropene	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Trichloroethene	5	61	120	150	550 D	820	820	420	190	150 D	69 D	91
Trichlorofluoromethane	5	8.0 U	8.0 U	8.0 U	130 UD	80 U	80 U	40 U	10 U	20 UD	40 UD	20 U
Vinyl Chloride	5	47	110	11	140 D	210	180	40 U	10 U	49 D	38 JD	55
Xylene (Total)	5	16 U	16 U	16 U	250 UD	160 U	160 U	80 U	20 U	40 UD	80 UD	40 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the f

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-24 1/14/2014 ug/L	MW-24 (DUP) 1/14/2014 ug/L	MW-24 7/14/2014 ug/L	MW-25D 8/27/2013 ug/L	MW-25D 10/14/2013 ug/L	MW-25D 11/22/2013 ug/L	MW-25D 1/15/2014 ug/L	MW-25D 7/14/2014 ug/L	MW-25S 8/27/2013 ug/L	MW-25S 10/14/2013 ug/L	MW-25S (DUP) 10/14/2013 ug/L	MW-25S 11/22/2013 ug/L	MW-25S 1/15/2014 ug/L
VOCs														
1,1,1,2-Tetrachloroethane	5				100 UD	50 UD				10 UD				
1,1,1-Trichloroethane	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,1,2,2-Tetrachloroethane	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,1,2-Trichloro-1,2,2-trifluoroethane		20 U	20 U	20 U		50 UD	10 U	10 U	10 U		10 UD	14 UD	2.0 U	2.0 U
1,1,2-Trichloroethane	1	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,1-Dichloroethane	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,1-Dichloroethene	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,2,3-Trichlorobenzene	5				100 UD	50 UD				10 UD	10 UD	14 UD		
1,2,4-Trichlorobenzene	5	20 U	20 U	20 U	100 UD	50 UD	4.9 J	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,2-Dibromo-3-Chloropropane	0.04	20 U	20 U	20 U	100 UD	100 UD	10 U	10 U	10 U	10 UD	20 UD	29 UD	2.0 U	2.0 U
1,2-Dibromoethane	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,2-Dichlorobenzene	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,2-Dichloroethane	0.04	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,2-Dichloropropane	5	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,3-Dichlorobenzene	3	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
1,4-Dichlorobenzene	0.6	20 U	20 U	20 U	100 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
2-Butanone	1	200 U	200 U	200 U	400 UD	500 UD	100 U	100 U	100 U	100 UD	100 UD	140 UD	20 U	20 U
2-Hexanone	3	100 U	100 U	100 U	200 UD	500 UD	50 U	50 U	50 U	50 UD	100 UD	140 UD	10 U	10 U
4-Methyl-2-Pentanone	5	100 U	100 U	100 U	200 UD	500 UD	50 U	50 U	50 U	50 UD	100 UD	140 UD	10 U	10 U
Acetone	50	200 U	200 U	200 U	400 UD	500 UD	100 U	100 U	100 U	100 UD	100 UD	140 UD	20 U	20 U
Benzene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Bromodichloromethane	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Bromoform		20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Bromomethane	50*	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Carbon Disulfide	1	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Carbon Tetrachloride	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Chlorobenzene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Chloroethane	50*	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Chloroform	50*	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Chloromethane	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
cis-1,2-Dichloroethene	5	1100	1200	910	2400 D	1,000 UD	800	620	740	470 D	260 D	270 D	110	170
cis-1,3-Dichloropropene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Cyclohexane		20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Dibromochloromethane	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Dichlorodifluoromethane	7	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Ethyl Benzene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Isopropylbenzene	50	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Methyl Acetate		20 U	20 U	50 U		500 UD	10 U	10 U	25 U		10 UD	14 UD	2.0 U	2.0 U
Methyl tert-butyl Ether	5	200 U			40 UD	50 UD				10 UD	10 UD	2.8 JD		
Methylcyclohexane		20 U	20 U	20 U		50 UD	10 U	2.0 J	10 U		10 UD	14 UD	2.0 U	2.0 U
Methylene Chloride	5	20 U	15 J	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Styrene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Tert-Butyl Methyl Ether	5	20 U	20 U	20 U			10 U	10 U	10 U				1.2 BJ	0.53 J
Tetrachloroethene	5	220	240	180	81 D	50 UD	110	300	34	110 D	57 D	58 D	6.4	36
Toluene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
trans-1,2-Dichloroethene	5	19 J	21	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
trans-1,3-Dichloropropene	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Trichloroethene	5	170	200	90	40 D	50 UD	47	100	21	67 D	28 D	29 D	4.2	16
Trichlorofluoromethane	5	20 U	20 U	20 U	40 UD	50 UD	10 U	10 U	10 U	10 UD	10 UD	14 UD	2.0 U	2.0 U
Vinyl Chloride	5	39	39	41	73 D	20 J	10 U	9.4 J	15	26 D	20 D	21 D	4.8	3.6
Xylene (Total)	5	40 U	40 U	40 U	80 UD	100 UD	20 U	20 U	20 U	20 UD	20 UD	29 UD	4.0 U	4.0 U

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the f

Table 6.
Groundwater Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	NYSDEC Class GA Standard or Guidance Value ug/L	MW-26 7/15/2014 ug/L	MW-27 7/15/2014 ug/L	MW-28 7/15/2014 ug/L	MW-29 7/15/2014 ug/L	MP-20 7/16/2014 ug/L	IW-01S 8/27/2013 ug/L	IW-01D 8/27/2013 ug/L
VOCs								
1,1,1,2-Tetrachloroethane	5						25 UD	25 UD
1,1,1-Trichloroethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,1,2,2-Tetrachloroethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,1,2-Trichloro-1,2,2-trifluoroethane		20 U	1000 U	1000 U	10 U	1.0 U		
1,1,2-Trichloroethane	1	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,1-Dichloroethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	0.60 JD
1,1-Dichloroethene	5	17 J	1000 U	1000 U	4.9 J	1.0 U	25 UD	25 UD
1,2,3-Trichlorobenzene	5						25 UD	25 UD
1,2,4-Trichlorobenzene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,2-Dibromo-3-Chloropropane	0.04	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,2-Dibromoethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,2-Dichlorobenzene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,2-Dichloroethane	0.04	20 U	1000 U	1000 U	10 U	0.61 J	25 UD	0.29 JD
1,2-Dichloropropane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,3-Dichlorobenzene	3	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
1,4-Dichlorobenzene	0.6	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	25 UD
2-Butanone	1	200 U	10000 U	10000 U	100 U	10 U	250 UD	10 UD
2-Hexanone	3	100 U	5000 U	5000 U	50 U	5.0 U	130 UD	5.0 UD
4-Methyl-2-Pentanone	5	100 U	5000 U	5000 U	50 U	5.0 U	130 UD	5.0 UD
Acetone	50	200 U	10000 U	10000 U	100 U	10 U	250 UD	10 UD
Benzene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Bromodichloromethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Bromoform		20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Bromomethane	50*	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Carbon Disulfide	1	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Carbon Tetrachloride	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Chlorobenzene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Chloroethane	50*	20 U	1000 U	1000 U	12	1.0 U	25 UD	1.0 UD
Chloroform	50*	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Chloromethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
cis-1,2-Dichloroethene	5	54000 D	130000 D	110000 D	3100 D	46	1700 D	48
cis-1,3-Dichloropropene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Cyclohexane		20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.1
Dibromochloromethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Dichlorodifluoromethane	7	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Ethyl Benzene	5	110	1000 U	1000 U	31	1.0 U	25 UD	1.0 UD
Isopropylbenzene	50	52	1000 U	1000 U	24	1.0 U	25 UD	1.0 UD
Methyl Acetate		50 U	2500 U	2500 U	25 U	2.5 U		
Methyl tert-butyl Ether	5						25 UD	0.32 J
Methylcyclohexane		20 U	1000 U	1000 U	10 U	1.0 U		
Methylene Chloride	5	20 U	1000 U	660 J	10 U	1.0 U	14 J D	1.0 UD
Styrene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Tert-Butyl Methyl Ether	5	20 U	1000 U	1000 U	4.4 J	1.0 U		
Tetrachloroethene	5	8100 D	150000 D	77000	1700 D	4.9	570 D	8.8
Toluene	5	90	1000 U	1000 U	6.1 J	1.0 U	25 UD	1.0 UD
trans-1,2-Dichloroethene	5	220	1000 U	1000 U	13	0.99 J	25 UD	1.0 UD
trans-1,3-Dichloropropene	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Trichloroethene	5	5500 D	13000	28000	260	5.0	300 D	6.9
Trichlorofluoromethane	5	20 U	1000 U	1000 U	10 U	1.0 U	25 UD	1.0 UD
Vinyl Chloride	5	3600 D	4900	3000	550	3.8	170 D	5.3 UD
Xylene (Total)	5	520	2000 U	2000 U	130	2.0 U	50 UD	2.0 UD

Notes

Exceeds NYSDEC Class GA Standard or Guidance Value

* Guidance Value

**Sum of these compounds can not exceed 0.4 ug/L.

U - Compound not detected, Reporting Limit provided.

J - Estimated by Validator.

D - Result of diluted sample shown.

† - The data for these wells is reversed from the Laboratory data summary, as the wells were mislabeled in the l

Table 7.
LNAPL Thickness Summary

Date	MW-6R	MW-8	MW-14/14R	MW-15/15R	MW-16/16R	MW-17/17R
9/8/2008	0.25	0.75	---	---	---	---
12/16/2008	1.86	---	---	---	---	---
4/8/2009	2.25	2.10	---	---	---	---
7/9/2009	1.63	2.00	---	---	---	---
8/13/2009	1.79	2.24	---	---	---	---
8/15/2009	---	---	0.10	NP	---	---
8/17/2009	0.40	0.50	0.30	NP	NP	---
8/21/2009	---	---	0.45	NP	0.30	0.06
8/25/2009	---	0.51	0.45	NP	0.50	0.02
8/26/2009	NP	0.39	0.55	NP	0.42	0.01
11/6/2009	---	---	---	---	---	---
11/9/2009	---	---	NP	NP	0.45	NP
11/13/2009	---	---	NP	NP	NP	NP
5/4/2010	---	NP	0.15	NP	NP	NP
3/9/2011	0.13	0.14	0.08	0.13	NP	NP
6/23/2011	<0.01	0.38	0.02	<0.01	NP	NP
9/20/2011	---	---	0.05	NP	NP	NP
4/4/2012	NP	0.05	NP	NP	NP	NP
10/14/2013	<0.01	0.58	---	NP	<0.01	<0.01
11/19/2013	<0.01	0.95	NP	NP	0.07	0.08
1/14/2014	NP	0.23	NP	---	---	---
7/7/2014	NP	NP	NP	NP	NP	0.02

Notes:

Values presented in feet

NP - No product

"---" Indicates Not Measured

'<0.01" Indicates sheen

Table 8.
Soil Analytical Data Summary

Sample ID Depth or Screen Interval (feet) Sampling Date Units	Unrestricted Use Soil Cleanup Objective ppm	Commercial Soil Cleanup Objective ppm	MW-26 7-8 7/8/2014 ppm	MW-27 6-7 7/9/2014 ppm	MW-27 11-12 7/9/2014 ppm	MW-28 8-9 7/9/2014 ppm	MW-28 10-11 7/9/2014 ppm	MW-29 7-8 7/9/2014 ppm
VOCs								
1,1,1-TRICHLOROETHANE	0.68	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,1,2,2-TETRACHLOROETHANE	--	--	1.3 U	1.2 U	64 U	1.2 J	1.2 U	15
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,1,2-TRICHLOROETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,1-DICHLOROETHANE	0.27	240	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,1-DICHLOROETHENE	0.33	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2,4-TRICHLOROBENZENE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2-DIBROMO-3-CHLOROPROPANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2-DIBROMOETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2-DICHLOROBENZENE	1.1	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2-DICHLOROETHANE	0.02	30	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,2-DICHLOROETHANE-D4	--	--	3.6	3.3		2.7	3.1	3.5
1,2-DICHLOROPROPANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,3-DICHLOROBENZENE	2.4	280	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
1,4-DICHLOROBENZENE	1.8	130	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
2-HEXANONE	--	--	6.3 U	6 U	320 U	4.8 U	6 U	10
4-BROMOFLUOROBENZENE	--	--	3.3	3.2		2.3	2.9	3.1
ACETONE	0.05	500	6.3 U	6 U	320 U	4.8 U	6 U	6 U
BENZENE	0.06	44	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1 U
BROMODICHLOROMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1 U
BROMOFORM	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
BROMOMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CARBON DISULFIDE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CARBON TETRACHLORIDE	0.76	22	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CHLOROBENZENE	1.1	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CHLOROETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CHLOROFORM	0.37	350	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CHLOROMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CIS-1,2-DICHLOROETHYLENE	0.25	500	1.3 U	2.1	80	0.96 U	1.7 J	1.2 U
CIS-1,3-DICHLOROPROPENE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
CYCLOHEXANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
DIBROMOCHLOROMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
DIBROMOFLUOROMETHANE	--	--	3.3	3.2		2.7	2.9	3.1
DICHLORODIFLUOROMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
ETHYLBENZENE	1	390	3.4	2.4	64 U	0.96 U	1.2 U	1.1 J
ISOPROPYLBENZENE	--	--	7.2	7.2	64 U	0.97	1.2 U	3.3
METHYL ACETATE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
2-BUTANONE	0.12	500	6.3 U	6 U	320 U	4.8 U	6 U	6 U
4-METHYL-2-PENTANONE	--	--	6.3 U	6 U	320 U	4.8 U	6 U	6 U
METHYLCYCLOHEXANE	--	--	2.2	1.6	64 U	0.96 U	1.2 U	0.87 J
METHYLENE CHLORIDE	0.05	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
STYRENE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
TERT-BUTYL METHYL ETHER	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
TETRACHLOROETHYLENE	1.3	150	1 J	110	24000 D	150 D	180 D	0.33 J
TOLUENE	0.7	500	1.3 U	0.35 J	64 U	0.96 U	1.2 U	1.2 U
TOLUENE-D8	--	--	3.1	3.2		2.5	2.8	2.7
TRANS-1,2-DICHLOROETHENE	0.19	500	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
TRANS-1,3-DICHLOROPROPENE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
TRICHLOROETHYLENE	0.47	200	1.3 U	8.6	300	3.5	2.9	1.2 U
TRICHLOROFLUOROMETHANE	--	--	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
VINYL CHLORIDE	0.02	13	1.3 U	1.2 U	64 U	0.96 U	1.2 U	1.2 U
XYLENES, TOTAL	0.26	500	15	19	20 J	1.4 J	0.25 J	4.1

Notes

- Exceeds NYSDEC Unrestricted use Soil Cleanup
- Exceeds NYSDEC Commercial Soil Cleanup

U - Compound not detected, Reporting Limit provided.

J - Result is less than the Reporting Limit but greater than or equal to the MDL and the concentration is an approximate value.

D - Result of diluted sample shown.

Table 9.
Monitoring Well Assessment Summary

Well ID	Condition	Comments
Site		
MW-1	S	Water above well casing upon arrival.
MW-1D	S	
MW-1DD	S	
MW-2	S	
MW-3	S	
MW-4	S	Well usable - wellhead completion damaged
MW-5	*	Unable to locate - well buried under debris pile
MW-6R	S	
MW-7	S	
MW-8	S	
MW-10S	S	
MW-10D	S	
MW-11	S	
MW-12	S	
MW-14R	S	
MW-15R	S	
MW-16R	S	
MW-17R	S	
MW-18	S	
MW-19	S	
MW-20	S	
MW-21S	S	
MW-21D	S	
MW-22S	U	Well is usable, surface completion damaged
MW-22D	U	Well is usable, surface completion damaged
MW-22RS	S	Loose J-plug. Water above well casing upon arrival.
MW-22RD	S	
MW-23S	S	
MW-23D	S	
MW-24	S	
MW-25S	S	Installed September 2013
MW-25D	S	Installed September 2013
MW-26	S	Installed July 2014
MW-27	S	Installed July 2014
MW-28	S	Installed July 2014
MW-29	S	Installed July 2014
IW-01S	S	Installed September 2013
IW-01D	S	Installed September 2013
Parcel A		
GM-1	*	Unable to locate well due to presence of spoil pile
MP-20	S	None
Parcel B		
MW-9	S	None
GM-9	S	Not sampled during July 2014 Event

Notes:

S - Satisfactory

U - Unsatisfactory

* - Could not locate

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	SUB-SLAB SAMPLES						
Sample ID	**SS-1**	**SS-1**	**SS-2**	**SS-2**	**SS-3**	**SS-3**	**SS-3**
Sampling Date	**1/29/2008**	**11/19/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**	**11/21/2013**
Dilution Factor	**10**	**1**	**1**	**1**	**10**	**1**	**1**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND							
1,1,1-Trichloroethane	5.44 U	1.1 U	0.54 U	1.1 U	5.44 U	1.1 U	1.1 U
1,1,2,2-Tetrachloroethane	6.87 UJ	1.4 U	0.69 U	1.4 U	6.87 UJ	1.4 U	1.4 U
1,1,2-Trichlorotrifluoroethane	7.65 U	1.5 U	0.76 U	1.3	7.65 U	1.5 U	1.5 U
1,1,2-Trichloroethane	5.44 U	1.1 U	0.54 U	1.1 U	5.44 U	1.1 U	1.1 U
1,1-Dichloroethane	4.05 U	0.81 U	0.4 U	0.81 U	4.05 U	0.81 U	0.81 U
1,1-Dichloroethene	3.97 U	0.79 U	0.4 U	0.79 U	3.97 U	0.79 U	0.79 U
1,2,4-Trichlorobenzene	7.4 UJ	3.7 U	0.74 U	3.7 U	7.4 UJ	3.7 U	3.7 U
1,2,4-Trimethylbenzene	4.91 UJ	1.5	379	3.7 U	4.91 UJ	3	3.4
1,2-Dibromoethane	7.69 U	1.5 U	0.77 U	1.5 U	7.69 U	1.5 U	1.5 U
1,2-Dichlorobenzene	6.01 UJ	1.2 U	0.6 U	1.2 U	6.01 UJ	1.2 U	1.2 U
1,2-Dichloroethane	4.05 U	0.81 U	0.4 U	0.81 U	4.05 U	0.81 U	3.5
1,2-Dichloropropane	4.62 U	0.92 U	0.46 U	0.92 U	4.62 U	0.92 U	0.92 U
1,2-Dichlorotetrafluoroethane		1.4 U		1.4 U		1.4 U	1.4 U
1,3,5-Trimethylbenzene	4.91 UJ	1.3	256	6.7	4.91 UJ	2.5	0.98 U
1,3-Butadiene	2.21 UJ	0.44 U	0.22 U	0.44 U	2.21 UJ	0.44 U	0.44 U
1,3-Dichlorobenzene	6.01 UJ	1.2 U	0.6 U	1.2 U	6.01 UJ	1.2 U	1.2 U
1,4-Dichlorobenzene	6.01 UJ	1.2 U	0.6 U	1.2 U	6.01 UJ	1.2 U	1.2 U
1,4-Dioxane	3.6 U	18 U	0.36 U	18 U	3.6 U	18 U	18 U
2,2,4-Trimethylpentane	4.66 U	2.7	6.48 J	59	4.66 U	7.5	2.1
2-Chlorotoluene	5.18 UJ	1.0 U	0.52 U	1.0 U	5.18 UJ	1.0 U	1.0 U
2-HEXANONE		2.0 U				2.0 U	2.0 U
4-Ethyltoluene	4.91 UJ	0.98 U	78.66 J	6.8	4.91 UJ	0.98 U	0.98 U
4-Methyl-2-Pentanone	4.09 U		18.9 J		4.5		
Acetone	152	15	3,088.10	12 U	2,850.55	12 U	12 U
Allyl Chloride	3.15 U	1.6 U	0.31 U	1.6 U	3.15 U	1.6 U	1.6 U
Benzene	3.19 U	3.7	9.86 J	13	9.25	0.84	1.2
Benzyl Chloride		1.0 U				1.0 U	1 U
Bromodichloromethane	6.71 U	1.3 U	0.67 U	1.3 U	6.71 U	1.3 U	1.3 U
Bromoethene	4.38 U	0.78 U	0.44 U	0.87 U	4.38 U	0.87 U	0.87 U
Bromoform	10.35 UJ	21 U	1.03 U	2.1 U	10.35 UJ	2.1 U	2.1 U
Bromomethane	3.89 U	0.78 U	0.39 U	0.78 U	3.89 U	0.78 U	0.78 U
Butane		34		41		12	7.5
Carbon Disulfide	3.11 U	1.6 U	1.12 J	1.6 U	3.11 U	1.6 U	1.6 U
Carbon Tetrachloride	3.15 U	1.3 U	0.5 J	1.3 U	3.15 U	1.3 U	1.3 U
Chlorobenzene	4.62 UJ	0.92 U	0.46 U	0.92 U	4.62 UJ	0.92 U	0.92 U
Chlorodifluoromethane		1.8 U		1.8 U		1.8 U	1.8 U
Chloroethane	2.66 U	1.3 U	0.27 U	1.3 U	2.66 U	1.3 U	1.3 U
Chloroform	24.3	7.2	0.92 J	4.8	28.2	0.98 U	0.98 U
Chloromethane	2.04 U	1.0 U	0.2 U	1.0 U	2.04 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	1824	0.79 U	348.9 J	0.79 U	117	3.4	3.1
cis-1,3-Dichloropropene	4.54 U	0.91 U	0.45 U	0.91 U	4.54 U	0.91 U	0.91 U
Cumene		0.98 U		2.2			0.98 U
Cymene		1.1 U		1.1 U		1.1 U	1.1 U
Cyclohexane	3.35 U	3.1	3.39 J	11	3.35 U	1.7	1.3
Dibromochloromethane	8.51 U	1.7 U	0.85 U	1.7 U	8.51 U	1.7 U	1.7 U
Dichlorodifluoromethane	4.95 U	2.6	4.11 J	2.6	5.44	2.6	2.6
Dichlorotetrafluoroethane	6.99 U		0.7 U		6.99 U		
Ethyl Benzene	4.34 UJ	7.4	18.3 J	15	4.34 UJ	0.87 U	1.6
Heptane	4.09 U		6.87 J		4.09 U		
Hexachloro-1,3-Butadiene	10.7 UJ		1.07 U		10.67 UJ		
Hexachlorobutadiene		2.1 U		2.1 U		2.1 U	2.1 U
Hexane	3.52 UJ		10.8 J		3.52 UJ		
Isoproypl Alcohol		12 U		12 U		12 U	12 U
m/p-Xylene	4.34 UJ	21	99.2 J	55	5.2 J	4.9	5.7
Methyl Ethyl Ketone		8.1		1.5		1.5 U	2.0 U
Metheyl Isobutyl Ketone		2.0 U		2.0 U		2.0 U	2.0 U
Methyl Methacrylate	4.09 U	2.0 U	0.41 U	2.0 U	4.09 U	2.0 U	2.0 U
Methylene Chloride	7.3	1.7 U	3.02 J	1.7 U	14.3	1.7 U	1.7 U
Napthalene		2.6 U		2.6 U		2.6 U	2.6 U
n-Butane		34		41		7.5	12
n-Heptane		0.82 U		13		0.82 U	0.82 U
n-Hexane		1.7		27		1.4	1.4
n-Propylbenzene		0.98 U		4.3		0.98 U	0.98 U
o-Xylene	4.34 UJ	15	44.6 J	21	4.34 UJ	4.4	3.1
Sec-Butylbenzene		1.1 U		1.1 U		1.1 U	1.1 U
Styrene	4.25 UJ	0.85 U	0.43 U	0.85 U	4.25 UJ	0.85 U	0.85 U
T-Butylbenzene		1.1 U		1.1 U		1.1 U	1.1 U
t-1,3-Dichloropropene	4.54 U		0.45 U		4.54 U		
tert-Butyl alcohol	6.96	15 U	363.78 J	15 U	2,152.36	15 U	15 U
Tert-Butyl-Methyl-Ether		0.72 U		0.72 U		0.72 U	
Tetrachloroethene	5,492.76	42	1,220.61 J	2.7	28,480.98	110	120
Tetrahydrofuran	2.94 U	15 U	2.89 J	15 U	2.94 U	15 U	15 U
Toluene	3.76 U	31	27.7 J	80	14.7	4	6.3
trans-1,2-Dichloroethene	20.2	0.79 U	2.02 J	0.79 U	3.97 U	0.79 U	0.79 U
Trans-1,3-Dichloropropene							
Trichloroethene	644.91	1.1 U	21.8 J	8.4	316	5.2	5.0
Trichlorofluoromethane	5.6 U	1.3	1.46 J	1.3	5.6 U	1.3	1.5
Vinyl Chloride	7.67	0.51 U	107.36 J	0.51 U	2.56 U	0.51 U	0.51 U
Xylene (total)		36		76		9.2	8.9

Notes:

U - The compound was not detected at the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

2013 data to be validated still

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	SUB-SLAB SAMPLES						
Sample ID	**SS-4**	**SS-4**	**SS-5**	**SS-5**	**SS-6**	**SS-6**	**SS-7**
Sampling Date	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**
Dilution Factor	**10**	**1**	**10**	**1**	**10**	**1**	**10**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND							
1,1,1-Trichloroethane	5.44 U	1.1 U	5.44 UJ	1.1 U	5.44 U	1.1 U	5.44 U
1,1,2,2-Tetrachloroethane	6.87 UJ	1.4 U	6.87 UJ	1.4 U	6.87 U	1.4 U	6.87 UJ
1,1,2-Trichlorotrifluoroethane	7.65 U	1.5 U	7.65 UJ	1.5 U	7.65 U	1.5 U	5.44 U
1,1,2-Trichloroethane	5.44 U	1.1 U	5.44 UJ	1.1 U	5.44 U	1.1 U	7.65 U
1,1-Dichloroethane	4.05 U	0.81 U	4.05 UJ	0.81 U	4.05 U	0.81 U	4.05 U
1,1-Dichloroethene	3.97 U	0.79 U	3.97 UJ	0.79 U	3.97 U	0.79 U	3.97 U
1,2,4-Trichlorobenzene	7.4 UJ	3.7 U	7.4 UJ	3.7 U	7.4 U	3.7 U	7.4 UJ
1,2,4-Trimethylbenzene	4.91 UJ	1.2	4.91 UJ	3.6	4.91 U	0.98 U	4.91 UJ
1,2-Dibromoethane	7.69 U	1.5 U	7.69 UJ	1.5 U	7.69 U	1.5 U	7.69 U
1,2-Dichlorobenzene	6.01 UJ	1.2 U	6.01 UJ	1.2 U	6.01 U	1.2 U	6.01 UJ
1,2-Dichloroethane	4.05 U	17	4.05 UJ	0.81 U	4.05 U	0.81 U	4.05 U
1,2-Dichloropropane	4.62 U	0.92 U	4.62 UJ	0.92 U	4.62 U	0.92 U	4.62 U
1,2-Dichlorotetrafluoroethane		1.4 U		1.4 U		1.4 U	
1,3,5-Trimethylbenzene	4.91 UJ	1.1	4.91 UJ	1.0	4.91 U	0.98 U	4.91 UJ
1,3-Butadiene	2.21 UJ	0.44 U	2.21 UJ	0.44 U	2.21 U	0.44 U	2.21 UJ
1,3-Dichlorobenzene	6.01 UJ	1.2 U	6.01 UJ	1.2 U	6.01 U	1.2 U	6.01 UJ
1,4-Dichlorobenzene	6.01 UJ	1.2 U	6.01 UJ	1.2 U	6.01 U	1.2 U	6.01 UJ
1,4-Dioxane	3.6 U	18 U	3.6 UJ	18 U	3.6 U	18 U	3.6 U
2,2,4-Trimethylpentane	4.66 U	1.1 U	4.66 UJ	7.5	4.66 U	0.93 U	6.06 J
2-Chlorotoluene	5.18 UJ	1.0 U	5.18 UJ	1.0 U	5.18 U	1.0 U	5.18 UJ
2-HEXANONE		2.0 U				0.98 U	
4-Ethyltoluene	4.91 UJ	0.98 U	4.91 UJ	0.99	4.91 U	0.98 U	4.91 UJ
4-Methyl-2-Pentanone	6.54		4.09 UJ		4.09 U		4.09 U
Acetone	1,425.28	12 U	47.20 J	12 U	216	12 U	807.66
Allyl Chloride	3.15 U	1.6 U	3.15 UJ	1.6 U	3.15 U	1.6 U	3.15 U
Benzene	3.83	0.64 U	3.19 UJ	2.0	4.15	0.85	13.4 J
Benzyl Chloride		1.0 U		1.0 U			
Bromodichloromethane	6.71 U	1.3 U	6.71 UJ	1.3 U	6.71 U	1.3 U	6.71 U
Bromoethene	4.38 U	0.78 U	4.38 UJ	0.87 U	4.38 U	0.78	4.38 U
Bromoform	10.35 UJ	2.1 U	10.35 UJ	2.1 U	10.35 U	2.1 U	10.35 UJ
Bromomethane	3.89 U	0.78 U	3.89 UJ	0.78 U	3.89 U	0.78 U	3.89 U
Butane		3.1		8.4		8.4	
Carbon Disulfide	3.11 U	1.6 U	12.1 J	1.6 U	3.11 U	3.0 U	3.11 U
Carbon Tetrachloride	3.15 U	1.3 U	3.15 UJ	1	3.15 U	3.0	3.15 U
Chlorobenzene	4.62 UJ	0.92 U	4.62 UJ	0.92 U	4.62 U	0.92 U	4.62 UJ
Chlorodifluoromethane		1.8 U		1.8 U		1.8 U	
Chloroethane	2.66 U	1.3 U	2.66 UJ	1.3 U	2.66 U	1.3 U	2.66 U
Chloroform	84.7	0.98 U	349 J	0.98 U	80.8	0.98 U	4.87 U
Chloromethane	2.04 U	1.0 U	2.04 UJ	1.1	2.04 U	1.0 U	2.04 U
cis-1,2-Dichloroethene	37.3	16	3.97 UJ	1.6 U	3.97 U	0.79 U	3.97 U
cis-1,3-Dichloropropene	4.54 U	0.91 U	4.54 UJ	0.91 U	4.54 U	0.91 U	4.54 U
Cumene		0.98 U					
Cymene		1.1 U		1.1 U		1.1 U	
Cyclohexane	3.35 U	0.69 U	3.35 UJ	1.6	3.35 U	1.0	3.35 U
Dibromochloromethane	8.51 U	1.7 U	8.51 UJ	1.7 U	8.51 U	1.7 U	8.51 U
Dichlorodifluoromethane	4.95 U	2.7	4.95 UJ	2.9	4.95 U	2.5 U	3.46 J
Dichlorotetrafluoroethane	6.99 U	1.4 U	6.99 UJ		6.99 U		6.99 U
Ethyl Benzene	4.34 UJ	0.87 U	4.34 UJ	2.1	4.34 U	0.87 U	4.34 UJ
Heptane	4.09 U		4.09 UJ		4.09 U		5.32
Hexachloro-1,3-Butadiene	10.67 UJ		10.67 UJ		10.67 U		10.67 UJ
Hexachlorobutadiene		2.1 U		2.1 U		2.1 U	
Hexane	3.52 UJ		3.52 UJ		3.52 U		3.52 UJ
Isoproypl Alcohol		12 U		12 U		12 U	
m/p-Xylene	4.34 UJ	2.2	4.34 UJ	7.7	3.9 J	2.2 U	13 J
Methyl Ethyl Ketone		2.0 U		1.5 U		1.8	
Metheyl Isobutyl Ketone		2.0 U		2.0 U		2.0 U	
Methyl Methacrylate	4.09 U	2.0 U	4.09 UJ	2.0 U	4.09 U	2.0 U	4.09 U
Methylene Chloride	11.8 J	1.7 U	11.1 J	1.7 U	24.3	1.7 U	17
Napthalene		2.6 U		2.6 U		2.6 U	
n-Butane		3.1		8.4		8.4	
n-Heptane		0.82 U		1.9		0.82 U	
n-Hexane		0.70 U		4.4		0.70 U	
n-Propylbenzene		0.98 U		0.98		0.98 U	
o-Xylene	4.34 UJ	0.87 U	4.34 UJ	2.7	4.34 U	0.87 U	4.34 J
Sec-Butylbenzene		1.1 U		1.1 U		1.1 U	
Styrene	4.25 UJ	0.85 U	4.25 UJ	0.85 U	4.25 U	0.85 U	4.25 UJ
T-Butylbenzene		1.1 U		1.1 U		1.1 U	
t-1,3-Dichloropropene	4.54 U		4.54 UJ		4.54 U		4.54 U
tert-Butyl alcohol	1079 EJ	15 U	13.9 J	15 U	184	15 U	1,061.02
Tert-Butyl-Methyl-Ether		0.72 U					
Tetrachloroethene	17,631.08	150	140 J	2.2	91.7	11	29.9
Tetrahydrofuran	2.94 U	15 U	2.94 UJ	15 U	2.94 U	15 U	2.94 U
Toluene	3.76 U	0.75 U	3.76 UJ	2.2	7.9	0.75 U	35.7
trans-1,2-Dichloroethene	3.97 U	1.4	3.97 UJ	0.79 U	3.97 U	0.79 U	3.97 U
Trans-1,3-Dichloropropene							
Trichloroethene	521.3	12	2.69 UJ	1.1 U	6.43	1.1 U	2.69 U
Trichlorofluoromethane	5.6 U	1.4	5.6 UJ	1.5	5.6 U	1.3	5.6 U
Vinyl Chloride	2.56 U	0.51 U	2.56 UJ	0.51 U	2.56 U	0.51 U	2.56 U
Xylene (total)		2.9		10		1.1	

Notes:

U - The compound was not detected at the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

2013 data to be validated still

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	SUB-SLAB SAMPLES						
Sample ID	**SS-7**	**SS-8**	**SS-8**	**SS-9**	**SS-9**	**SS-10**	**SS-10**
Sampling Date	**11/21/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**
Dilution Factor	**1**	**10**	**1**	**10**	**1**	**10**	**1**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND							
1,1,1-Trichloroethane	1.1 U	5.44 UJ	4.4 U	15.8	1.6 U	5.44 U	1.1 U
1,1,2,2-Tetrachloroethane	1.4 U	6.87 UJ	5.5 U	6.87 UJ	2.1 U	6.87 UJ	1.4 U
1,1,2-Trichlorotrifluoroethane	1.5 U	5.44 UJ	6.1 U	18.4	2.3 U	5.44 U	1.5 U
1,1,2-Trichloroethane	1.1 U	7.65 U	4.4 U	5.44 U	1.6 U	7.65 U	1.1 U
1,1-Dichloroethane	0.81 U	4.05 U	3.2 U	43.3	2.1	4.05 U	0.81 U
1,1-Dichloroethene	0.79 U	3.97 U	3.2 U	29.8	1.2 U	31.7	0.79 U
1,2,4-Trichlorobenzene	3.7 U	7.4 UJ	15 U	7.4 UJ	5.6 U	7.4 UJ	3.7 U
1,2,4-Trimethylbenzene	1.4	4.91 UJ	3.9 U	4.91 UJ	1.5 U	4.91 UJ	1.0
1,2-Dibromoethane	1.5 U	7.69 UJ	6.1 U	7.69 U	2.3 U	7.69 U	1.5 U
1,2-Dichlorobenzene	1.2 U	6.01 UJ	4.8 U	6.01 UJ	1.8 U	6.01 UJ	1.2 U
1,2-Dichloroethane	0.81 U	4.05 UJ	3.2 U	4.05 U	1.2 U	4.05 U	0.81 U
1,2-Dichloropropane	0.92 U	4.62 UJ	3.7 U	4.62 U	1.4 U	4.62 U	1.4 U
1,2-Dichlorotetrafluoroethane	1.4 U		5.6 U		2.1 U		1.4 U
1,3,5-Trimethylbenzene	0.98 U	4.91 UJ	3.9 U	74.1 J	1.5 U	4.91 UJ	0.98 U
1,3-Butadiene	0.44 U	2.21 UJ	1.8 U	2.21 UJ	0.66 U	2.21 UJ	0.43
1,3-Dichlorobenzene	1.2 U	6.01 UJ	4.8 U	6.01 UJ	1.8 U	6.01 UJ	1.2 U
1,4-Dichlorobenzene	1.2 U	6.01 UJ	4.8 U	6.01 UJ	1.8 U	6.01 UJ	1.2 U
1,4-Dioxane	18 U	3.6 UJ	72 U	3.6 U	27 U	3.6 U	18 U
2,2,4-Trimethylpentane	2.2	4.66 UJ	3.7 U	4.66 U	1.4 U	4.66 U	2.3
2-Chlorotoluene	1.0 U	5.18 UJ	4.1 U	5.18 UJ	1.6 U	5.18 UJ	1.0 U
2-HEXANONE	2.0 U		8.2 U		3.1 U		2.0 U
4-Ethyltoluene	0.98 U	4.91 UJ	3.9 U	14.2 J	1.5 U	4.91 UJ	0.98 U
4-Methyl-2-Pentanone		4.09 UJ		4.09 U		4.09 U	
Acetone	12 U	38.20	48 U	1,472.79	18 U	108	40
Allyl Chloride	1.6 U	3.15 U	6.3 U	3.15 U	2.3 U	3.15 U	1.6 U
Benzene	1.5	3.19 UJ	2.6 U	11.5	0.96 U	21.4	0.99
Benzyl Chloride	1.0 U		4.1 U		1.6 U		1.0 U
Bromodichloromethane	1.3 U	6.71 UJ	5.4 U	6.71 U	2.0 U	6.71 U	1.3 U
Bromoethene	0.87 U	4.38 U	3.5 U	4.38 U	1.3 U	4.38 U	0.87 U
Bromoform	2.1 U	10.35 UJ	8.3 U	10.35 UJ	3.1 U	10.35 UJ	2.1 U
Bromomethane	0.78 U	3.89 U	3.1 U	3.89 U	1.2 U	3.89 U	0.78 U
Butane	14		4.8 U		1.8 U		4.6
Carbon Disulfide	1.6 U	3.11 U	6.2 U	3.11 U	2.3 U	3.11 U	2.0
Carbon Tetrachloride	1.3 U	6.93 J	5.0 U	3.15 U	1.9 U	3.78 J	1.3 U
Chlorobenzene	0.92 U	4.62 UJ	3.7 U	4.62 UJ	1.4 U	4.62 UJ	0.92 U
Chlorodifluoromethane	1.8 U		7.1 U		2.7 U		1.8 U
Chloroethane	1.0 U	2.66 U	5.3 U	156	2.0 U	2.66 U	1.3 U
Chloroform	0.98 U	54 J	120	21.9	140	34.1	27
Chloromethane	1.0 U	2.04 U	4.1 U	2.04 U	1.5 U	2.04 U	1.0 U
cis-1,2-Dichloroethene	2.6	14.3 J	3.2 U	2,498	1.2 U	833	0.79 U
cis-1,3-Dichloropropene	0.91 U	4.54 UJ	3.6 U	4.54 U	1.4 U	4.54 U	0.91 U
Cumene	0.98 U						
Cymene	1.1 U		4.4 U		1.6 U		1.1 U
Cyclohexane	2.0	3.35 U	2.8 U	3.35 U	1.0 U	3.35 U	0.69 U
Dibromochloromethane	1.7 U	8.51 UJ	6.8 U	8.51 U	2.6 U	8.51 U	1.7 U
Dichlorodifluoromethane	2.9	4.95 U	9.9 U	6.93 J	3.7 U	11.4 J	2.5 U
Dichlorotetrafluoroethane		6.99 U		6.99 U	1.2 U	6.99 U	0.79 U
Ethyl Benzene	1.5	4.34 UJ	3.5 U	4.34 UJ	1.3 U	4.34 UJ	0.85
Heptane		4.09 U		4.09 U		4.09 U	
Hexachloro-1,3-Butadiene		10.67 UJ		10.67 UJ		10.67 UJ	
Hexachlorobutadiene	2.1 U		8.5 U		3.2 U		2.1 U
Hexane		3.52 UJ		3.52 UJ		3.52 UJ	
Isoproypl Alcohol	12 U		49 U		18 U		12 U
m/p-Xylene	5.8	4.34 UJ	8.7 U	5.2 J	3.3 U	4.34 UJ	2.2 U
Methyl Ethyl Ketone	1.5 U		5.9 U		2.2 U		3.3
Metheyl Isobutyl Ketone	2.0 U		8.2 U		3.1 U		2.0 U
Methyl Methacrylate	2.0 U	4.09 U	8.2 U	4.09 U	3.1 U	4.09 U	2.0 U
Methylene Chloride	3.6	8.69	6.9 U	12.5 J	2.6 U	13.2	1.7 U
Napthalene	2.6 U		10 U		3.9 U		2.6 U
n-Butane	14		4.4 U		1.6 U		1.1 U
n-Heptane	1.7		3.3 U		1.2 U		1.4
n-Hexane	2.8		2.8 U		1.1 U		1.5
n-Propylbenzene	0.98 U		3.9 U		1.5 U		0.98 U
o-Xylene	1.9	4.34 UJ	3.5 U	9.1 J	1.3 U	4.34 UJ	0.87 U
Sec-Butylbenzene	1.1 U		4.4 U		1.6 U		1.1 U
Styrene	0.85 U	4.25 UJ	3.4 U	4.25 U	1.3 U	4.25 UJ	0.85 U
T-Butylbenzene	1.1 U		4.4 U		1.6 U		1.1 U
t-1,3-Dichloropropene		4.54 UJ		4.54 U		4.54 U	
tert-Butyl alcohol	15 U	3.03 U	61 U	97.2	23 U	3.03 U	15 U
Tert-Butyl-Methyl-Ether	0.72 U		2.9 U		1.1 U		0.72 U
Tetrachloroethene	200	8,137.42 J	750	650,993.87 EJ	280	413,652.35	120
Tetrahydrofuran	15 U	2.94 UJ	59 U	2.94 U	22 U	2.94 U	15 U
Toluene	6.7	3.76 UJ	3.0 U	6.02	1.1 U	25.6	3.4
trans-1,2-Dichloroethene	0.79 U	3.97 U	3.2 U	264	1.2 U	327	0.79 U
Trans-1,3-Dichloropropene	0.91 U		3.6 U		1.4 U		0.91 U
Trichloroethene	5.1	228 J	25	11,285.89	3.1	12,898.16	1.1 U
Trichlorofluoromethane	2.0	5.6 U	4.5 U	5.6 U	1.7	5.6 U	1.2
Vinyl Chloride	0.51 U	2.56 U	2.0 U	115	0.77 U	13	0.51 U
Xylene (total)	7.7		3.5 U		1.3 U		2.9

Notes:

U - The compound was not detected at the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

2013 data to be validated still

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	INDOOR AIR SAMPLES					
Sample ID	**IA-1**	**IA-1**	**IA-1**	**IA-2**	**IA-2**	**IA-3**
Sampling Date	**1/29/2008**	**11/20/2013**	**11/21/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**
Dilution Factor	**1**	**1**	**1**	**1**	**1**	**1**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND						
1,1,1-Trichloroethane	0.54 U	1.1 U	1.1 U	0.54 U	1.1 U	0.54 U
1,1,2,2-Tetrachloroethane	0.69 U	1.4 U	1.4 U	0.69 U	1.4 U	0.69 U
1,1,2-Trichlorotrifluoroethane	0.54 U	1.5 U	1.5 U	0.54 U	1.5 U	0.54 U
1,1,2-Trichloroethane	0.76 U	1.1 U	1.1 U	0.76 U	1.1 U	0.76 U
1,1-Dichloroethane	0.4 U	0.81 U	0.81 U	0.4 U	0.81 U	0.4 U
1,1-Dichloroethene	0.4 U	0.79 U	0.79 U	0.4 U	0.79 U	0.4 U
1,2,4-Trichlorobenzene	0.74 U	3.7 U	3.7 U	0.89	3.7 U	0.74 U
1,2,4-Trimethylbenzene	2.8	0.98 U	23	6.48	3	3.39
1,2-Dibromoethane	0.77 U	1.5 U	1.5 U	0.77 U	1.5 U	0.77 U
1,2-Dichlorobenzene	0.6 U	1.2 U	1.2 U	0.6 U	1.2 U	0.6 U
1,2-Dichloroethane	0.4 U	0.81 U	0.81 U	0.4 U	0.81 U	0.4 U
1,2-Dichloropropane	0.46 U	0.92 U	0.92 U	0.46 U	0.92 U	0.46 U
1,2-Dichlorotetrafluoroethane		1.4 U	1.4 U		1.4 U	
1,3,5-Trimethylbenzene	1.18	0.98 U	6.4	1.72	0.98 U	0.88
1,3-Butadiene	0.22 U	0.44 U	0.44 U	0.22 U	0.44 U	0.22 U
1,3-Dichlorobenzene	0.6 U	1.2 U	1.2 U	0.6 U	1.2 U	0.6 U
1,4-Dichlorobenzene	0.6 U	1.2 U	1.2 U	1.2	1.2 U	0.6 U
1,4-Dioxane	0.36 U	18 U	18 U	0.36 U	18 U	0.36 U
2,2,4-Trimethylpentane	10.5	0.93 U	60	7.46	8.4	5.87
2-Chlorotoluene	0.52 U	1.0 U	1.0 U	0.52 U	1.0 U	0.52 U
2-HEXANONE		2.0 U	2.0 U		2.0 U	
4-Ethyltoluene	1.08	0.98 U	6.4	1.57	0.98 U	0.83
4-Methyl-2-Pentanone	0.41 U			0.41 U		0.61
Acetone	45.13	12 U	12 U	38.01	12 U	30.88
Allyl Chloride	0.31 U	1.6 U	1.6 U	0.31 U	1.6 U	0.31 U
Benzene	15.6	0.91	9.1	14.2	2.3	10
Benzyl Chloride		1.0 U	1.0 U		1.0 U	
Bromodichloromethane	0.67 U	1.3 U	1.3 U	0.67 U	1.3 U	0.67 U
Bromoethene	0.44 U	0.87 U	0.87 U	0.44 U	0.87 U	0.44 U
Bromoform	1.03 U	2.1 U	2.1 U	1.03 U	2.1 U	1.03 U
Bromomethane	0.39 U	0.78 U	0.78 U	0.39 U	0.78 U	0.39 U
Butane		1.6	57		15	
Carbon Disulfide	0.31 U	1.6 U	1.6 U	0.31 U	1.6 U	0.31 U
Carbon Tetrachloride	0.57 J	1.3 U	1.3 U	0.63 J	1.3 U	0.57 J
Chlorobenzene	0.46 U	0.92 U	0.92 U	0.46 U	0.92 U	0.46 U
Chlorodifluoromethane	0.61	1.8 U	1.8 U		1.8 U	0.27 U
Chloroethane	4.82	1.3 U	1.3 U	0.27 U	1.3 U	2.77
Chloroform		0.98 U	0.98 U	18.8	0.98 U	
Chloromethane	1.06	1.0 U	1.1	1.1	1.1	1
cis-1,2-Dichloroethene	0.87	0.79 U	0.79 U	0.4 J	0.79 U	0.95
cis-1,3-Dichloropropene	0.45 U	0.91 U	0.91 U	0.45 U	0.91 U	0.45 U
Cumene						
Cymene		1.1 U	1.1 U		1.1 U	
Cyclohexane	7.48	0.69 U	10	5.03	1.7	3.42
Dibromochloromethane	0.85 U	1.7 U	1.7 U	0.85 U	1.7 U	0.85 U
Dichlorodifluoromethane	5.34	2.5 U	2.5	3.07	2.5	28.5
Dichlorotetrafluoroethane	0.7 U	0.79 U	0.79 U	0.7 U	0.79 U	0.7 U
Ethyl Benzene	7.89	0.87 U	13	4.99	0.87	3.29
Heptane	10.4			5.93		4.34
Hexachloro-1,3-Butadiene	1.07 U			1.07 U		1.07 U
Hexachlorobutadiene		2.1 U	2.1 U		2.1 U	
Hexane	30.5			37.5		28.1
Isoproypl Alcohol		12 U	12 U		12 U	
m/p-Xylene	22	2.2 U	44	14.5	7.1	8.84
Methyl Ethyl Ketone		1.5 U	1.5 U		1.5 U	
Metheyl Isobutyl Ketone		2.0 U	2.0 U		2.0 U	
Methyl Methacrylate	0.41 U	2.0 U	3.7	0.41 U	2.0 U	0.41 U
Methylene Chloride	4.1	3.6	1.7 U	3.51	1.7 U	5.15
Napthalene		2.6 U	2.6		2.6 U	
n-Butane		1.1 U	1.1 U		1.1 U	
n-Heptane		0.82 U	15		2.5	
n-Hexane		0.70 U	30		5.3	
n-Propylbenzene		0.98 U	4.2		0.98 U	
o-Xylene	7.54	0.87 U	17	4.9	2.7	3.16
Sec-Butylbenzene		1.1 U	1.1 U		1.1 U	
Styrene	0.3 J	0.85 U	0.85 U	0.47	0.85 U	0.43 U
T-Butylbenzene		1.1 U	1.1 U		1.1 U	
t-1,3-Dichloropropene	0.45 U			0.45 U		0.45 U
tert-Butyl alcohol	0.3 U	15 U	15 U	0.85	15 U	0.82
Tert-Butyl-Methyl-Ether		0.72 U	0.72 U		0.72 U	
Tetrachloroethene	16.2	1.4 U	1.4 U	7.13	1.4 U	94.3
Tetrahydrofuran	2.53	15 U	15 U	0.71	15 U	0.29 U
Toluene	86.68	0.85	56	189 E	11	67.83
trans-1,2-Dichloroethene	0.4 U	0.79 U	0.79 U	0.4 U	0.79 U	0.4 U
Trans-1,3-Dichloropropene		0.91 U	0.91 U		0.91 U	
Trichloroethene	1.39 J	1.1 U	1.1 U	0.75 J	1.1 U	6.59
Trichlorofluoromethane	1.46	1.2	1.2	0.56 U	1.2	1.34
Vinyl Chloride	0.26 U	0.51 U	0.51 U	0.26 U	0.51 U	0.26 U
Xylene (total)		0.87 U	61		9.9	

Notes:

U - The compound was not detected at the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

2013 data to be validated still

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	INDOOR AIR SAMPLES						
Sample ID	**IA-3**	**IA-4**	**IA-4**	**IA-5**	**IA-5**	**IA-6**	**IA-6**
Sampling Date	**11/20/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**	**1/29/2008**	**11/20/2013**
Dilution Factor	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND							
1,1,1-Trichloroethane	1.1 U	0.54 U	1.1 U	0.54 U	1.1 U	0.54 U	1.1 U
1,1,2,2-Tetrachloroethane	1.4 U	0.69 U	1.4 U	0.69 U	1.4 U	0.69 U	1.4 U
1,1,2-Trichlorotrifluoroethane	1.5 U	0.54 U	1.5 U	0.54 U	1.5 U	0.54 U	1.5 U
1,1,2-Trichloroethane	1.1 U	0.76 U	1.1 U	0.76 U	1.1 U	0.76 U	1.1 U
1,1-Dichloroethane	0.81 U	0.4 U	0.81 U	0.4 U	0.81 U	0.4 U	0.81 U
1,1-Dichloroethene	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U
1,2,4-Trichlorobenzene	3.7 U	0.74 U	3.7 U	0.74 U	3.7 U	0.74 U	3.7 U
1,2,4-Trimethylbenzene	0.98 U	17.8	19	5.5	1.4	8.74	1.0
1,2-Dibromoethane	1.5 U	0.77 U	1.5 U	0.77 U	1.5 U	0.77 U	1.5 U
1,2-Dichlorobenzene	1.2 U	0.6 U	1.2 U	0.6 U	1.2 U	0.6 U	1.2 U
1,2-Dichloroethane	0.81 U	0.4 U	0.81 U	0.4 U	0.81 U	0.4 U	0.81 U
1,2-Dichloropropane	0.92 U	0.46 U	0.92 U	0.46 U	0.92 U	0.46 U	0.92 U
1,2-Dichlorotetrafluoroethane	1.4 U		1.4 U		1.4 U		1.4 U
1,3,5-Trimethylbenzene	0.98 U	5.4	5.4	1.87	0.98 U	2.75	0.98 U
1,3-Butadiene	0.44 U	0.22 U	4.2	0.22 U	1.1	0.22 U	0.44 U
1,3-Dichlorobenzene	1.2 U	0.6 U	1.2 U	0.6 U	1.2 U	0.6 U	1.2 U
1,4-Dichlorobenzene	1.2 U	0.6 U	1.2 U	0.3 J	1.2 U	0.6 U	1.2 U
1,4-Dioxane	18 U	0.36 U	18 U	0.36 U	18 U	0.36 U	18 U
2,2,4-Trimethylpentane	3	21.1	31	9.56	7.5	14.8	2.0
2-Chlorotoluene	1.0 U	0.52 U	1.0 U	0.52 U	1.0 U	0.52 U	1.0 U
2-HEXANONE	2.0 U		2.0 U		2.0 U		2.0 U
4-Ethyltoluene	0.98 U	4.91	6.0	1.62	0.98 U	2.5	0.98 U
4-Methyl-2-Pentanone		0.86		0.7		0.86	
Acetone	13	22.80 J	12 U	21.00	13	25.70 J	12
Allyl Chloride	1.6 U	0.31 U	1.6 U	0.31 U	1.6 U	0.31 U	1.6 U
Benzene	1.7	23.6	13	13.7	3.3	19.6	1.2
Benzyl Chloride	1.0 U		1.0 U		1.0 U		1.0 U
Bromodichloromethane	1.3 U	0.67 U	1.3 U	0.67 U	1.3 U	0.67 U	1.3 U
Bromoethene	0.87 U	0.44 U	0.87 U	0.44 U	0.87 U	0.44 U	0.87 U
Bromoform	2.1 U	1.03 U	2.1 U	1.03 U	2.1 U	1.03 U	2.1 U
Bromomethane	0.78 U	0.39 U	0.78 U	0.39 U	0.78 U	0.39 U	0.78 U
Butane	7.4		75		0.4		6.1
Carbon Disulfide	1.6 U	0.31 U	1.6 U	0.31 U	1.6 U	0.31 U	1.6 U
Carbon Tetrachloride	1.3 U	0.5 J	1.3 U	0.5 J	1.3 U	0.5 J	1.3 U
Chlorobenzene	0.92 U	0.46 U	0.92 U	0.46 U	0.92 U	0.46 U	0.92 U
Chlorodifluoromethane	1.8 U	0.27 U	1.8 U	0.27 U	1.8 U	0.27 U	1.8 U
Chloroethane	1.3 U	2.53	1.3 U	1.31	1.3 U	1.46	1.3 U
Chloroform	26		0.98 U		0.98 U		0.98 U
Chloromethane	1.7	0.88	1.1	0.94	1.5	0.9	1.2
cis-1,2-Dichloroethene	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U
cis-1,3-Dichloropropene	0.91 U	0.45 U	0.91 U	0.45 U	0.91 U	0.45 U	0.91 U
Cumene							
Cymene	1.1 U		1.1 U		1.1 U		1.1 U
Cyclohexane	0.73	8.12	5.0	9.36 NJ	0.98	6.37	0.69 U
Dibromochloromethane	1.7 U	0.85 U	1.7 U	0.85 U	1.7 U	0.85 U	1.7 U
Dichlorodifluoromethane	2.5 U	3.17	2.6	2.38	2.5	2.62	2.6
Dichlorotetrafluoroethane		0.7 U	0.79 U	0.7 U	0.79 U	0.7 U	0.79 U
Ethyl Benzene	0.87 U	16.3	14	4.73	2.7	9.06	0.87 U
Heptane		17.5		8.67		11.8	
Hexachloro-1,3-Butadiene		1.07 U		1.07 U		1.07 U	
Hexachlorobutadiene	2.1 U		2.1 U		2.1 U		2.1 U
Hexane		46.6		43		52.87 EJ	
Isoproypl Alcohol	12 U		18		12 U		12 U
m/p-Xylene	2.2 U	60.6	48	15	8.2	30.8	2.6
Methyl Ethyl Ketone	1.5 U		1.5 U		1.5 U		2.2
Metheyl Isobutyl Ketone	2.0 U		2.0 U		2.0 U		2.0 U
Methyl Methacrylate	2.0 U	0.41 U	2.0 U	0.41 U	2.0 U	0.41 U	2.0 U
Methylene Chloride	1.7 U	2.82 NJ	1.7 U	6.99	1.7 U	2.99	1.7 U
Napthalene	2.6 U		3.4		2.6 U		2.6 U
n-Butane	1.1 U		1.1 U		1.1 U		1.1 U
n-Heptane	1.1		8.8		2.0		0.87
n-Hexane	2.0		16		3.0		1.1
n-Propylbenzene	0.98 U		3.5		0.98 U		0.98 U
o-Xylene	0.87 U	20.5	18	5.68	3.0	10.4	0.95
Sec-Butylbenzene	1.1 U		1.1 U		1.1 U		1.1 U
Styrene	0.85 U	0.85	2.3	0.47	0.85 U	0.51	0.85 U
T-Butylbenzene	1.1 U		1.1 U		1.1 U		1.1 U
t-1,3-Dichloropropene		0.45 U		0.45 U		0.45 U	
tert-Butyl alcohol	15 U	0.3 U	15 U	0.97	15 U	0.73	15 U
Tert-Butyl-Methyl-Ether	0.72 U		0.72 U		0.72 U		0.72 U
Tetrachloroethene	1.4 U	5.43	2.8	2.38	1.4 U	3.06	1.4 U
Tetrahydrofuran	15 U	0.29 U	15 U	0.29 U	15 U	0.29 U	15 U
Toluene	6.1	90.44	67	41.45	15	79.14	5.0
trans-1,2-Dichloroethene	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U	0.4 U	0.79 U
Trans-1,3-Dichloropropene	0.91 U		0.91 U		0.91 U		0.91 U
Trichloroethene	1.1 U	0.96 J	1.1 U	0.48 J	1.1 U	0.54 J	1.1 U
Trichlorofluoromethane	1.4	0.56 U	1.3	1.62	1.3	1.46	1.3
Vinyl Chloride	0.51 U	0.26 U	0.51 U	0.26 U	0.51 U	0.26 U	0.51 U
Xylene (total)	2.1 U		65		11		3.6

Notes:

U - The compound was not detected at the indicated concentration.

J - The concentration given is an approximate value.

E - Indicates the analyte‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

NJ - Compound has been "tentively identified"; associated value represents approximate concentration.

SS-3 and IA-1 sampled twice during 2013 event due to Summa malfunctions during first sampling run

2013 data to be validated still

Table 10.
Sub-slab and Indoor Air Analytical Summary

Sample Type:	AMBIENT AIR		SSDS SAMPLES			
Sample ID	**OA-1**	**AA-1**	**DS-1**	**DS-2**	**DUP-1(DS-2)**	**DUP-112113**
Sampling Date	**1/29/2008**	**11/20/2013**	**1/30/2008**	**1/30/2008**	**1/30/2008**	**11/21/2013**
Dilution Factor	**1**	**1**	**67**	**67**	**67**	**1**
Units	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**	**ug/M3**
COMPOUND						
1,1,1-Trichloroethane	0.54 U	1.1 U	36.45 U	36.45 U	36.45 U	1.1 U
1,1,2,2-Tetrachloroethane	0.69 U	1.4 U	46.04 U	46.04 U	46.04 U	1.4 U
1,1,2-Trichlorotrifluoroethane	0.54 U	1.5 U	36.45 U	36.45 U	36.45 U	1.5 U
1,1,2-Trichloroethane	0.76 U	1.1 U	51.24 U	51.24 U	51.24 U	1.1 U
1,1-Dichloroethane	0.4 U	0.81 U	27.13 U	27.13 U	27.13 U	0.81 U
1,1-Dichloroethene	0.4 U	0.79 U	26.58 U	26.58 U	26.58 U	0.79 U
1,2,4-Trichlorobenzene	0.74 U	3.7 U	49.6 U	49.6 U	49.6 U	3.7 U
1,2,4-Trimethylbenzene	0.83	0.98 U	32.88 U	32.88 U	32.88 U	3.4
1,2-Dibromoethane	0.77 U	1.5 U	51.52 U	51.52 U	51.52 U	1.5 U
1,2-Dichlorobenzene	0.6 U	1.2 U	40.28 U	40.28 U	40.28 U	1.2 U
1,2-Dichloroethane	0.4 U	0.81 U	27.13 U	27.13 U	27.13 U	0.81 U
1,2-Dichloropropane	0.46 U	0.92 U	30.97 U	30.97 U	30.97 U	0.92 U
1,2-Dichlorotetrafluoroethane		1.4 U				1.4 U
1,3,5-Trimethylbenzene	0.49 U	0.98 U	32.88 U	32.88 U	32.88 U	1.1
1,3-Butadiene	0.22 U	0.44 U	14.8 U	14.8 U	14.8 U	1.2
1,3-Dichlorobenzene	0.6 U	1.2 U	40.28 U	40.28 U	40.28 U	1.2 U
1,4-Dichlorobenzene	0.6 U	1.2 U	40.28 U	40.28 U	40.28 U	1.2 U
1,4-Dioxane	0.36 U	18 U	24.11 U	24.11 U	24.11 U	18 U
2,2,4-Trimethylpentane	2.33	2.7	131	172	187	13
2-Chlorotoluene	0.52 U	1.0 U	34.69 U	34.69 U	34.69 U	1.0 U
2-HEXANONE		2.0 U				2.0 U
4-Ethyltoluene	0.49 U	0.98 U	32.88 U	32.88 U	32.88 U	1.2
4-Methyl-2-Pentanone	0.41 J		27.4 U	27.4 U	27.4 U	
Acetone	22.80 J	12 U	15.89 U	138.00	15.89 U	12 U
Allyl Chloride	0.31 U	1.6 U	21.1 U	21.1 U	21.1 U	1.6 U
Benzene	8.26	0.64 U	21.37 U	21.37 U	21.37 U	7.1
Benzyl Chloride		1.0 U				1.0 U
Bromodichloromethane	0.67 U	1.3 U	44.94 U	44.94 U	44.94 U	1.3 U
Bromoethene	0.44 U	0.87 U	29.32 U	29.32 U	29.32 U	0.87 U
Bromoform	1.03 U	2.1 U	69.33 U	69.33 U	69.33 U	2.1 U
Bromomethane	0.39 U	0.78 U	26.03 U	26.03 U	26.03 U	0.78 U
Butane		1.2 U				70
Carbon Disulfide	0.31 U	1.6 U	20.83 U	20.83 U	20.83 U	1.6 U
Carbon Tetrachloride	0.5 J	1.3 U	21.39 U	21.39 U	21.39 U	1.3 U
Chlorobenzene	0.46 U	0.92 U	30.97 U	30.97 U	30.97 U	0.92 U
Chlorodifluoromethane	0.27 U	1.8 U			17.81 U	1.8 U
Chloroethane	0.49 U	1.3 U	17.81 U	17.81 U	502	1.3 U
Chloroform		0.98 U	32.61 U	440		2.1
Chloromethane	0.9	1.2	13.7 U	13.7 U	13.7 U	1.0 U
cis-1,2-Dichloroethene	0.4 U	0.79 U	2,934	3,251	2,736	0.79 U
cis-1,3-Dichloropropene	0.45 U	0.91 U	30.42 U	30.42 U	30.42 U	0.91 U
Cumene						
Cymene		1.1 U				1.1 U
Cyclohexane	4.73	0.69 U	22.47 U	22.47 U	22.47 U	3.4
Dibromochloromethane	0.85 U	1.7 U	57 U	57 U	57 U	1.7 U
Dichlorodifluoromethane	2.28	2.5	33.16 U	33.16 U	33.16 U	2.9
Dichlorotetrafluoroethane	0.7 U	0.79 U	46.86 U	46.86 U	46.86 U	
Ethyl Benzene	0.87	0.87 U	29.05 U	29.05 U	29.05 U	5.5
Heptane	1.8		27.4 U	63	68.5	
Hexachloro-1,3-Butadiene	1.07 U		71.52 U	71.52 U	71.52 U	
Hexachlorobutadiene		2.1 U				2.1 U
Hexane	21.1		23.57 U	23.57 U	23.57 U	
Isoproypl Alcohol		12 U				12 U
m/p-Xylene	2.3	2.2 U	29.05 U	29.05 U	29.05 U	19
Methyl Ethyl Ketone		1.5 U				1.5 U
Metheyl Isobutyl Ketone		2.0 U				2.0 U
Methyl Methacrylate	0.41 U	2.0 U	27.44 U	27.44 U	27.44 U	2.0 U
Methylene Chloride	2.68	1.7 U	25.6	23.29 U	23.29 U	1.9
Napthalene		2.6 U				2.6 U
n-Butane		1.1 U				1.1 U
n-Heptane		0.82 U				5.3
n-Hexane		0.70 U				12
n-Propylbenzene		0.98 U				0.98 U
o-Xylene	0.87	0.87 U	29.05 U	29.05 U	29.05 U	5.8
Sec-Butylbenzene		1.1 U				1.1 U
Styrene	0.43 U	0.85 U	28.5 U	28.5 U	28.5 U	0.85 U
T-Butylbenzene		1.1 U				1.1 U
t-1,3-Dichloropropene	0.45 U		30.42 U	30.42 U	30.42 U	
tert-Butyl alcohol	0.3 U	15 U	20.28 U	20.28 U	20.28 U	15 U
Tert-Butyl-Methyl-Ether		0.72 U				0.72 U
Tetrachloroethene	3.33	1.4 U	257,685	142,405	122,061	75
Tetrahydrofuran	0.29 U	15 U	19.73 U	19.73 U	35.5	15 U
Toluene	10.2	0.75 U	45.4	27.7	25.2 J	33
trans-1,2-Dichloroethene	0.4 U	0.79 U	266	125	149	0.79 U
Trans-1,3-Dichloropropene		0.91 U				0.91 U
Trichloroethene	0.38 J	1.1 U	9,673.62	3,761.96	3,170.80	1.5
Trichlorofluoromethane	1.34	1.2	37.54 U	37.54 U	37.54 U	1.7
Vinyl Chloride	0.26 U	0.51 U	454	2,192	2,569	0.51 U
Xylene (total)		1.3				25

Notes:

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