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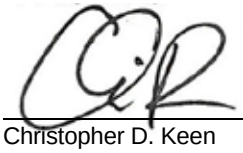
**BP Moby Holdings LLC**

# Periodic Review Report

25 Melville Park Road
Melville, New York
NYSDEC Site No. V00128

October 31, 2013

ARCADIS



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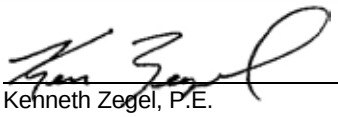

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**Periodic Review Report**

25 Melville Park Road Site
Melville, New York
NYSDEC Site No. V00128

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ARCADIS

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## 1. Executive Summary

ARCADIS of New York, Inc. (ARCADIS), on behalf of BP Moby Holdings LLC (BP Moby), has prepared this Periodic Review Report (PRR) for the 25 Melville Park Road Site (hereinafter referred to as the "Site") in Melville, New York. The Site is being remediated in accordance with the Voluntary Cleanup Agreement (VCA) Index # W1-0778-96-11, Site # 1-52-169, Voluntary Cleanup Site V00128-1, which was issued on January 13, 1998, and the Record of Decision (ROD), which was issued on March 29, 2004.

The on-site dissolved-phase volatile organic compound (VOC) plume currently extends from the general vicinity of angle wells IW-27 and IW-25 to the general vicinity of monitoring wells MW-7 and MW-28D. The source strength dissolved-phase VOC plume in the source area is present to a depth of approximately 90 feet below land surface (ft bls), and significant tetrachloroethene (PCE) concentrations are limited to the source area and do not appear to currently extend south of the loading dock area. The non-aqueous phase liquid (NAPL) extent has been defined and generally extends from the vicinity of angle wells IW-27 and IW-25 to the loading dock area.

An Enhanced Reductive Dechlorination (ERD) pilot test was conducted in 2003/2004. With New York State Department of Environmental Conservation (NYSDEC) concurrence, the pilot test was extended and an interim in-situ reactive zone (IRZ) program was initiated immediately following the ERD pilot test and was continued until implementation of the full-scale IRZ (i.e., December 2005). A single injection molasses-whey pilot test was completed at well IW-20 in 2010 in an effort to expedite the remediation at the Site. NAPL is manually recovered from the well network since 2001. A vapor control system (VCS) is operated in the northeast portion of the building (i.e., portion of the building that is located above the dissolved-phase VOC plume and NAPL impacts) since 2006.

The following conclusions and recommendations are made based on results provided within this PRR:

- The requirements of each remedy component and/or plan were met during the reporting period as follows:
    - As shown in Table 1, each engineering control (e.g., active remedial component) resulted in achievement of their respective RAOs.

  - The periodic review inspection and executed IC/EC forms confirm that all ICs remain in place and effective; and,

  - All monitoring and O&M activities were completed in accordance with the requirements provided in the SMP.

- Each remedy component performed as designed and has mitigated the identified risks to human health and the environment as documented in Table 1 and discussed in Sections 5 and 6 herein.

- As described in Progress Report 79 (ARCADIS 2013), the supplemental investigation VAP analytical data provided the necessary information for ARCADIS to evaluate options for modifications to dual-screen monitoring wells MW-25D, MW-26D, MW-27D, and MW-28D. Based on these data, ARCADIS plans to abandon the lower screen intervals (75-90 ft bls) of monitoring wells MW-27D and MW-28D and fully abandon monitoring wells MW-25D and MW-26D. Further details on the rationale for these modifications are provided in Progress Report 79 (ARCADIS 2013) and the revised CSM, which is attached to the progress report.

- A relatively low TOC concentration was observed at source area intermediate zone monitoring well IW-25. ARCADIS will evaluate opportunities for optimizing remediation based upon the results of the supplemental investigation.

- Based upon the findings herein and the future anticipated site activities, it is recommended that the current periodic review period (annual) be continued.

## 2. Site Overview

The following subsections provide a site overview including a site description, current conceptual site model (CSM), remedial action objectives (RAOs), and description of the main components of the remedy.

### 2.1 Site Description

The Site is located at 25 Melville Park Road in Suffolk County, New York and is identified as District 0400, Section 268, Block 01, Lot 04. The Site is located slightly south and east of the intersection of Broadhollow Road (Route 110) and the Long Island Expressway (Route 495) in the Village of Melville. The approximately 6-acre Site is located in an industrial and commercial area and is bounded to the south by Melville Park Road and to the west, north, and east by adjoining properties. The Site is presently occupied by a two-story office building and parking facilities. Figure 1 (Site Plan) shows the Site features and layout.

### 2.2 Conceptual Site Model

A detailed summary of the current CSM is provided in Progress Report 79 (ARCADIS 2013). Figures 2 and 3 show the distribution of total chlorinated VOCs (CVOCs) in the shallow and intermediate aquifer zones, respectively, for the June 2003 (pre-remediation) and December 2012 groundwater sampling events. The December 2012 groundwater monitoring data are discussed in Section 5 of this PRR.

### 2.3 Remedial Action Objectives

RAOs for public health protection include eliminating or reducing to the extent practicable:

- Exposures of persons at or around the Site to chlorinated solvents and petroleum in the underlying groundwater;
- The migration of chlorinated solvents from groundwater into indoor air through soil vapors; and,
- The migration of on-site groundwater contamination to off-site where additional exposures to contaminated groundwater are possible.

RAOs for environmental protection include attaining to the extent practicable:

- Elimination of VOC source areas in groundwater, thereby removing the source of the dissolved groundwater plume;
- Ambient groundwater quality standards to be met at the downgradient property boundary, thereby preventing further impacts to off-site groundwater; and,
- Ensure that indoor air quality continues to meet New York State Department of Health (NYSDOH) guidance values.

## 2.4 Remedial Program Elements

The chronology of the main features of the remedial program is described in the executive summary and Appendix A. The following are the primary components of the selected remedy:

- The operation and maintenance of downgradient and source area IRZs by periodic injection of organic carbon to the subsurface until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible;
- NAPL bailing in productive wells until NAPL recovery is no longer productive;
- Operation of the VCS in the northeast portion of the building;
- Operation of the heating, ventilation, and air conditioning (HVAC) system to maintain a positive pressure within the building to help prevent the potential migration of vapors into indoor air;
- Execution and recording of an Environmental Easement (EE) to restrict land use and prevent future exposure to any contamination remaining at the Site;
- Development and implementation of a SMP for long term management of remaining contamination as required by the EE, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting;

- Periodic certification of the institutional and engineering controls listed above.

There have not been any significant changes made to the selected remedy since remedy selection. However, ARCADIS conducted a supplemental investigation program between June and September 2013 in an effort to refine the Site CSM and further delineate source area NAPL and groundwater impacts. In addition, the supplemental investigation included the collection of groundwater grab samples from the vicinity of dual-screen monitoring wells MW-27D and MW-28D in order to determine a suitable well replacement or modification strategy for these monitoring wells. The work was conducted in accordance with the work plan that the NYSDEC approved in a letter dated May 6, 2013. A summary of the investigation is provided in Progress Report 79 (ARCADIS 2013). The supplemental investigation results are currently being evaluated to optimize opportunities to the remedial action for source area NAPL and groundwater. A summary of the evaluation findings and the identification of remediation optimization opportunities (if identified) will be provided to the NYSDEC in future correspondence. A description of the proposed dual-screen monitoring well modification recommendations is provided in Progress Report 79 (ARCADIS 2013) and in Section 7 of this PRR.

## 3. Evaluation of Remedy Performance, Effectiveness, and Protectiveness

The selected remedy was effective at achieving each of the RAOs during the reporting period. Table 1 provides a summary of how each RAO was achieved through operation of its respective remedy component. Supporting data in the form of tables and graphs are provided in the remaining sections of this PRR.

## 4. IC/EC Plan Compliance Report

ICs and ECs have been implemented at the Site to ensure achievement of the RAOs described in Section 2.3. The Site has three primary engineering controls (ECs). The ECs consist of the following:

- Downgradient and source area IRZs that involve the delivery of organic carbon (i.e., dilute molasses solution) to the subsurface through a network of injection wells.

- NAPL recovery that involves the manual removal of NAPL from the monitoring well network by hand bailing.

- A VCS in the northeast portion of the building consisting of extraction points VCS-1 and VCS-2 and induced vacuum monitoring points MP-1 through MP-6. In addition to the VCS, the HVAC system is operated to maintain a positive pressure within the building to help prevent the potential migration of vapors into indoor air.

Table 1 provides a summary of how each EC is used in achievement of the RAOs.

A series of institutional controls (ICs) are used to implement, maintain, and monitor the ECs. The EE requires compliance with these ICs. The ICs consist of the following:

- All ECs must be operated and maintained as specified in the SMP.
- All ECs on the Site must be inspected and certified at a frequency and in a manner defined in the SMP.
- Groundwater, NAPL, sub-slab soil vapor, and indoor air monitoring must be performed as defined in the SMP.
- Data and information pertinent to site management for the Site must be reported at the frequency and in a manner defined in the SMP.
- On-site environmental monitoring devices, including but not limited to, injection wells, groundwater monitoring wells, VCS extraction and monitoring points, and soil vapor probes, must be protected and replaced, as necessary, or properly abandoned, as directed by the NYSDEC, to ensure continued functioning in the manner specified in the SMP.

In addition to the IC's referenced above, additional ICs have been implemented in the form of site restrictions. Site restrictions that apply to the Site consist of the following:

- Require compliance with the approved SMP.
- Restrict the use of groundwater beneath the Site as a source of potable or process water, without necessary water quality treatment as determined by the SCDHS.

- Limit the use and development of the property to commercial or industrial uses only.

- Require the property owner to complete and submit to the NYSDEC an annual certification to ensure that the ICs are still in place.

The annual site inspection was completed on October 29, 2013. No deficiencies were noted during the annual site inspection. As such, all ICs/ECs remain in place and effective in meeting the goals described above. There are no recommended changes at this time.

The completed site management certification forms executed as part of the annual site inspection and review process are provided in Appendix B.

## 5. Monitoring Plan Compliance Report

The monitoring plan provided in the SMP (ARCADIS 2010) describes the measures for evaluating the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site. The monitoring program for the Site includes long-term IRZ performance monitoring, groundwater compliance monitoring, groundwater plume configuration monitoring, water-level measurements, NAPL gauging, indoor air quality (IAQ) monitoring, sub-slab soil vapor monitoring, and VCS monitoring. Figures 4 and 5 show the locations of the monitoring points that are used in the monitoring program. A detailed description of the monitoring program elements is provided in the SMP (ARCADIS 2010).

The monitoring activities that were completed during this PRR reporting period include the following:

- Quarterly IRZ performance monitoring and groundwater compliance monitoring were performed in December 2012, March 2013, June 2013, and September 2013.

- Annual groundwater plume configuration monitoring was performed in December 2012.

- Annual water-level measurements were collected in March 2013.

- Quarterly NAPL gauging was performed in December 2012, March 2013, June 2013, and September 2013.

- Annual IAQ monitoring and sub-slab soil vapor monitoring were performed in March 2013.

- Quarterly VCS monitoring was performed in December 2012, March 2013, June 2013, and September 2013.

- As described previously, a supplemental investigation program was conducted between June and September 2013 in accordance with the work plan that the NYSDEC approved in a letter dated May 6, 2013. A summary of the investigation is provided in Progress Report 79 (ARCADIS 2013). The supplemental investigation data are currently under evaluation. As such, further discussion of the data are not provided in this PRR with the exception of applicable recommendations related to existing dual-screen monitoring wells. A summary of the evaluation findings and the identification of remediation optimization opportunities (if identified) will be provided to the NYSDEC in future correspondence.

There are no monitoring deficiencies and the monitoring complied with the monitoring plan. The monitoring that was performed during the PRR reporting period continues to demonstrate that the ECs are effective in reducing or mitigating contamination at the Site. Additional evaluation of remedy-specific monitoring data is described below and in Section 6 of this PRR.

### 5.1 Groundwater Monitoring

Tables 2 through 4 provide a summary of the groundwater monitoring data collected during the current reporting period. Figures 2 and 3 show the distribution of total CVOCs in the shallow and intermediate aquifer zones, respectively, for the June 2003 (pre-remediation) and December 2012 groundwater sampling events. The December 2012 monitoring data collected from shallow monitoring wells MW-4 and MW-14, intermediate zone monitoring well MW-16D, and deep zone monitoring well MW-36 (with the exception of trichloroethene [TCE], which was detected at a concentration of 0.27 µg/L) indicate that VOCs were not detected above their respective reporting limits. The monitoring data collected from shallow zone monitoring wells IW-22, MW-3, MW-15, and MW-31 and intermediate zone monitoring wells MW-13D, MW-34, and MW-35

indicate that VOCs were detected at concentrations below NYSDEC SGVs. Analytical data for monitoring well MW-11 collected in 2013 further support groundwater plume definition to the west. Collectively, the monitoring data indicate that a clean water front has been maintained at the downgradient property boundary and that the lateral extents of the plume are well defined.

Chlorinated VOCs (CVOCs) were detected at low-level concentrations at former injection wells IW-13 and IW-16. Toluene was detected at an elevated concentration at former injection wells IW-13 and IW-16. The observation of toluene is not uncommon within injection wells used for carbon substrate delivery and literature indicates that toluene can be produced biogenically through complex reactions with in-situ bacteria. The lack of toluene at downgradient monitoring wells indicates that its presence is transient and that toluene is attenuating (likely through use as an electron donor) as it flows along the downgradient flow path. Toluene was not detected above its respective NYSDEC SGV in well IW-16 in June 2013. ARCADIS will continue to monitor for toluene as part of the routine quarterly monitoring program.

### 5.2 Water-Level Measurements

ARCADIS collected water-level measurements from the hydraulic monitoring well network on March 25, 2013 (see Table 5). Water-level elevation data indicate that the horizontal direction of shallow groundwater flow is to the south-southeast, which is consistent with data collected during previous monitoring rounds (see Figure 6).

### 5.3 NAPL Gauging

Table 6 provides the NAPL gauging data from December 2012 through September 2013. As of September 2013, NAPL is present (above trace thicknesses) in wells IW-18 and IW-25. The distribution of drainable NAPL correlates with the source area and there is no evidence, based on the quarterly NAPL gauging data, that there has been a horizontal spread or vertical migration of NAPL from the source area to other areas. There are regions within the source area where NAPL is present as residual NAPL that cannot be recovered from wells.

### 5.4 IAQ Monitoring and Sub-Slab Soil Vapor Monitoring

The annual vapor intrusion monitoring program consists of collecting two (2) indoor air quality samples (West Office Space/SW Office Space and SE Office Space) and two

(2) sub-slab soil vapor quality samples (SS-5A and SE SS-A). ARCADIS collected the indoor air quality samples and sub-slab soil vapor samples on February 20, 2013. Table 7 presents a summary of the February 2013 analytical data.

No compounds were detected above the laboratory reporting limits in the SW Office Space and SE Office Space indoor air quality samples.

The 2013 sub-slab soil vapor sample concentrations were similar to the 2012 sub-slab soil vapor sample concentrations. PCE was detected in the SE SS-A and SS-5A sub-slab soil vapor samples at concentrations of 280 and 130 micrograms per cubic meter ($\mu g/m^3$), respectively. 1,1,1-trichloroethane (1,1,1-TCA) was detected in the SE SS-A and SS-5A samples at concentrations of 4.4 and 24 $\mu g/m^3$, respectively. TCE was detected in the SE SS-A sample at a concentration of 15 $\mu g/m^3$.

Evaluating the 2013 sub-slab soil vapor data in conjunction with the 2013 indoor air quality data in the context of the NYSDOH decision matrices indicates that ongoing monitoring is warranted for PCE but that no further action is warranted for 1,1,1-TCA or TCE at the two sampling locations. Nonetheless, the site-related CVOCs will continue to be monitored on an annual basis.

### 5.5 VCS Monitoring

The VCS continued to maintain negative pressure beneath the building within the entire target area (i.e., on both sides of the wall footing). This is evidenced by negative pressure readings at all induced vacuum monitoring points during operation. Photoionization detector (PID) measurements collected from extraction points VCS-1 and VCS-2 were generally non-detect. The VCS operating data for the period of December 2012 through September 2013 are provided in Table 8.

## 6. Operation and Maintenance (O&M) Plan Compliance Report

The O&M Plan provided in the SMP (ARCADIS 2010) describes the activities necessary to implement each of the active remedial components with the ultimate goal of achieving their specific RAOs. As described previously, the active remedial components at the Site include:

- Implementation of the downgradient and source area IRZs.

- NAPL recovery; and,

- Operation of the VCS.

A detailed description of O&M activities for each of the active remedial components is provided in Section 4 of the SMP (ARCADIS 2010). A summary of the O&M methodology and activities completed during the reporting period is provided below.

### 6.1 Operation and Maintenance Methodology and Activities Completed

The following subsections provide a brief description of the methodology and activities for each of the active remedial components during the reporting period.

#### 6.1.1 Downgradient and Source Area In-Situ Reactive Zone Methodology

Maintenance of the downgradient and source area IRZs involves the periodic injection of a fermentable organic carbon substrate (i.e., a 2.2-percent dilute molasses solution) through a network of injection wells and groundwater monitoring program. The injection of organic carbon drives the groundwater geochemistry to strongly reducing conditions that fosters the growth of bacteria capable of completing reductive dechlorination. The organic carbon also promotes enhanced solubilization of NAPL through the generation of mild surfactants, organic acids, and other chemical/physical processes.

The groundwater monitoring program is used to demonstrate that sufficient organic carbon is delivered to the subsurface, confirm reagent distribution, and confirm that conditions conducive for reductive dechlorination are being maintained. Groundwater analytical parameters used to confirm these objectives include VOCs, TOC, methane, ethene, ethane, and the field parameter pH. These parameters are evaluated as follows:

- VOCs – VOC concentrations collected during the quarterly monitoring events are used to evaluate the relative change in concentrations compared to baseline results and confirm that remedial objectives for groundwater are being achieved.

- TOC – TOC provides a direct measurement of the residual electron donor available for microbial utilization and fermentation to generate dissolved

hydrogen for dechlorination. Generally, a TOC concentration of greater than 20 mg/L at monitoring wells located within 60 to 100 days hydraulically downgradient of the injection wells is considered optimal for ERD.

§ Methane – The presence of elevated dissolved methane relative to baseline conditions provides a positive indication that the reducing conditions required for complete dechlorination have been established.

§ Ethene and ethane – As the primary end products of reductive dechlorination, the presence of ethene and ethane demonstrates that the necessary microorganisms for complete transformation of chlorinated VOCs are both present and active within the subsurface and confirms that COCs are undergoing complete reductive dechlorination through a biologically mediated pathway.

§ pH – Reductive dechlorination is generally achieved at pH values greater than 5 SU, depending on the extent and distribution of subsurface biomass.

Injections are currently completed every four months and were completed during the months of December 2012 and May 2013 during the reporting period. Injection wells IW-6, IW-11, and IW-15 were used to deliver reagent for maintenance of the downgradient IRZ with the ultimate goal of achieving MCLs at the downgradient property boundary. Injection wells IW-24 and IW-27 were used for maintenance of the source area IRZ with the ultimate goals of providing both treatment of CVOCs and enhancing NAPL dissolution. Injection field parameters were recorded during each injection event to document the activities performed. A summary of the injection logs documenting the field parameters during the reporting period are provided in Appendix C. A bullet summary of the injection methodology history is provided in Appendix A. Groundwater monitoring events were completed as described in Section 5.

### 6.1.2 NAPL Recovery

NAPL recovery is completed through manual hand-bailing of NAPL from all monitoring wells containing recoverable NAPL. Recovered NAPL is containerized in labeled, sealed 55-gallon drums. The 55-gallon drums are stored in a secure location and are disposed in accordance with applicable local, State, and Federal regulations.

As described previously, NAPL gauging and recovery events were completed on a quarterly basis in December 2012, March 2013, June 2013, and September 2013. A summary of the gauging and recovery data are provided in Tables 6 and 9.

#### 6.1.3 Vapor Control System

Maintenance of the VCS included quarterly site visits to:

- Periodic site inspections to ensure the system is running properly.
- The collection of meteorological and system operating parameters on a quarterly basis including:
  - Barometric pressure, ambient temperature and atmospheric conditions. In addition, it will be noted if the barometric pressure is rising or falling;
  - Induced vacuum readings at all monitoring points;
  - Recovery vacuum and flowrate at each recovery well; and,
  - PID readings from each recovery well to confirm vapor treatment is not required (NYSDEC 2007).
- Maintenance of system equipment (i.e., blower maintenance), as necessary during the site inspections.

The VCS operated continuously during the reporting period with the exception of infrequent, temporary shutdowns due to power failures. Site inspections were completed during each scheduled quarterly VCS monitoring event, during each groundwater and NAPL monitoring event, and during each reagent injection event. Quarterly site visits for the collection of system operating parameters were completed in December 2012, March 2013, June 2013, and September 2013.

### 6.2 Evaluation of Remedial Systems

The following subsections evaluate the ability of each of the active remedial components to perform as designed based upon the O&M activities completed during the reporting period.

6.2.1 Downgradient and Source Area In-Situ Reactive Zone

O&M activities completed during the reporting period resulted in operation of the IRZs in accordance with their design objectives. The design objectives are to achieve the RAOs for groundwater identified in Section 2 of this PRR. Key analytical and field parameter data that support this conclusion includes:

- The target injection volumes for each of the injection wells were achieved during each injection event. These data indicate that sufficient volume was injected to achieve the desired injection radius. A summary of the field parameters recorded during each injection event are provided in Appendix C.

- The concentration of TOC was greater than 20 mg/L at all injection wells and at monitoring wells located 100 days hydraulically downgradient (or less) from the injection wells with the exception of source area intermediate zone monitoring well IW-25. These data indicate that sufficient carbon was injected to provide the required residence time for complete reductive dechlorination of the target compounds. A summary of the area with TOC greater than 20 mg/L during the December 2012 sampling event is provided on Figure 7. A summary of the TOC analytical data collected during the reporting period is provided in Table 3.

- The pH at all monitoring wells remained greater than 5 SU, the lower limit for achieving optimal reductive dechlorination. A summary of the pH data collected during the reporting period is provided in Table 3.

- The concentration of methane remained significantly elevated within applicable monitoring wells indicating that conditions conducive for complete reductive dechlorination (e.g., strongly reducing [methanogenic]) are being maintained within the IRZs. A summary of the methane analytical data collected during the reporting period is provided in Table 3. Trend plots that include the concentration of methane versus time for select downgradient IRZ monitoring wells (MW-7, MW-27D, MW-31, and MW-16D) and source area IRZ monitoring wells (IW-17, IW-18, IW-22, and IW-23) are provided in Appendix D.

- The concentration of ethene and/or ethane remained significantly above baseline conditions within applicable monitoring wells in both the downgradient

and source area IRZs. These data corroborate TOC data and indicate that complete reductive dechlorination is occurring within the IRZs. A summary of the ethene and ethane analytical data collected during the reporting period is provided in Table 3. Trend plots that include the concentration of ethene and ethane versus time for select downgradient IRZ monitoring wells (MW-7, MW-27D, MW-31, and MW-16D) and source area IRZ monitoring wells (IW-17, IW-18, IW-22, and IW-23) are provided in Appendix D.

- The concentrations of CVOCs are generally below MCLs at the downgradient property boundary indicating that the downgradient IRZ is achieving its respective RAO. The concentration of CVOCs have decreased by greater than 85 percent when comparing December 2012 data to baseline data (June 2003) within monitoring wells used to document performance of the downgradient IRZ.

- The concentration of CVOCs have decreased by greater than 99 percent within source area monitoring wells IW-22, IW-23, MW-13, and MW-13D when comparing December 2012 data to baseline data (May 2005). Conversely, CVOCs are significantly above baseline conditions at source area monitoring wells IW-17 and IW-18 which were targeted for enhanced NAPL dissolution as part of the mol-whey pilot test. These data indicate that enhanced NAPL dissolution and complete reductive dechlorination are occurring in the source area. A summary of the VOC analytical data collected during the reporting period is provided in Tables 2 and 4. Trend plots that include the concentration of PCE, TCE, cis-1,2-DCE and VC versus time for select downgradient IRZ monitoring wells (MW-7, MW-27D, MW-31, and MW-16D) and source area IRZ monitoring wells (IW-17, IW-18, IW-22, and IW-23) are provided in Appendix D.

In summary, the downgradient and source area IRZs were operated and maintained as designed and resulted in achievement of the RAOs for groundwater during the reporting period.

### 6.2.2 NAPL Recovery

NAPL gauging and recovery data collected during each NAPL gauging and recovery event indicate that the quarterly frequency is appropriate for achieving the RAOs. Approximately 15 gallons of NAPL/water mixture was removed from Site monitoring

wells during the reporting period. A summary of NAPL recovery during the reporting period is provided in Table 9.

#### 6.2.3 Vapor Control System

A summary of the field parameters collected during the reporting period are provided in Table 8. Field parameter data and indoor air quality analytical data collected during the reporting period indicate that the O&M activities completed resulted in operation of the VCS in accordance with its design objectives. Specifically:

- An induced vacuum was measured at all induced vacuum measuring points during each quarterly site visit. The induced vacuum was greater than -0.035 inches of water (iwc) at the majority of measuring points, which is the industry standard for the control of soil vapor (USEPA 1993); and,

- As described in Section 5.4, no compounds were detected above the laboratory reporting limits in the indoor air quality samples.

Combined, the data indicate that the VCS is preventing the migration of chlorinated solvents from groundwater into indoor air through soil vapors and is ensuring that indoor air quality continues to meet NYSDOH guidance values.

### 6.3 Operation and Maintenance Deficiencies

No deficiencies or deviations from the planned O&M activities were noted for the reporting period.

### 6.4 Conclusions and Recommendations for Improvements

O&M activities for each of the active remedial components resulted in the achievement of the RAOs.

## 7. Overall PRR Conclusions and Recommendations

The following conclusions and recommendations are made based on results provided within this PRR:

- The requirements of each remedy component and/or plan were met during the reporting period as follows:
    - As shown in Table 1, each engineering control (e.g., active remedial component) resulted in achievement of their respective RAOs.
    - The periodic review inspection and executed IC/EC forms confirm that all ICs remain in place and effective; and,
    - All monitoring and O&M activities were completed in accordance with the requirements provided in the SMP.
- Each remedy component performed as designed and has mitigated the identified risks to human health and the environment as documented in Table 1 and discussed in Sections 5 and 6 herein.
- As described in Progress Report 79 (ARCADIS 2013), the supplemental investigation VAP analytical data provided the necessary information for ARCADIS to evaluate options for modifications to dual-screen monitoring wells MW-25D, MW-26D, MW-27D, and MW-28D. Based on these data, ARCADIS plans to abandon the lower screen intervals (75-90 ft bls) of monitoring wells MW-27D and MW-28D and fully abandon monitoring wells MW-25D and MW-26D. Further details on the rationale for these modifications are provided in Progress Report 79 (ARCADIS 2013) and the revised CSM which is an attachment to the progress report.
- A relatively low TOC concentration was observed at source area intermediate zone monitoring well IW-25. ARCADIS will evaluate opportunities for optimizing remediation based upon the results of the supplemental investigation.
- Based upon the findings herein and the future anticipated site activities, it is recommended that the current periodic review period (annual) be continued.

## 8. References

ARCADIS of New York, Inc. 2010. Site Management Plan, 25 Melville Park Road Site, Melville, New York. August 13, 2010.

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**Tables**

Table 1. Remedy Effectiveness Summary for the Periodic Review Period of October 2012 to September 2013, 25 Melville Park Road, Melville, New York.

| Remedial Action Objective | RAO Achieved during Reporting Period? | Rationale |
|---|---|---|
| Public health protection. Eliminating or reducing to the extent practicable: | | |
| Exposures of persons at or around the Site to chlorinated solvents and petroleum in the underlying groundwater; | Yes | - Prevention of contact with contaminated groundwater through implementation of the ICs and EC recorded in the EE.<br>- No changes to institutional or engineering controls during the reporting period as documented through IC/EC certifications.<br>- Remediation of contaminated groundwater toward the remediation goals as documented in Sections 5 and 6 of this PRR. Specifically,<br>o Operation of the downgradient IRZ is preventing the off-site migration of dissolved phase chlorinated solvents.<br>o Operation of the source area IRZ is enhancing the removal of NAPL and treating dissolved phase chlorinated solvents<br>o NAPL hand-bailing is phsyically removing NAPL, where present within existing monitoring wells. |
| The migration of chlorinated solvents from groundwater into indoor air through soil vapors; and, | Yes | - Operation of the VCS in accordance with its design objectives. Supporting data provided in Sections 5 and 6 of this PRR.<br>- Remediation of contaminated groundwater, which is the source of soil vapors, as described in Sections 5 and 6 of this PRR. Specifically,<br>o Operation of the source area IRZ is enhancing the removal of NAPL and treating dissolved phase chlorinated solvents.<br>o NAPL hand-bailing is phsyically removing NAPL, where present within existing monitoring wells. |
| The migration of on-site groundwater contamination to off-site where additional exposures to contaminated groundwater are possible. | Yes | - Operation of the downgradient IRZ is preventing the off-site migration of contaminated groundwater. Concentrations are currently near or below MCLs at the downgradient property boundary as documented in Sections 5 and 6 of this PRR. |
| Environmental protection. Attaining to the extent practicable: | | |
| Elimination of VOC source areas in groundwater, thereby removing the source of the dissolved groundwater plume; | Yes | - Operation of the source area IRZ has resulted in complete reductive dechlorination of CVOCs and has enhanced NAPL dissolution as documented in Sections 5 and 6 of this PRR.<br>- NAPL handbailing removed all recoverable NAPL as documented in Sections 5 and 6 of this PRR. |
| Ambient groundwater quality standards to be met at the downgradient property boundary, thereby preventing further impacts to off-site groundwater; and, | Yes | - Operation of the downgradient IRZ is preventing the off-site migration of contaminated groundwater. Concentrations are currently near or below MCLs at the downgradient property boundary as documented in Sections 5 and 6 of this PRR. |
| Ensure that indoor air quality continues to meet New York State Department of Health NYSDOH guidance values. | Yes | - The VCS operated continuosuly and in accordance with its design objectives during the reporting period. Supporting data provided in Sections 5 and 6 of this PRR. |

Abbreviations

RAO - Remedial action objective
ICs - Institutional controls
ECs - Engineering controls
EE - Environmental easement
IRZ - In-situ Reactive Zone
NAPL - Non aqueous phase liquid
VCS - Vapor control system
PRR - Periodic review report
CVOCs - Chlorinated volatile organic compounds
MCLs - Maximum contaminant levels

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-15 12/12/12 Shallow | IW-22 12/12/12 Shallow | IW-22 6/17/13 Shallow | IW-17 12/12/12 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <250 |
| Bromomethane | 5 | | <5 | <5 | <5 | <250 |
| Vinyl Chloride | 2 | | <1 | <1 | **42** | **300** |
| Chloroethane | 5 | | <5 | <5 | <5 | <250 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <250 |
| Acetone | 50 | | <10 | <10 | **15** | <500 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <250 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | **56 J** |
| 1,1-Dichloroethane | 5 | | <5 | **0.3 J** | **3.7 J** | **190 J** |
| trans-1,2-Dichloroethene | 5 | | <5 | <5 | **1 J** | **11 J** |
| cis-1,2-Dichloroethene | 5 | | <5 | **0.64 J** | **26** | **20000** |
| Chloroform | 7 | | <5 | <5 | <5 | <250 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <250 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <500 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | **0.14 J** | **460** |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <250 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <250 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <250 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <250 |
| Trichloroethene | 5 | | <5 | **0.24 J** | <5 | **3500** |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <250 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <250 |
| Benzene | 1 | | <5 | <5 | <5 | <250 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <250 |
| Bromoform | 50 | | <5 | <5 | <5 | <250 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <500 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <500 |
| Tetrachloroethene | 5 | | **3.1 J** | <5 | **0.18 J** | **14000** |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <250 |
| Toluene | 5 | | <5 | **0.47 J** | **2.2 J** | **46 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <250 |
| Ethylbenzene | 5 | | <5 | <5 | **0.22 J** | **16 J** |
| Styrene | 5 | | <5 | <5 | <5 | <250 |
| Xylenes, Total | 5 | | <5 | <5 | **2.2 J** | **140 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | IW-17 6/17/13 Shallow | MW-17 3/25/13 Shallow | MW-13 12/13/12 Shallow | MW-14 12/12/12 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <250 | <5 | <5 | <5 |
| Bromomethane | 5 | | <250 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **280** | **0.7 J** | **22** | <1 |
| Chloroethane | 5 | | <250 | <5 | <5 | <5 |
| Methylene Chloride | 5 | | <250 | <5 | <5 | <5 |
| Acetone | 50 | | <500 | <10 | <10 | <10 |
| Carbon Disulfide | 60 | | <250 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | **41 J** | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **140 J** | **0.31 J** | **0.36 J** | <5 |
| trans-1,2-Dichloroethene | 5 | | <250 | **0.24 J** | **0.47 J** | <5 |
| cis-1,2-Dichloroethene | 5 | | **19000** | **1.7 J** | **6.5** | <5 |
| Chloroform | 7 | | <250 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <250 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <500 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | **190 J** | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <250 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <250 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <250 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <250 | <5 | <5 | <5 |
| Trichloroethene | 5 | | **770** | **0.27 J** | **2 J** | <5 |
| Dibromochloromethane | 50 | | <250 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <250 | <5 | <5 | <5 |
| Benzene | 1 | | <250 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <250 | <5 | <5 | <5 |
| Bromoform | 50 | | <250 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <500 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <500 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | **1600** | **0.11 J** | **11** | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <250 | <5 | <5 | <5 |
| Toluene | 5 | | **38 J** | **0.84 J** | **0.15 J** | <5 |
| Chlorobenzene | 5 | | <250 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **10 J** | **0.21 J** | <5 | <5 |
| Styrene | 5 | | <250 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **99 J** | **1.1 J** | **0.62 J** | <5 |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | IW-16 12/12/12 Shallow | IW-16 6/17/13 Shallow | MW-7 12/13/12 Shallow | MW-7 6/18/13 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <500 |
| Bromomethane | 5 | | <5 | <5 | <5 | <500 |
| Vinyl Chloride | 2 | | **1.3** | **4.3** | **440 D** | **5000** |
| Chloroethane | 5 | | <5 | **2.6 J** | <5 | <500 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <500 |
| Acetone | 50 | | <10 | **12** | <10 | <1000 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <500 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | **4.2 J** | **57 J** |
| 1,1-Dichloroethane | 5 | | <5 | **0.38 J** | **4.5 J** | **27 J** |
| trans-1,2-Dichloroethene | 5 | | **0.32 J** | **0.82 J** | **6** | **68 J** |
| cis-1,2-Dichloroethene | 5 | | **3.5 J** | **1 J** | **1900 D** | **25000** |
| Chloroform | 7 | | <5 | <5 | <5 | <500 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <500 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | **4.3 J** | <1000 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <500 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <500 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <500 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <500 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <500 |
| Trichloroethene | 5 | | **0.11 J** | <5 | **1.3 J** | <500 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <500 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <500 |
| Benzene | 1 | | <5 | <5 | <5 | <500 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <500 |
| Bromoform | 50 | | <5 | <5 | <5 | <500 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <1000 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <1000 |
| Tetrachloroethene | 5 | | **0.16 J** | <5 | <5 | <500 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <500 |
| Toluene | 5 | | **4300 DJ** | **2.9 J** | **18** | **140 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <500 |
| Ethylbenzene | 5 | | <5 | **0.16 J** | **0.58 J** | <500 |
| Styrene | 5 | | <5 | <5 | <5 | <500 |
| Xylenes, Total | 5 | | **0.49 J** | **0.54 J** | **4.7 J** | <500 |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-9 12/13/12 Shallow | MW-9 3/25/13 Shallow | MW-9 6/18/13 Shallow | MW-9 9/10/13 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **67** | **500 D** | **6.1** | **82** |
| Chloroethane | 5 | | **39** | **9.5** | **6.4** | **2.5 J** |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | **14** | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **17** | **11** | **12** | **5.1** |
| trans-1,2-Dichloroethene | 5 | | **8.9** | **6.8** | **1 J** | **5.5** |
| cis-1,2-Dichloroethene | 5 | | **40** | **490 D** | **14** | **23** |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | **9.4 J** | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | **0.11 J** | <5 | **0.11 J** | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **23** | **31** | **15** | **28** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **3.3 J** | **2.1 J** | **1.5 J** | **1.9 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **23** | **15** | **11** | **12** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-28D(US) 12/13/12 Shallow | MW-28D (US) 3/25/13 Shallow | MW-28D (US) 6/18/13 Shallow | MW-28D(US) 9/10/13 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **65** | **47** | **130** | **24** |
| Chloroethane | 5 | | **11** | **8.5** | <5 | **3.5 J** |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | **12** | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | **0.28 J** | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **5** | **7.2** | **2.6 J** | **4.9 J** |
| trans-1,2-Dichloroethene | 5 | | **2 J** | **2.8 J** | **1.5 J** | **2.8 J** |
| cis-1,2-Dichloroethene | 5 | | **210** | **14** | **150** | **66** |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | **4.9 J** | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **17** | **9.4** | **0.88 J** | **25** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **2.5 J** | **2.5 J** | **0.61 J** | **2.7 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **20** | **22** | **4.9 J** | **22** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-11 3/25/13 Shallow | MW-11 6/18/13 Shallow | MW-3 12/13/12 Shallow | MW-3 6/18/13 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | <1 | <1 | **0.81 J** | <1 |
| Chloroethane | 5 | | **11** | **3.9 J** | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | **13** | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **3.9 J** | **2.4 J** | <5 | <5 |
| trans-1,2-Dichloroethene | 5 | | **6.3** | **3 J** | <5 | <5 |
| cis-1,2-Dichloroethene | 5 | | <5 | **1.1 J** | **0.7 J** | **0.52 J** |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | **0.12 J** | **0.11 J** | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **3.5 J** | **0.74 J** | **0.31 J** | <5 |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **0.95 J** | **0.62 J** | <5 | <5 |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **8.5** | **5.7** | <5 | <5 |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-29 12/13/12 Shallow | MW-4 12/13/12 Shallow | MW-4 6/18/13 Shallow | MW-31 12/12/12 Shallow |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **25** | <1 | <1 | <1 |
| Chloroethane | 5 | | **9** | <5 | <5 | **0.59 J** |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **2.7 J** | <5 | <5 | **0.26 J** |
| trans-1,2-Dichloroethene | 5 | | **1.6 J** | <5 | <5 | **1.1 J** |
| cis-1,2-Dichloroethene | 5 | | **10** | <5 | <5 | <5 |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | **0.25 J** | <5 | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **3 J** | <5 | <5 | **0.16 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **0.21 J** | <5 | <5 | **0.29 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **1.5 J** | <5 | <5 | **1.8 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-31 3/25/13 Shallow | MW-31 6/18/13 Shallow | MW-31 9/10/13 Shallow | IW-23 12/12/12 Intermediate |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | <1 | <1 | <1 | **1.6** |
| Chloroethane | 5 | | <5 | <5 | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | <5 | <5 | <5 | **6.3** |
| trans-1,2-Dichloroethene | 5 | | <5 | **0.22 J** | <5 | **24** |
| cis-1,2-Dichloroethene | 5 | | <5 | <5 | <5 | **2.6 J** |
| Chloroform | 7 | | <5 | <5 | **0.74 J** | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | <5 | **0.12 J** |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | <5 | <5 | <5 | **3.5 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | <5 | <5 | <5 | **1.4 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | <5 | <5 | <5 | **16** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | IW-23 6/17/13 Intermediate | IW-18 12/12/12 Intermediate | IW-18 6/17/13 Intermediate | MW-13D 12/13/12 Intermediate |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <1300 J | <5000 | <5 |
| Bromomethane | 5 | | <5 | <1300 J | <5000 | <5 |
| Vinyl Chloride | 2 | | **400** | **1400 J** | **1400** | <1 |
| Chloroethane | 5 | | <5 | <1300 J | <5000 | <5 |
| Methylene Chloride | 5 | | <5 | <1300 J | <5000 | <5 |
| Acetone | 50 | | **15** | <2500 J | <10000 | <10 |
| Carbon Disulfide | 60 | | <5 | <1300 J | <5000 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | **450 J** | **370 J** | <5 |
| 1,1-Dichloroethane | 5 | | **19** | **480 J** | **540 J** | **0.2 J** |
| trans-1,2-Dichloroethene | 5 | | **73** | **93 J** | <5000 | **2.6 J** |
| cis-1,2-Dichloroethene | 5 | | **570 D** | **220000 DJ** | **260000** | **0.42 J** |
| Chloroform | 7 | | <5 | <1300 J | <5000 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <1300 J | <5000 | <5 |
| Methyl Ethyl Ketone | 50 | | **2.4 J** | **980 J** | <10000 | <10 |
| 1,1,1-Trichloroethane | 5 | | **0.59 J** | **2000 J** | **2200 J** | <5 |
| Carbon Tetrachloride | 5 | | <5 | <1300 J | <5000 | <5 |
| Bromodichloromethane | 50 | | <5 | <1300 J | <5000 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <1300 J | <5000 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <1300 J | <5000 | <5 |
| Trichloroethene | 5 | | **1.1 J** | **7200 J** | **7000** | <5 |
| Dibromochloromethane | 50 | | <5 | <1300 J | <5000 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <1300 J | <5000 | <5 |
| Benzene | 1 | | **0.15 J** | <1300 J | <5000 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <1300 J | <5000 | <5 |
| Bromoform | 50 | | <5 | <1300 J | <5000 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <2500 J | <10000 | <10 |
| 2-Hexanone | 50 | | <10 | <2500 J | <10000 | <10 |
| Tetrachloroethene | 5 | | **0.71 J** | **82000 J** | **79000** | **0.23 J** |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <1300 J | <5000 | <5 |
| Toluene | 5 | | **7.1** | **110 J** | **170 J** | **0.45 J** |
| Chlorobenzene | 5 | | <5 | <1300 J | <5000 | <5 |
| Ethylbenzene | 5 | | **1.8 J** | **59 J** | <5000 | **0.27 J** |
| Styrene | 5 | | <5 | <1300 J | <5000 | <5 |
| Xylenes, Total | 5 | | **22** | **710 J** | **660 J** | **2.5 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | IW-13 12/12/12 Intermediate | IW-13 6/17/13 Intermediate | MW-27D(LS) 12/13/12 Intermediate | MW-27D 6/18/13 Intermediate |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <10 | <5 | <5 |
| Bromomethane | 5 | | <5 | <10 | <5 | <5 |
| Vinyl Chloride | 2 | | **6.1** | <2 | **230** | **99** |
| Chloroethane | 5 | | <5 | <10 | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <10 | <5 | <5 |
| Acetone | 50 | | <10 | <20 | <10 | **13** |
| Carbon Disulfide | 60 | | <5 | <10 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <10 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | <5 | <10 | **3.9 J** | **3.5 J** |
| trans-1,2-Dichloroethene | 5 | | **0.66 J** | <10 | **5.5** | **1.9 J** |
| cis-1,2-Dichloroethene | 5 | | **26** | **2 J** | **200** | **33** |
| Chloroform | 7 | | <5 | <10 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <10 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | **4.4 J** | <20 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <10 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <10 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <10 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <10 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <10 | <5 | <5 |
| Trichloroethene | 5 | | **0.13 J** | <10 | **0.48 J** | **0.74 J** |
| Dibromochloromethane | 50 | | <5 | <10 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <10 | <5 | <5 |
| Benzene | 1 | | <5 | <10 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <10 | <5 | <5 |
| Bromoform | 50 | | <5 | <10 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <20 | <10 | <10 |
| 2-Hexanone | 50 | | **2.3 J** | <20 | <10 | <10 |
| Tetrachloroethene | 5 | | **0.11 J** | <10 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <10 | <5 | <5 |
| Toluene | 5 | | **7400 DJ** | **9600 D** | **17** | **10** |
| Chlorobenzene | 5 | | <5 | <10 | <5 | <5 |
| Ethylbenzene | 5 | | **0.84 J** | **0.65 J** | **0.34 J** | **0.41 J** |
| Styrene | 5 | | <5 | <10 | <5 | <5 |
| Xylenes, Total | 5 | | **2.5 J** | **1.6 J** | **2.3 J** | **2.9 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: / Zone: | MW-28D(LS) 12/13/12 Intermediate | MW-28D (LS) 3/25/13 Intermediate | MW-28D (LS) 6/18/13 Intermediate | MW-30 12/13/12 Intermediate |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **0.35 J** | <1 | <1 | **0.63 J** |
| Chloroethane | 5 | | **9.1** | **9.8** | **8.2** | **7.4** |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | **12** | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **4.7 J** | **8** | **15** | **0.81 J** |
| trans-1,2-Dichloroethene | 5 | | **3.8 J** | **3.6 J** | **4.4 J** | **25** |
| cis-1,2-Dichloroethene | 5 | | <5 | <5 | **0.24 J** | **3.8 J** |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | **0.099 J** | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **15** | **9.8** | **6.6** | **1.3 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **1.3 J** | **2.1 J** | **2.1 J** | **0.4 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **9.7** | **18** | **18** | **4.2 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: | MW-16D | MW-16D | MW-34 | MW-34 |
|---|---|---|---|---|---|---|
| | | Sample Date: | 12/12/12 | 6/18/13 | 12/13/12 | 3/25/13 |
| | | Zone: | Intermediate | Intermediate | Intermediate | Intermediate |
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | <1 | <1 | **0.87 J** | <1 |
| Chloroethane | 5 | | <5 | <5 | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | <5 | <5 | **1.2 J** | **1 J** |
| trans-1,2-Dichloroethene | 5 | | <5 | <5 | **3.6 J** | **3.7 J** |
| cis-1,2-Dichloroethene | 5 | | <5 | <5 | **1.6 J** | **1.7 J** |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | <5 | <5 | **0.11 J** | **1.5 J** |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | <5 | <5 | **0.83 J** | **1.3 J** |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | <5 | <5 | **0.22 J** | **0.25 J** |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | <5 | <5 | **1.4 J** | **2.2 J** |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 2. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: | MW-34 | MW-34 | MW-35 | MW-35 |
|---|---|---|---|---|---|---|
| | | Sample Date: | 6/18/13 | 9/10/13 | 12/13/12 | 6/18/13 |
| | | Zone: | Intermediate | Intermediate | Intermediate | Intermediate |
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | <1 | <1 | <1 | <1 |
| Chloroethane | 5 | | <5 | <5 | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <5 | <5 | <5 |
| Acetone | 50 | | <10 | <10 | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **0.96 J** | **0.77 J** | <5 | <5 |
| trans-1,2-Dichloroethene | 5 | | **4.3 J** | **4 J** | <5 | <5 |
| cis-1,2-Dichloroethene | 5 | | **3.8 J** | **2.9 J** | **0.33 J** | <5 |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | **1.8 J** | **3.6 J** | <5 | <5 |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | <5 | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | **0.83 J** | <5 | <5 | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **1.6 J** | **1.7 J** | <5 | <5 |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | **0.26 J** | **0.37 J** | <5 | <5 |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **2 J** | **2.4 J** | <5 | <5 |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| D | Detected at secondary dilution. |
| J | Estimated value. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | IW-6 12/12/12 Shallow | IW-6 3/25/13 Shallow | IW-6 6/18/13 Shallow | IW-6 9/9/13 Shallow | IW-24 12/12/12 Shallow | IW-24 3/25/13 Shallow | IW-24 6/18/13 Shallow | IW-24 9/10/13 Shallow |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 15.6 | 39.9 | 84.2 | 29.9 | 66.8 | 68.1 | 443 | 133 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Vinyl Chloride | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Methane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.21 | 5.70 | 5.55 | 5.84 | 6.06 | 6.21 | -- | 6.05 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | IW-22 12/12/12 Shallow | IW-22 6/17/13 Shallow | IW-17 12/12/12 Shallow | IW-17 3/25/13 Shallow | IW-17 6/17/13 Shallow | IW-17 9/9/13 Shallow | IW-2 12/12/12 Shallow | MW-13 12/13/12 Shallow |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 55 | 168 | 2880 | 2820 | 1730 | 2320 | 46.2 | 7.2 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | <5 | 0.18 J | 14000 | -- | 1600 | -- | -- | 11 |
| Trichloroethene | ug/L | 0.24 J | <5 | 3500 | -- | 770 | -- | -- | 2 J |
| cis-1,2-Dichloroethene | ug/L | 0.64 J | 26 | 20000 | -- | 19000 | -- | -- | 6.5 |
| Vinyl Chloride | ug/L | <1 | 42 | 300 | -- | 280 | -- | -- | 22 |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | -- | 85 | -- | 130 | -- | -- | -- |
| Ethene | ug/L | -- | -- | 120 | -- | 100 | -- | -- | -- |
| Methane | ug/L | -- | -- | 10000 | -- | 13000 | -- | -- | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.20 | 6.55 | 5.40 | 5.35 | 4.83 | 5.39 | 6.40 | 6.87 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | MW-7 12/13/12 Shallow | MW-7 3/25/13 Shallow | MW-7 6/18/13 Shallow | MW-7 9/10/13 Shallow | MW-9 6/18/13 Shallow | MW-28D (US) 12/13/12 Shallow | MW-28D (US) 3/25/13 Shallow | MW-28D (US) 6/18/13 Shallow |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 43.5 | 26.4 | 894 | 30.9 | 160 | 139 | 101 | 29.6 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | <5 | -- | <500 | -- | <5 | <5 | <5 | <5 |
| Trichloroethene | ug/L | 1.3 J | -- | <500 | -- | <5 | <5 | <5 | <5 |
| cis-1,2-Dichloroethene | ug/L | 1900 D | -- | 25000 | -- | 14 | 210 | 14 | 150 |
| Vinyl Chloride | ug/L | 440 D | -- | 5000 | -- | 6.1 | 65 | 47 | 130 |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Methane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.22 | 5.71 | 4.96 | 5.84 | 6.05 | 6.10 | 6.07 | 5.85 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | MW-28D(US) 9/10/13 Shallow | MW-11 6/18/13 Shallow | MW-3 12/13/12 Shallow | MW-4 12/13/12 Shallow | MW-4 6/18/13 Shallow | MW-31 12/12/12 Shallow | MW-31 3/25/13 Shallow | MW-31 6/18/13 Shallow |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 67.8 | 20.3 | 15.3 | 1.6 | 1.2 | 2.4 | 3.4 | 2.5 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Trichloroethene | ug/L | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| cis-1,2-Dichloroethene | ug/L | 66 | 1.1 J | 0.7 J | <5 | <5 | <5 | <5 | <5 |
| Vinyl Chloride | ug/L | 24 | <1 | 0.81 J | <1 | <1 | <1 | <1 | <1 |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | 14 | -- | -- | 0.015 J | 2.5 | 0.039 | 1 |
| Ethene | ug/L | -- | 0.032 | -- | -- | 0.015 J | 0.031 | 0.14 | 0.074 |
| Methane | ug/L | -- | 18000 | -- | -- | 0.57 | 100 | 0.92 | 85 |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.19 | 5.63 | 6.50 | 6.40 | 6.18 | 7.80 | 7.30 | 6.43 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | | Sample ID: | MW-31 |
|---|---|---|---|
| | | Sample Date: | 9/10/13 |
| | | Zone: | Shallow |
| | UNITS | | |
| CLASSICAL CHEMISTRY ANALYTES | | | |
| Total Organic Carbon | mg/L | | 3 |
| VOCs | | | |
| Tetrachloroethene | ug/L | | <5 |
| Trichloroethene | ug/L | | <5 |
| cis-1,2-Dichloroethene | ug/L | | <5 |
| Vinyl Chloride | ug/L | | <1 |
| LIGHT HYDROCARBONS | | | |
| Ethane | ug/L | | 0.069 J |
| Ethene | ug/L | | <0.20 |
| Methane | ug/L | | 0.73 |
| FIELD PARAMETERS | | | |
| pH | Standard Units | | 6.86 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | IW-10 12/12/12 Intermediate | IW-10 3/25/13 Intermediate | IW-10 6/17/13 Intermediate | IW-10 9/9/13 Intermediate | IW-11 12/13/12 Intermediate | IW-11 3/25/13 Intermediate | IW-11 6/18/13 Intermediate | IW-11 9/9/13 Shallow |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 176 | 142 | 119 | 117 | 1070 | 2610 | 15000 | 19.5 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Vinyl Chloride | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethene | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Methane | ug/L | -- | -- | -- | -- | -- | -- | -- | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 5.97 | 6.38 | 6.54 | 6.41 | 4.28 | 4.79 | 3.76 | 4.87 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | IW-25 12/12/12 Intermediate | IW-27 12/12/12 Intermediate | IW-27 3/25/13 Intermediate | IW-27 6/18/13 Intermediate | IW-27 9/10/13 Intermediate | IW-23 12/12/12 Intermediate | IW-23 6/17/13 Intermediate | IW-18 12/12/12 Intermediate |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 3.6 | 938 | 9 | 12.9 | 943 | 55.6 | 75.9 | 2830 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | -- | -- | -- | -- | -- | <5 | 0.71 J | 82000 J |
| Trichloroethene | ug/L | -- | -- | -- | -- | -- | 0.12 J | 1.1 J | 7200 J |
| cis-1,2-Dichloroethene | ug/L | -- | -- | -- | -- | -- | 2.6 J | 570 D | 220000 DJ |
| Vinyl Chloride | ug/L | -- | -- | -- | -- | -- | 1.6 | 400 | 1400 J |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | -- | -- | -- | -- | -- | 160 | 480 |
| Ethene | ug/L | -- | -- | -- | -- | -- | -- | 250 | 700 |
| Methane | ug/L | -- | -- | -- | -- | -- | -- | 20000 | 16000 |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.08 | 4.40 | 8.03 | 5.89 | 1.53 | 6.48 | 6.73 | 5.81 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | IW-18 3/25/13 Intermediate | IW-18 6/17/13 Intermediate | IW-18 9/9/13 Intermediate | IW-8 12/12/12 Intermediate | MW-13D 12/13/12 Intermediate | MW-27D (LS) 12/13/12 Intermediate | MW-28D (LS) 12/13/12 Intermediate | MW-28D (LS) 3/25/13 Intermediate |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 2140 | 2050 | 1720 | 3.9 | 22.7 | 9.6 | 13.2 | 124 |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | -- | 79000 | -- | -- | 0.23 J | <5 | <5 | <5 |
| Trichloroethene | ug/L | -- | 7000 | -- | -- | <5 | 0.48 J | <5 | <5 |
| cis-1,2-Dichloroethene | ug/L | -- | 260000 | -- | -- | 0.42 J | 200 | <5 | <5 |
| Vinyl Chloride | ug/L | -- | 1400 | -- | -- | <1 | 230 | 0.35 J | <1 |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | 570 | -- | -- | -- | -- | -- | -- |
| Ethene | ug/L | -- | 900 | -- | -- | -- | -- | -- | -- |
| Methane | ug/L | -- | 15000 | -- | -- | -- | -- | -- | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 6.24 | 6.54 | 5.96 | 6.56 | 6.83 | 6.22 | 6.12 | 6.21 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | Sample ID: / Sample Date: / Zone: | MW-28D (LS) 6/18/13 Intermediate | MW-16D 12/12/12 Intermediate | MW-16D 6/18/13 Intermediate | MW-34 12/13/12 Intermediate | MW-34 3/25/13 Intermediate | MW-34 6/18/13 Intermediate | MW-34 9/10/13 Intermediate | MW-35 12/13/12 Intermediate |
|---|---|---|---|---|---|---|---|---|---|
| | UNITS | | | | | | | | |
| CLASSICAL CHEMISTRY ANALYTES | | | | | | | | | |
| Total Organic Carbon | mg/L | 45.2 | 1.2 | 1.2 | 41.9 | 51.3 | 66.8 | 75.2 | <1.2 B |
| VOCs | | | | | | | | | |
| Tetrachloroethene | ug/L | <5 | <5 | <5 | <5 | <5 | 0.83 J | <5 | <5 |
| Trichloroethene | ug/L | <5 | <5 | <5 | 0.11 J | 1.5 J | 1.8 J | 3.6 J | <5 |
| cis-1,2-Dichloroethene | ug/L | 0.24 J | <5 | <5 | 1.6 J | 1.7 J | 3.8 J | 2.9 J | 0.33 J |
| Vinyl Chloride | ug/L | <1 | <1 | <1 | 0.87 J | <1 | <1 | <1 | <1 |
| LIGHT HYDROCARBONS | | | | | | | | | |
| Ethane | ug/L | -- | 0.13 | 0.034 | -- | 70 | 53 | 60 | -- |
| Ethene | ug/L | -- | 0.087 | 0.032 | -- | 0.18 | 0.34 | 0.30 | -- |
| Methane | ug/L | -- | 85 | 11 | -- | 22000 | 18000 | 18000 | -- |
| FIELD PARAMETERS | | | | | | | | | |
| pH | Standard Units | 5.94 | 6.83 | 6.46 | 6.24 | 6.54 | 6.17 | 6.33 | 6.53 |

See footnotes on last page.

Table 3. Concentrations of TOC, VOCs, and Light Hydrocarbons in Groundwater Samples, 25 Melville Park Road Site, Melville, New York.

| Parameters | | Sample ID: | MW-35 |
|---|---|---|---|
| | | Sample Date: | 6/18/13 |
| | | Zone: | Intermediate |
| | UNITS | | |
| CLASSICAL CHEMISTRY ANALYTES | | | |
| Total Organic Carbon | mg/L | | 2 |
| VOCs | | | |
| Tetrachloroethene | ug/L | | <5 |
| Trichloroethene | ug/L | | <5 |
| cis-1,2-Dichloroethene | ug/L | | <5 |
| Vinyl Chloride | ug/L | | <1 |
| LIGHT HYDROCARBONS | | | |
| Ethane | ug/L | | 1.9 |
| Ethene | ug/L | | 0.11 |
| Methane | ug/L | | 3100 |
| FIELD PARAMETERS | | | |
| pH | Standard Units | | 6.31 |

| | |
|---|---|
| mg/L | Milligrams per liter. |
| ug/L | Micrograms per liter. |
| -- | Not analyzed. |
| B | Non-detect due to associated blank contamination. |
| D | Detected at secondary dilution. |
| J | Estimated value. |

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Table 4. Concentrations of Volatile Organic Compounds in Groundwater Samples Collected from Deep Zone Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/L) | NYSDEC TOGS (1.1.1) SGV (ug/L) | Sample ID: / Sample Date: | MW-18D 12/13/12 | MW-18D 6/17/13 | FDW 12/12/12 | MW-36* 12/13/12 |
|---|---|---|---|---|---|---|
| Chloromethane | - | | <5 | <5 | <5 | <5 |
| Bromomethane | 5 | | <5 | <5 | <5 | <5 |
| Vinyl Chloride | 2 | | **0.83 J** | **1** | <1 | <1 |
| Chloroethane | 5 | | <5 | <5 | <5 | <5 |
| Methylene Chloride | 5 | | <5 | <5 | **0.86 J** | <5 |
| Acetone | 50 | | <10 | **13** | <10 | <10 |
| Carbon Disulfide | 60 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethene | 5 | | <5 | <5 | <5 | <5 |
| 1,1-Dichloroethane | 5 | | **1.6 J** | **2.4 J** | <5 | <5 |
| trans-1,2-Dichloroethene | 5 | | **0.69 J** | **0.81 J** | <5 | <5 |
| cis-1,2-Dichloroethene | 5 | | **0.75 J** | **1.5 J** | **0.68 J** | <5 |
| Chloroform | 7 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloroethane | 0.6 | | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | 50 | | <10 | <10 | <10 | <10 |
| 1,1,1-Trichloroethane | 5 | | <5 | <5 | <5 | <5 |
| Carbon Tetrachloride | 5 | | <5 | <5 | <5 | <5 |
| Bromodichloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,2-Dichloropropane | 1 | | <5 | <5 | <5 | <5 |
| cis-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Trichloroethene | 5 | | **0.86 J** | **1 J** | **1.2 J** | **0.27 J** |
| Dibromochloromethane | 50 | | <5 | <5 | <5 | <5 |
| 1,1,2-Trichloroethane | 1 | | <5 | <5 | <5 | <5 |
| Benzene | 1 | | <5 | <5 | **0.54 J** | <5 |
| trans-1,3-Dichloropropene | 0.4 | | <5 | <5 | <5 | <5 |
| Bromoform | 50 | | <5 | <5 | <5 | <5 |
| Methyl Isobutyl Ketone | - | | <10 | <10 | <10 | <10 |
| 2-Hexanone | 50 | | <10 | <10 | <10 | <10 |
| Tetrachloroethene | 5 | | <5 | <5 | **0.9 J** | <5 |
| 1,1,2,2-Tetrachloroethane | 5 | | <5 | <5 | <5 | <5 |
| Toluene | 5 | | **0.23 J** | <5 | **0.58 J** | <5 |
| Chlorobenzene | 5 | | <5 | <5 | <5 | <5 |
| Ethylbenzene | 5 | | <5 | <5 | **0.18 J** | <5 |
| Styrene | 5 | | <5 | <5 | <5 | <5 |
| Xylenes, Total | 5 | | **0.55 J** | <5 | **0.75 J** | <5 |

| | |
|---|---|
| ug/L | Micrograms per liter. |
| J | Estimated value. |
| FDW | Former Diffusion Well. |
| NYSDEC | New York State Department of Environmental Conservation. |
| TOGS | Technical and Operational Guidance Series. |
| SGV | Ambient Water Quality Standards and Guidance Values. |
| - | Not available. |
| * | Groundwater sample collected from 125 feet below land surface. |
| **Bold** | Indicates detection above laboratory Method Detection Limit. |
| | Compound concentration equal to or exceeds SGV. |

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Table 5. Water-Level Measurements Collected from Monitoring Wells on March 25, 2013, 25 Melville Park Road Site, Melville, New York.

| Well Designation | Elevation of Measuring Point (feet rmsl) | Depth to Water (feet bmp) | Water-Level Elevation (feet rmsl) |
|---|---|---|---|
| MW-1 | 119.15 | NM | ---- |
| MW-2 | 117.66 | 46.61 | 71.05 |
| MW-3 | 118.06 | 47.08 | 70.98 |
| MW-4 | 117.98 | 47.19 | 70.79 |
| MW-5 | 118.27 | 46.38 | 71.89 |
| MW-6 | 119.24 | 47.61 | 71.63 |
| MW-7 | 117.53 | 46.52 | 71.01 |
| MW-9 | 117.22 | 46.20 | 71.02 |
| MW-10 | 117.68 | 44.39 | 73.29 |
| MW-11 | 118.29 | 47.38 | 70.91 |
| MW-13 | 117.46 | 46.37 | 71.09 |
| MW-13D | 117.48 | 46.42 | 71.06 |
| MW-14 | 116.13 | 45.00 | 71.13 |
| MW-15 | 116.85 | 45.75 | 71.10 |
| MW-16D | 117.49 | 46.93 | 70.56 |
| MW-18D | 118.10 | 47.33 | 70.77 |
| MW-19D | 117.31 | 46.62 | 70.69 |
| MW-20D | 117.68 | 46.25 | 71.43 |
| MW-29 | 117.86 | 46.89 | 70.97 |
| MW-30 | 117.67 | 46.79 | 70.88 |
| MW-31 | 117.35 | 46.57 | 70.78 |
| MW-32 | 117.57 | 46.49 | 71.08 |
| MW-33 | 117.60 | 46.59 | 71.01 |
| MW-34 | 118.03 | 47.32 | 70.71 |
| MW-35 | 118.25 | 47.51 | 70.74 |
| MW-36 | NS | 46.60 | ---- |

| | |
|---|---|
| rmsl | Relative to mean sea level. |
| bmp | Below measuring point. |
| NM | Not measured. |
| NS | Not surveyed. |

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Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-17 | | | | | | IW-18 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/12/12 | NM | NM | NM | NM | NM | NM | 49.60 | 49.15 | ND | 90.85 | 0.45 | 0.00 |
| 12/13/12 | 48.68 | ND | ND | 68.77 | 0.00 | 0.00 | NM | NM | NM | NM | NM | NM |
| 3/20/13 | 48.50 | ND | ND | 68.05 | 0.00 | 0.00 | 50.20 | 49.00 | ND | 89.90 | 1.20 | 0.00 |
| 5/31/13 | NM | NM | NM | NM | NM | NM | 50.58 | 49.30 | ND | 89.67 | 1.28 | 0.00 |
| 6/17/13 | NM | NM | NM | NM | NM | NM | 49.52 | 47.98 | ND | 90.25 | 1.54 | 0.00 |
| 6/19/13 | 47.59 | ND | ND | 67.96 | 0.00 | 0.00 | NM | NM | NM | NM | NM | NM |
| 9/6/13 | 49.13 | ND | ND | 68.00 | 0.00 | 0.00 | 51.20 | 49.64 | ND | 89.21 | 1.56 | 0.00 |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-19 | | | | | | IW-20 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 48.55 | ND | ND | 69.10 | 0.00 | 0.00 | 49.28 | ND | ND | 93.48 | 0.00 | 0.00 |
| 3/20/13 | 48.25 | ND | ND | 68.75 | 0.00 | 0.00 | 48.56 | ND | ND | 93.70 | 0.00 | 0.00 |
| 6/19/13 | 47.46 | ND | ND | 68.55 | 0.00 | 0.00 | 48.70 | ND | ND | 93.40 | 0.00 | 0.00 |
| 9/6/13 | 49.03 | ND | ND | 68.44 | 0.00 | 0.00 | 49.68 | ND | ND | 93.38 | 0.00 | 0.00 |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-21 | | | | | | IW-22 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 48.83 | ND | ND | 68.50 | 0.00 | 0.00 | 48.78 | ND | ND | 69.81 | 0.00 | 0.00 |
| 3/20/13 | 48.55 | ND | ND | 68.20 | 0.00 | 0.00 | 48.60 | ND | ND | 68.75 | 0.00 | 0.00 |
| 6/19/13 | 47.64 | ND | ND | 68.12 | 0.00 | 0.00 | 47.71 | ND | ND | 68.84 | 0.00 | 0.00 |
| 9/6/13 | 49.22 | ND | ND | 67.05 | 0.00 | 0.00 | 49.31 | ND | ND | 68.80 | 0.00 | 0.00 |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-23 | | | | | | Former Diffusion Well | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 48.78 | ND | ND | 99.91 | 0.00 | 0.00 | 49.12 | ND | NM | NM | 0.00 | NM |
| 3/20/13 | 48.45 | ND | ND | 100.60 | 0.00 | 0.00 | 48.75 | ND | NM | NM | 0.00 | NM |
| 6/19/13 | 47.54 | ND | ND | 100.53 | 0.00 | 0.00 | 47.89 | ND | NM | NM | 0.00 | NM |
| 9/6/13 | 49.13 | ND | ND | 100.82 | 0.00 | 0.00 | 49.46 | ND | NM | NM | 0.00 | NM |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-1 | | | | | | IW-9 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 48.45 | ND | ND | 59.30 | 0.00 | 0.00 | 46.50 | 46.45 | ND | 89.65 | 0.05 | 0.00 |
| 3/20/13 | 48.22 | ND | ND | 59.10 | 0.00 | 0.00 | 46.24 | 46.20 | ND | 89.30 | 0.04 | 0.00 |
| 6/19/13 | 47.34 | ND | ND | 58.80 | 0.00 | 0.00 | 45.35 | 45.31 | ND | 88.92 | 0.04 | 0.00 |
| 9/6/13 | 48.92 | 48.91 | ND | 58.88 | 0.01 | 0.00 | 46.90 | Trace | ND | 88.93 | Trace | 0.00 |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | MW-13 | | | | | | IW-3 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 46.60 | ND | ND | 58.51 | 0.00 | 0.00 | 46.14 | ND | ND | 59.78 | 0.00 | 0.00 |
| 3/20/13 | 46.42 | ND | ND | 57.90 | 0.00 | 0.00 | 46.10 | ND | ND | 59.75 | 0.00 | 0.00 |
| 6/19/13 | 45.54 | ND | ND | 58.07 | 0.00 | 0.00 | 45.16 | ND | ND | 59.69 | 0.00 | 0.00 |
| 9/6/13 | 47.11 | 47.10 | ND | 57.94 | 0.01 | 0.00 | 46.76 | 46.75 | ND | 59.72 | 0.01 | 0.00 |

Footnotes on last page.

Table 6. Fluid-Level Gauging Measurements in Monitoring Wells, 25 Melville Park Road Site, Melville, New York.

| Well ID: | MW-15 | | | | | | IW-25 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) | Depth to Water (ft btoc) | Depth to LNAPL (ft btoc) | Depth to DNAPL (ft btoc) | Total Depth (ft btoc) | LNAPL Thickness (feet) | DNAPL Thickness (feet) |
| 12/13/12 | 46.09 | ND | ND | 52.00 | 0.00 | 0.00 | 51.52 | ND | ND | 100.20 | 0.00 | 0.00 |
| 3/20/13 | 45.80 | ND | ND | 54.80 | 0.00 | 0.00 | 51.90 | 51.20 | ND | 99.92 | 0.70 | 0.00 |
| 6/19/13 | 44.92 | ND | ND | 54.60 | 0.00 | 0.00 | 50.85 | 50.24 | ND | 101.14 | 0.61 | 0.00 |
| 9/6/13 | 46.51 | 46.50 | ND | 54.60 | 0.01 | 0.00 | 52.41 | 51.96 | ND | 100.03 | 0.45 | 0.00 |

DNAPL Dense Non-Aqueous Phase Liquid.
LNAPL Light Non-Aqueous Phase Liquid.
ft btoc Feet below top of casing.
ND Not detected.
NM Not measured.

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Table 7. Concentrations of Volatile Organic Compounds in Generally Co-Located Sub-Slab Soil Vapor Samples and Indoor Air Quality Samples, 25 Melville Park Road Site, Melville, New York.

| Compound (Units in ug/m$^3$) | Sample ID: | SS-5A | SW Office Space | SE SS-A | SE Office Space |
|---|---|---|---|---|---|
| | Sample Date: | 2/20/2013 | 2/20/2013 | 2/20/2013 | 2/20/2013 |
| | Sample Type: | Sub-Slab | Indoor Air | Sub-Slab | Indoor Air |
| Vinyl chloride | | <0.44 | <0.044 | <0.43 | <0.044 |
| cis-1,2-Dichloroethene | | <0.68 | <0.14 | <0.67 | <0.14 |
| Trichloroethene | | <0.92 | <0.18 | **15** | <0.18 |
| 1,1-Dichloroethene | | <0.68 | <0.068 | <0.67 | <0.068 |
| trans-1,2-Dichloroethene | | <3.4 | <0.68 | <3.3 | <0.68 |
| 1,1,1-Trichloroethane | | **24** | <0.19 | **4.4** | <0.19 |
| Tetrachloroethene | | **130** | <0.23 | **280** | <0.23 |
| 1,1-Dichloroethane | | <0.69 | <0.14 | <0.68 | <0.14 |
| 2-Butanone (Methyl Ethyl Ketone) | | <2.5 | <2.6 | <2.5 | <2.5 |

ug/m$^3$ Micrograms per cubic meter.
**Bold** Indicates detection above laboratory Reported Detection Limit.

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Table 8. Summary of Vapor Control System Operating Data, 25 Melville Park Road, Melville, New York.

| | | VCS - 1 Extraction Well Parameters | | | | | | VCS - 2 Extraction Well Parameters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Wellhead Vacuum (in.W.C.) | Wellhead Temperature (Degrees F) | Wellhead Rel. Humidity (%) | Air Velocity (fpm) | Air Flow Rate (cfm) | PID Measured Concentration (ppmv) | Wellhead Vacuum (in.W.C.) | Wellhead Temperature (Degrees F) | Wellhead Rel. Humidity (%) | Air Velocity (fpm) | Air Flow Rate (cfm) | PID Measured Concentration (ppmv) |
| 12/26/12 | 1:15 PM | -8.0 | 53.5 | -- | 1,553 | 35.6 | 0.1 | -9.0 | 51.6 | -- | 2,217 | 50.8 | 0.0 |
| 3/26/13 | 2:20 PM | -8.5 | 58.6 | -- | 1,548 | 35.4 | 0.0 | -9.0 | 56.3 | -- | 2,106 | 48.2 | 0.0 |
| 6/20/13 | 2:45 PM | -9.0 | 65.6 | -- | 1,464 | 33.5 | 0.0 | -9.0 | 67.6 | -- | 2,005 | 45.9 | 0.0 |
| 9/19/13 | 7:20 PM | -8.5 (3) | 85.0 | -- | 1,663 | 38.1 | 0.0 | -8.0 | 84.0 | -- | 2,115 | 48.4 | 0.0 |

Notes and Abbreviations:

| | |
|---|---|
| in. W.C | Inches of water column. |
| in. Hg | Inches of mercury. |
| fpm | Feet per minute. |
| cfm | Cubic feet per minute. |
| PID | Photoionization detector. |
| ppmv | Parts per million by volume. |
| F | Fahrenheit. |
| VCS | Vapor Control System. |
| -- | Measurement not taken. |

1. The distances provided for MP-1 through MP-4 are relative to VCS-1. The distances provided for MP-5 and MP-6 are relative to VCS-2.
2. Per NYSDEC approval, the vapor phase treatment was bypassed prior to the June 14, 2007 monitoring event.
3. Measurements were collected on September 26, 2013.

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Table 8. Summary of Vapor Control System Operating Data, 25 Melville Park Road, Melville, New York.

| | | Blower Parameters | | | | Stack Parameters | | | | Induced Vacuum Measurements | | | | | | Barometric Pressure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Influent Vacuum (in.W.C.) | Effluent Pressure (in.W.C.) | Blower Eff. Temperature (Degrees F) | Blower Eff. Rel. Humidity (%) | Discharge Temperature (Degrees F) | Air Velocity (fpm) | Air Flow Rate (cfm) | PID Measured Concentration [2] (ppmv) | MP-1 [1] (10 ft) (in.W.C.) | MP-2 [1] (17 ft) (in.W.C.) | MP-3 [1] (25 ft) (in.W.C.) | MP-4 [1] (45 ft) (in.W.C.) | MP-5 [1] (25 ft) (in.W.C.) | MP-6 [1] (100 ft) (in.W.C.) | Ambient (in.Hg) | Rise/Fall (+/-) |
| 12/26/12 | 1:15 PM | -14.5 | 0.0 | -- | -- | -- | -- | -- | -- | -0.40 | -0.15 | -0.11 | -0.06 | -0.10 | -0.02 | 29.95 | (-) |
| 3/26/13 | 2:20 PM | -15.0 | 0.0 | -- | -- | -- | -- | -- | -- | -0.41 | -0.16 | -0.12 | -0.06 | -0.10 | -0.04 | 29.76 | (-) |
| 6/20/13 | 2:45 PM | -15.0 | 0.0 | -- | -- | -- | -- | -- | -- | -0.44 | -0.20 | -0.13 | -0.08 | -0.13 | -0.01 | 30.26 | Steady |
| 9/19/13 | 7:20 PM | -15.0 | 0.0 | -- | -- | -- | -- | -- | -- | -0.43 | -0.18 | -0.13 | -0.08 [3] | -0.13 | -0.03 | 30.10 | Steady |

Notes and Abbreviations:

| | |
|---|---|
| in. W.C. | Inches of water column. |
| in. Hg | Inches of mercury. |
| fpm | Feet per minute. |
| cfm | Cubic feet per minute. |
| PID | Photoionization detector. |
| ppmv | Parts per million by volume. |
| F | Fahrenheit. |
| VCS | Vapor Control System. |
| -- | Measurement not taken. |

1. The distances provided for MP-1 through MP-4 are relative to VCS-1. The distances provided for MP-5 and MP-6 are relative to VCS-2.
2. Per NYSDEC approval, the vapor phase treatment was bypassed prior to the June 14, 2007 monitoring event.
3. Measurements were collected on September 26, 2013.

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Table 9. Summary of NAPL Recovery Efforts, 25 Melville Park Road Site, Melville, New York.

| Well ID: | IW-1 | IW-3 | IW-9 | IW-18 | IW-19 | IW-20 | IW-22 | IW-25 | MW-13 | MW-25D | Total Gallons Recovered |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NAPL Recovered Between December 2012 and September 2013 (Gallons) | 0 | 0 | 2.12 | 9 | 0 | 0 | 0 | 4 | 0 | 0 | 15.12 |
| Total Gallons Recovered Between December 2012 and September 2013 | | | | | | | | | | | 15.12 |

NAPL: Non-Aqueous Phase Liquid.

Notes:

Total Gallons Recovered represents a combination of NAPL and water.

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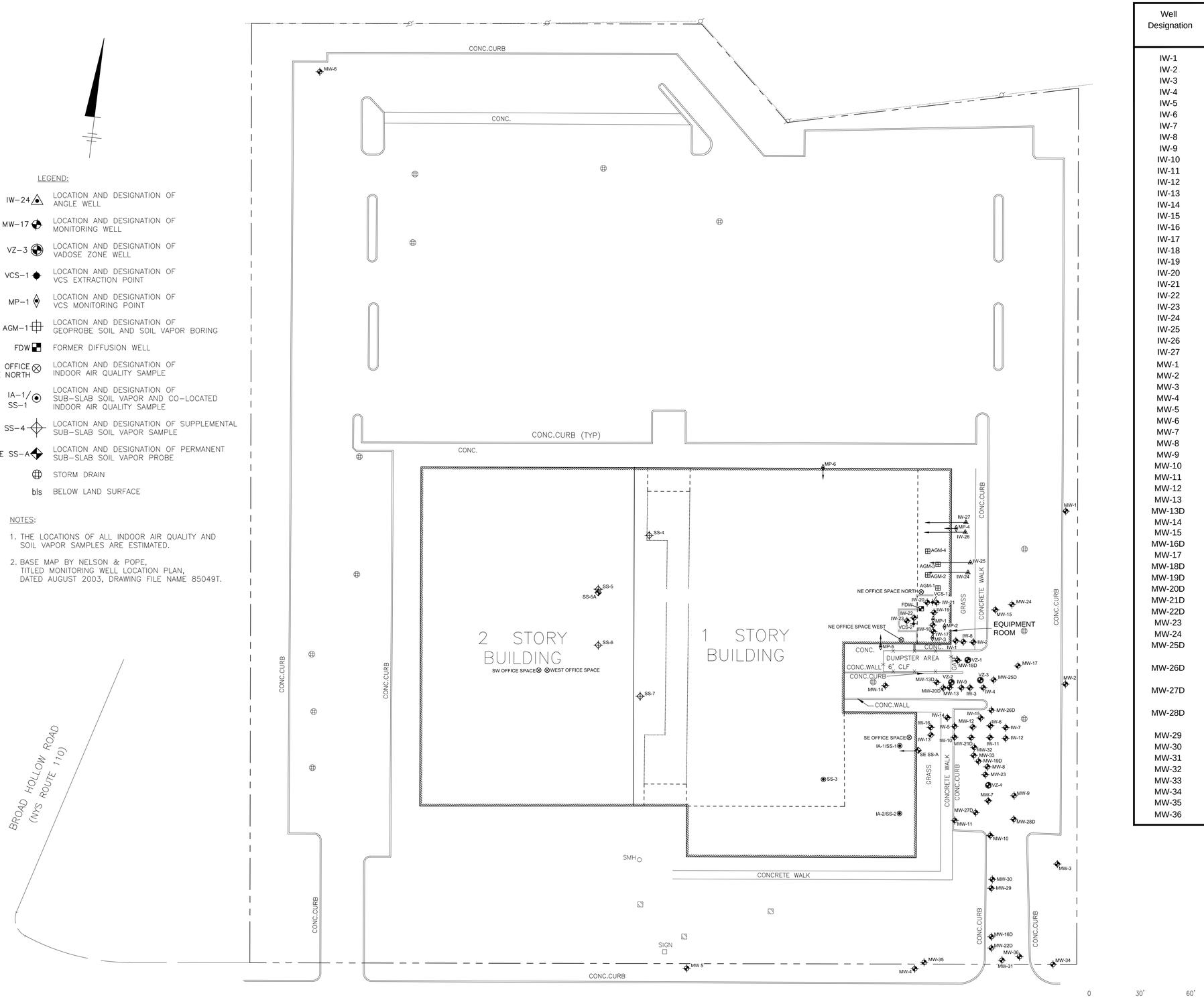
**Figures**

LEGEND:

- IW–24 — LOCATION AND DESIGNATION OF ANGLE WELL
- MW–17 — LOCATION AND DESIGNATION OF MONITORING WELL
- VZ–3 — LOCATION AND DESIGNATION OF VADOSE ZONE WELL
- VCS–1 — LOCATION AND DESIGNATION OF VCS EXTRACTION POINT
- MP–1 — LOCATION AND DESIGNATION OF VCS MONITORING POINT
- AGM–1 — LOCATION AND DESIGNATION OF GEOPROBE SOIL AND SOIL VAPOR BORING
- FDW — FORMER DIFFUSION WELL
- NE OFFICE SPACE NORTH — LOCATION AND DESIGNATION OF INDOOR AIR QUALITY SAMPLE
- IA–1/SS–1 — LOCATION AND DESIGNATION OF SUB–SLAB SOIL VAPOR AND CO–LOCATED INDOOR AIR QUALITY SAMPLE
- SS–4 — LOCATION AND DESIGNATION OF SUPPLEMENTAL SUB–SLAB SOIL VAPOR SAMPLE
- SE SS–A — LOCATION AND DESIGNATION OF PERMANENT SUB–SLAB SOIL VAPOR PROBE
- STORM DRAIN
- bls — BELOW LAND SURFACE

NOTES:

1. THE LOCATIONS OF ALL INDOOR AIR QUALITY AND SOIL VAPOR SAMPLES ARE ESTIMATED.
2. BASE MAP BY NELSON & POPE, TITLED MONITORING WELL LOCATION PLAN, DATED AUGUST 2003, DRAWING FILE NAME 85049T.




| Well Designation | Well Diameter (inches) | Screened Interval (feet bls) | Total Depth (feet bls) | Vertical Zone Designation |
|---|---|---|---|---|
| IW-1 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-2 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-3 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-4 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-5 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-6 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-7 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-8 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-9 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-10 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-11 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-12 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-13 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-14 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-15 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-16 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-17 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-18 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-19 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-20 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-21 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-22 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-23 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-24 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-25 | 2 | 77 to 97 | 97 | Intermediate Zone |
| IW-26 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-27 | 2 | 77 to 97 | 97 | Intermediate Zone |
| MW-1 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-2 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-3 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-4 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-5 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-6 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-7 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-8 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-9 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-10 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-11 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-12 | 2 | 46.5 to 56.5 | 56.5 | Shallow Zone |
| MW-13 | 2 | 48 to 58 | 58 | Shallow Zone |
| MW-13D | 2 | 80 to 90 | 90 | Intermediate Zone |
| MW-14 | 2 | 46 to 56 | 56 | Shallow Zone |
| MW-15 | 2 | 48.5 to 58.5 | 58.5 | Shallow Zone |
| MW-16D | 2 | 79.5 to 89.5 | 89.5 | Intermediate Zone |
| MW-17 | 2 | 50 to 60 | 60 | Shallow Zone |
| MW-18D | 4 | 133 to 143 | 143 | Deep Zone |
| MW-19D | 4 | 160 to 170 | 170 | Deep Zone |
| MW-20D | 4 | 175 to 185 | 185 | Deep Zone |
| MW-21D | 4 | 50 to 160 | 160 | Abandoned |
| MW-22D | 4 | 48 to 138 | 138 | Abandoned |
| MW-23 | 2 | 70 to 85 | 85 | Intermediate Zone |
| MW-24 | 2 | 45 to 60 | 60 | Shallow Zone |
| MW-25D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-26D | 4 | 35 to 50 | 85 | Shallow Zone |
| | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-27D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-28D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-29 | 2 | 45 to 60 | 60 | Shallow Zone |
| MW-30 | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-31 | 4 | 60 to 70 | 70 | Shallow Zone |
| MW-32 | 4 | 45 to 60 | 60 | Shallow Zone |
| MW-33 | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-34 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-35 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-36 | 2 | 115 to 135 | 135 | Deep Zone |

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# SITE PLAN

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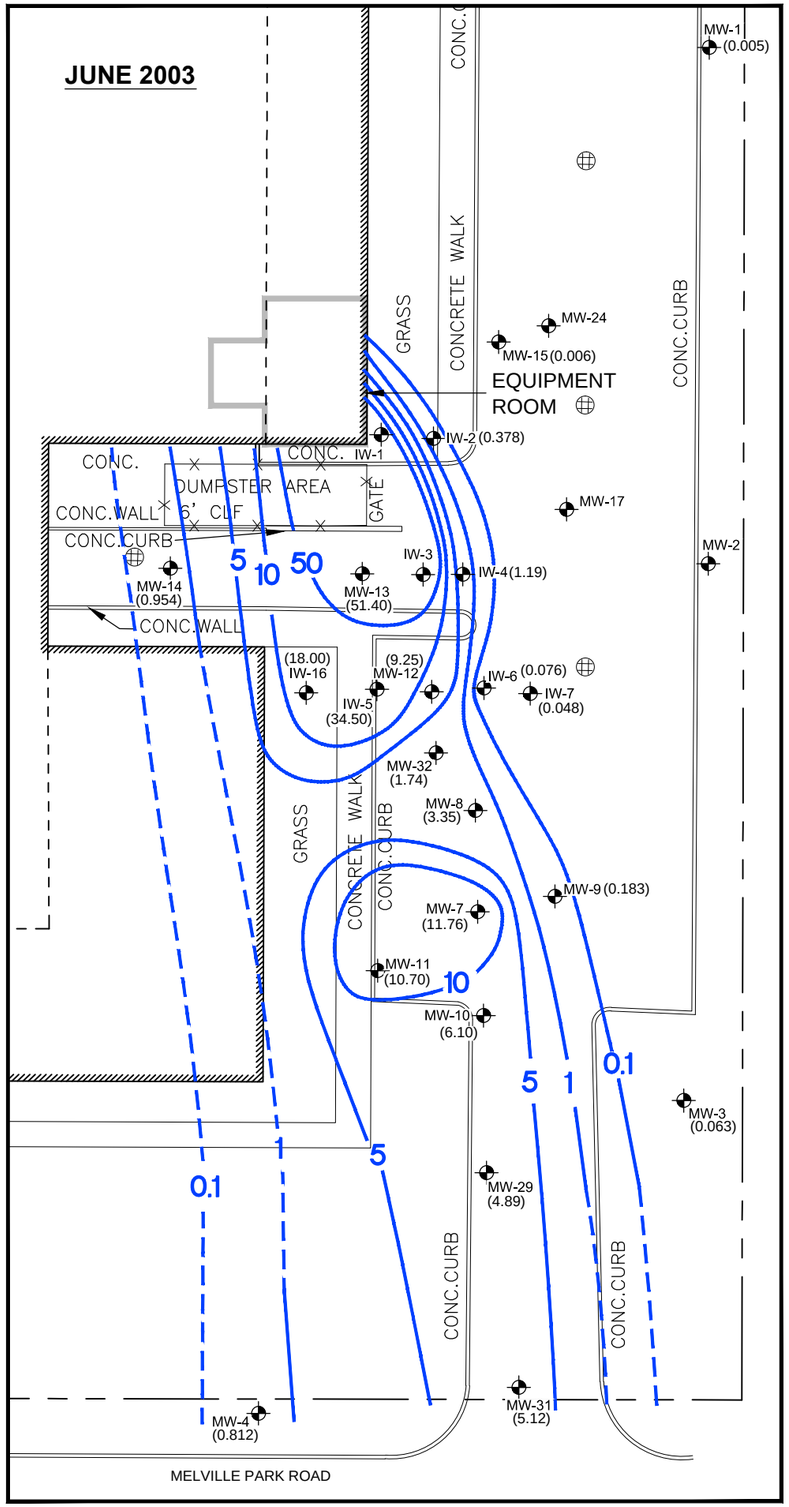
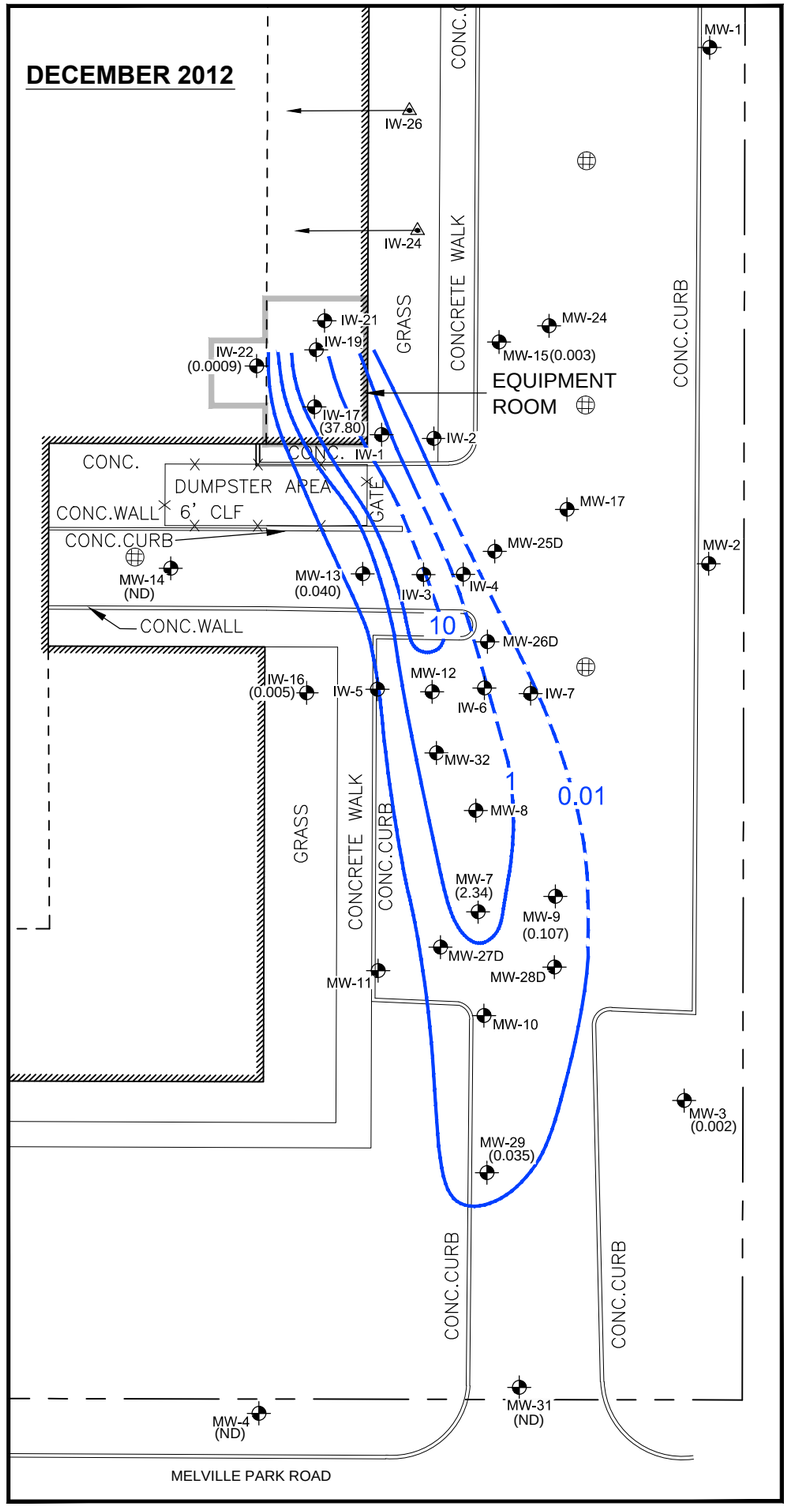
FIGURE 1




LEGEND:

| | |
|---|---|
| MW–7 (2.34) | LOCATION AND DESIGNATION OF MONITORING WELL AND ASSOCIATED TOTAL CVOC CONCENTRATION (mg/L) |
| IW–24 | LOCATION AND DESIGNATION OF ANGLE WELL |
| | STORM DRAIN |
| 10 | LINE OF EQUAL TOTAL CVOC CONCENTRATION (mg/L) (DASHED WHERE INFERRED) |
| ND | CVOCs NOT DETECTED ABOVE LABORATORY REPORTING LIMIT |
| mg/L | MILLIGRAMS PER LITER |
| CVOC | CHLORINATED VOLATILE ORGANIC COMPOUND |

NOTE:

1. BASE MAP BY NELSON & POPE, TITLED MONITORING WELL LOCATION PLAN, DATED AUGUST 2003, DRAWING FILE NAME 85049T.
2. TOTAL CVOCs REFERS TO THE SUM OF PCE, TCE, CIS-1,2-DCE, AND VC.

0 30' 60'

SCALE IN FEET

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

**DISTRIBUTION OF TOTAL CVOCs IN THE SHALLOW AQUIFER ZONE (45-70 FT BLS) JUNE 2003 VERSUS DECEMBER 2012**

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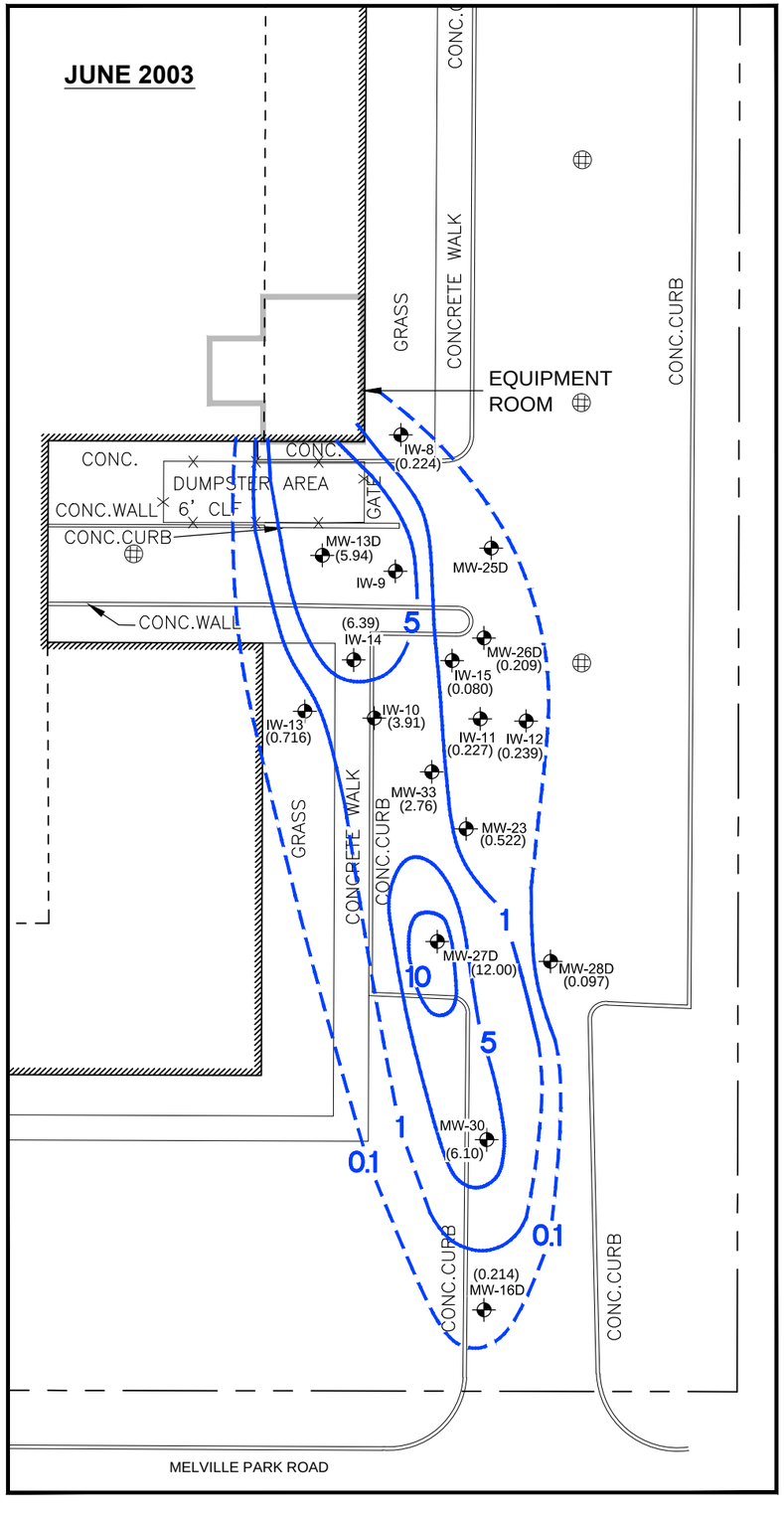
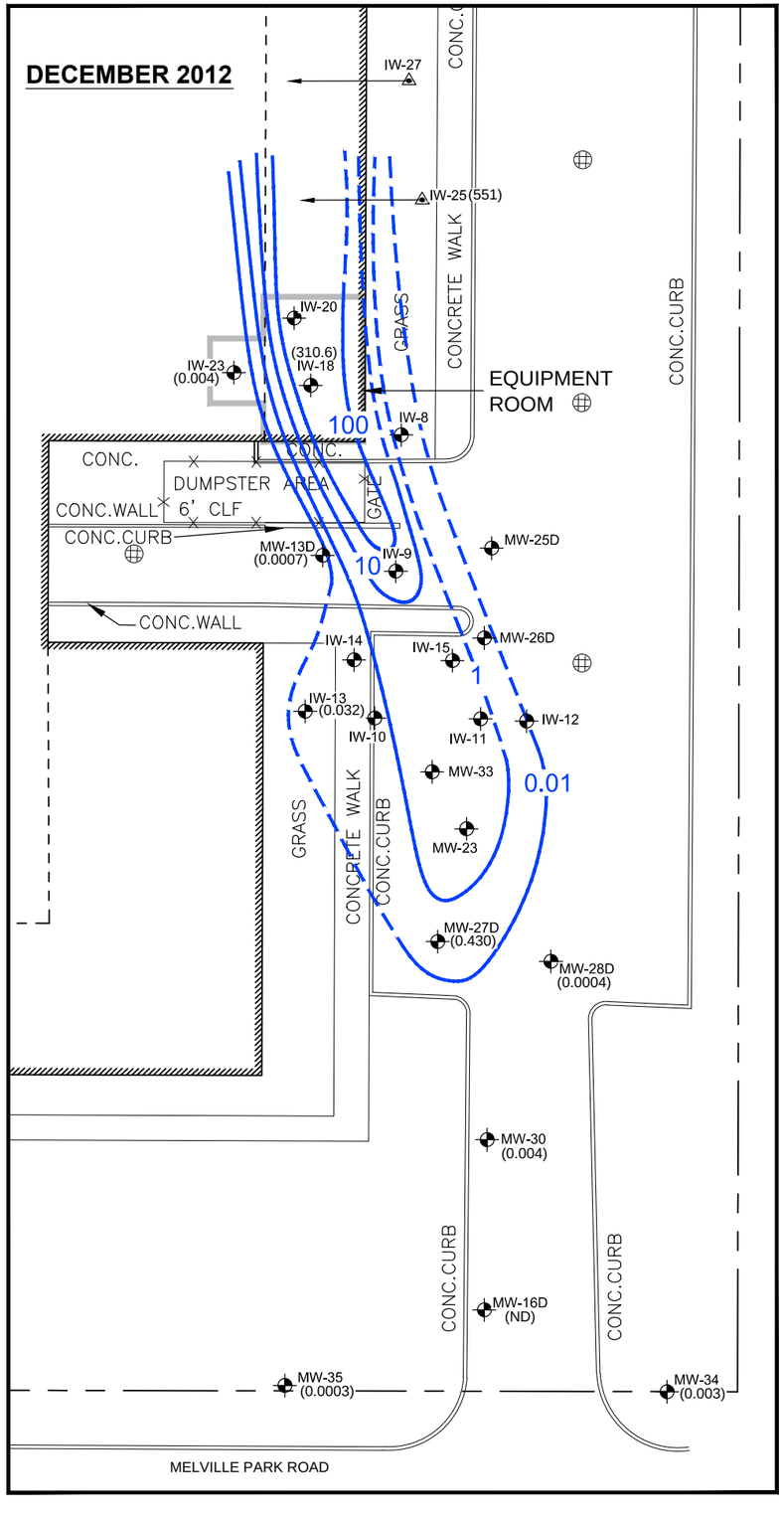
FIGURE 2




LEGEND:

| | |
|---|---|
| MW–13D (0.0007) | LOCATION AND DESIGNATION OF MONITORING WELL AND ASSOCIATED TOTAL CVOC CONCENTRATION (mg/L) |
| IW–25 | LOCATION AND DESIGNATION OF ANGLE WELL |
| | STORM DRAIN |
| 10 | LINE OF EQUAL TOTAL CVOC CONCENTRATION (mg/L) (DASHED WHERE INFERRED) |
| ND | CVOCs NOT DETECTED ABOVE LABORATORY REPORTING LIMIT |
| mg/L | MILLIGRAMS PER LITER |
| CVOC | CHLORINATED VOLATILE ORGANIC COMPOUND |

NOTE:

1. BASE MAP BY NELSON & POPE, TITLED MONITORING WELL LOCATION PLAN, DATED AUGUST 2003, DRAWING FILE NAME 85049T.
2. NAPL WAS DETECTED IN WELLS IW-9 AND IW-18 IN DECEMBER 2012. NAPL WAS NOT DETECTED IN IW-25 IN DECEMBER 2012 BUT IS TYPICALLY PRESENT DURING QUARTERLY NAPL GAUGING.
3. TOTAL CVOCs REFERS TO THE SUM OF PCE, TCE, CIS-1,2-DCE, AND VC.
4. IW-25 DATA WAS COLLECTED IN DECEMBER 2011.

0 30' 60'

SCALE IN FEET

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# DISTRIBUTION OF TOTAL CVOCs IN THE INTERMEDIATE AQUIFER ZONE (70-100 FT BLS) JUNE 2003 VERSUS DECEMBER 2012

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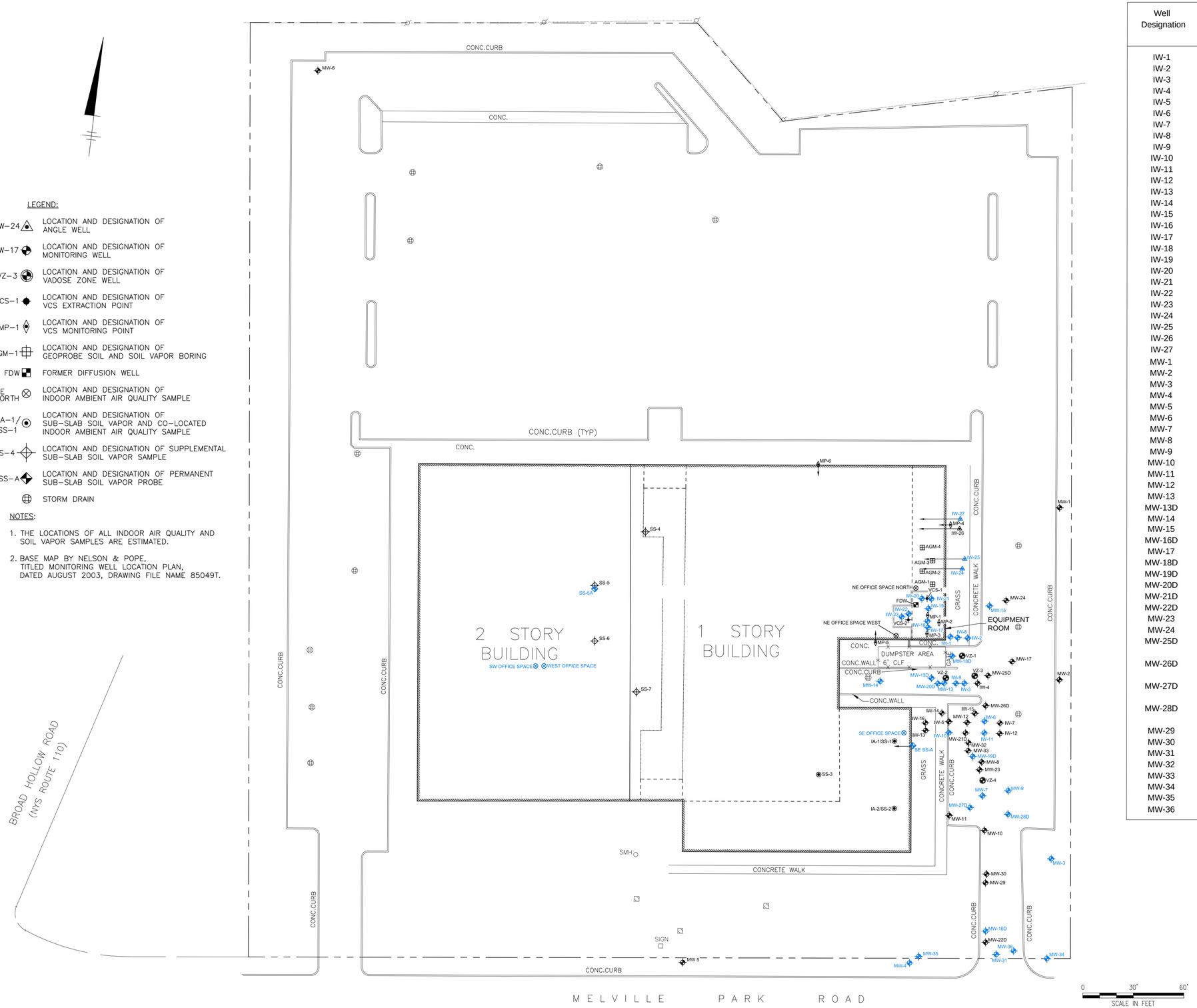
FIGURE 3

LEGEND:

- IW–24 — LOCATION AND DESIGNATION OF ANGLE WELL
- MW–17 — LOCATION AND DESIGNATION OF MONITORING WELL
- VZ–3 — LOCATION AND DESIGNATION OF VADOSE ZONE WELL
- VCS–1 — LOCATION AND DESIGNATION OF VCS EXTRACTION POINT
- MP–1 — LOCATION AND DESIGNATION OF VCS MONITORING POINT
- AGM–1 — LOCATION AND DESIGNATION OF GEOPROBE SOIL AND SOIL VAPOR BORING
- FDW — FORMER DIFFUSION WELL
- NE OFFICE SPACE NORTH — LOCATION AND DESIGNATION OF INDOOR AMBIENT AIR QUALITY SAMPLE
- IA–1/SS–1 — LOCATION AND DESIGNATION OF SUB–SLAB SOIL VAPOR AND CO–LOCATED INDOOR AMBIENT AIR QUALITY SAMPLE
- SS–4 — LOCATION AND DESIGNATION OF SUPPLEMENTAL SUB–SLAB SOIL VAPOR SAMPLE
- SE SS–A — LOCATION AND DESIGNATION OF PERMANENT SUB–SLAB SOIL VAPOR PROBE
- STORM DRAIN

NOTES:

1. THE LOCATIONS OF ALL INDOOR AIR QUALITY AND SOIL VAPOR SAMPLES ARE ESTIMATED.
2. BASE MAP BY NELSON & POPE, TITLED MONITORING WELL LOCATION PLAN, DATED AUGUST 2003, DRAWING FILE NAME 85049T.




| Well Designation | Well Diameter (inches) | Screened Interval (feet bls) | Total Depth (feet bls) | Vertical Zone Designation |
|---|---|---|---|---|
| IW-1 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-2 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-3 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-4 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-5 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-6 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-7 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-8 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-9 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-10 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-11 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-12 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-13 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-14 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-15 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-16 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-17 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-18 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-19 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-20 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-21 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-22 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-23 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-24 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-25 | 2 | 77 to 97 | 97 | Intermediate Zone |
| IW-26 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-27 | 2 | 77 to 97 | 97 | Intermediate Zone |
| MW-1 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-2 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-3 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-4 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-5 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-6 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-7 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-8 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-9 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-10 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-11 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-12 | 2 | 46.5 to 56.5 | 56.5 | Shallow Zone |
| MW-13 | 2 | 48 to 58 | 58 | Shallow Zone |
| MW-13D | 2 | 80 to 90 | 90 | Intermediate Zone |
| MW-14 | 2 | 46 to 56 | 56 | Shallow Zone |
| MW-15 | 2 | 48.5 to 58.5 | 58.5 | Shallow Zone |
| MW-16D | 2 | 79.5 to 89.5 | 89.5 | Intermediate Zone |
| MW-17 | 2 | 50 to 60 | 60 | Shallow Zone |
| MW-18D | 4 | 133 to 143 | 143 | Deep Zone |
| MW-19D | 4 | 160 to 170 | 170 | Deep Zone |
| MW-20D | 4 | 175 to 185 | 185 | Deep Zone |
| MW-21D | 4 | 50 to 160 | 160 | Abandoned |
| MW-22D | 4 | 48 to 138 | 138 | Abandoned |
| MW-23 | 2 | 70 to 85 | 85 | Intermediate Zone |
| MW-24 | 2 | 45 to 60 | 60 | Shallow Zone |
| MW-25D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-26D | 4 | 35 to 50 | 85 | Shallow Zone |
| | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-27D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-28D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-29 | 2 | 45 to 60 | 60 | Shallow Zone |
| MW-30 | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-31 | 4 | 60 to 70 | 70 | Shallow Zone |
| MW-32 | 4 | 45 to 60 | 60 | Shallow Zone |
| MW-33 | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-34 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-35 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-36 | 2 | 115 to 135 | 135 | Deep Zone |

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# GROUNDWATER, NAPL, INDOOR AIR QUALITY, AND SUB SLAB SOIL VAPOR MONITORING POINT LOCATIONS

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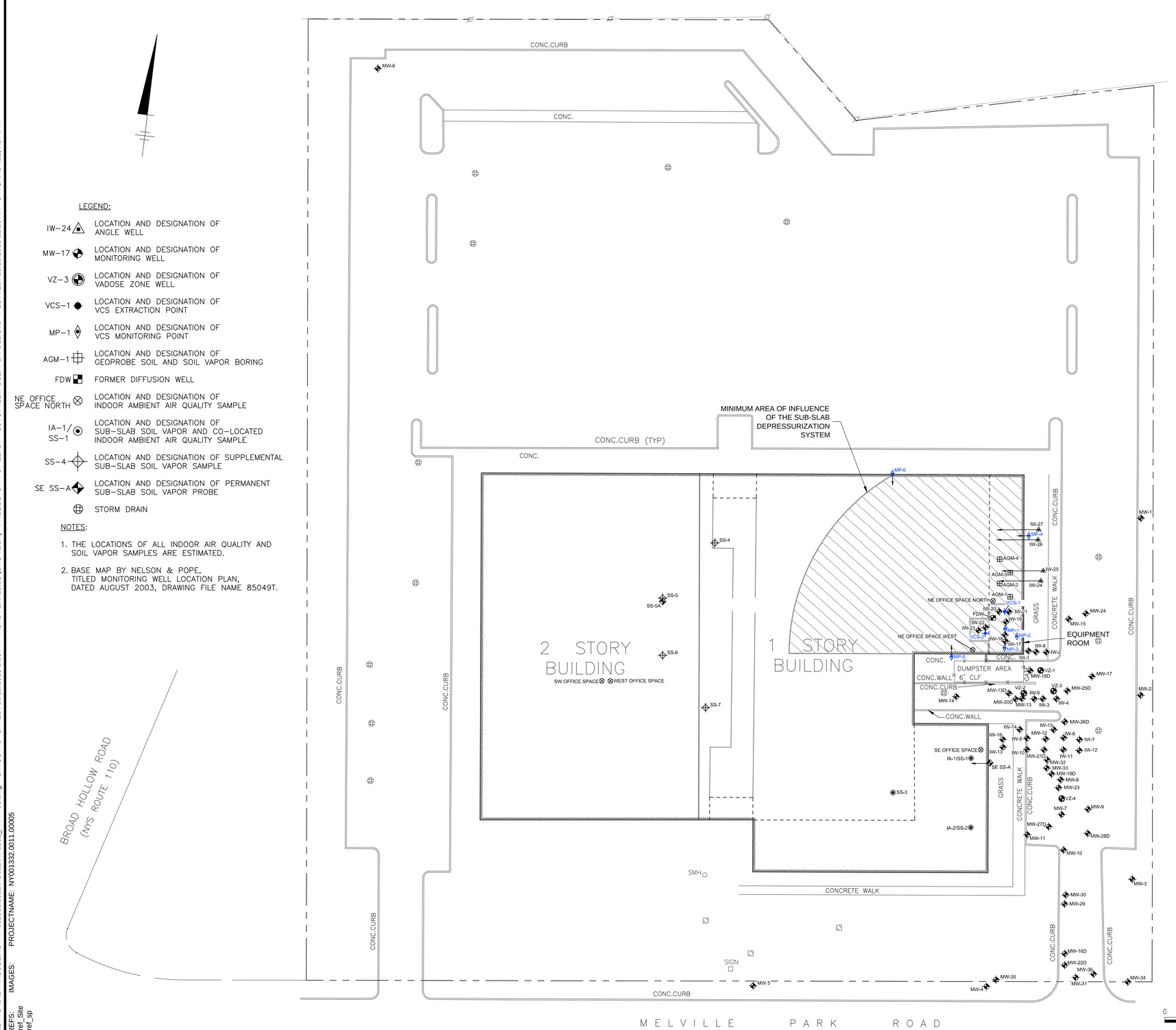
FIGURE 4




| Well Designation | Well Diameter (inches) | Screened Interval (feet bls) | Total Depth (feet bls) | Vertical Zone Designation |
|---|---|---|---|---|
| IW-1 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-2 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-3 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-4 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-5 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-6 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-7 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-8 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-9 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-10 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-11 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-12 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-13 | 2 | 75 to 90 | 90 | Intermediate Zone |
| IW-14 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-15 | 2 | 60 to 75 | 75 | Intermediate Zone |
| IW-16 | 2 | 45 to 60 | 60 | Shallow Zone |
| IW-17 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-18 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-19 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-20 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-21 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-22 | 2 | 50 to 70 | 70 | Shallow Zone |
| IW-23 | 2 | 70 to 100 | 100 | Intermediate Zone |
| IW-24 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-25 | 2 | 77 to 97 | 97 | Intermediate Zone |
| IW-26 | 2 | 56 to 75 | 75 | Shallow Zone |
| IW-27 | 2 | 77 to 97 | 97 | Intermediate Zone |
| MW-1 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-2 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-3 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-4 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-5 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-6 | 4 | 40 to 60 | 60 | Shallow Zone |
| MW-7 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-8 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-9 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-10 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-11 | 2 | 40 to 60 | 60 | Shallow Zone |
| MW-12 | 2 | 46.5 to 56.5 | 56.5 | Shallow Zone |
| MW-13 | 2 | 48 to 58 | 58 | Shallow Zone |
| MW-13D | 2 | 80 to 90 | 90 | Intermediate Zone |
| MW-14 | 2 | 46 to 56 | 56 | Shallow Zone |
| MW-15 | 2 | 48.5 to 58.5 | 58.5 | Shallow Zone |
| MW-16D | 2 | 79.5 to 89.5 | 89.5 | Intermediate Zone |
| MW-17 | 2 | 50 to 60 | 60 | Shallow Zone |
| MW-18D | 4 | 133 to 143 | 143 | Deep Zone |
| MW-19D | 4 | 160 to 170 | 170 | Deep Zone |
| MW-20D | 4 | 175 to 185 | 185 | Deep Zone |
| MW-21D | 4 | 50 to 160 | 160 | Abandoned |
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| MW-25D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-26D | 4 | 35 to 50 | 85 | Shallow Zone |
| | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-27D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-28D | 4 | 40 to 55 | 90 | Shallow Zone |
| | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-29 | 2 | 45 to 60 | 60 | Shallow Zone |
| MW-30 | 4 | 75 to 90 | 90 | Intermediate Zone |
| MW-31 | 4 | 60 to 70 | 70 | Shallow Zone |
| MW-32 | 4 | 45 to 60 | 60 | Shallow Zone |
| MW-33 | 4 | 70 to 85 | 85 | Intermediate Zone |
| MW-34 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-35 | 4 | 70 to 80 | 80 | Intermediate Zone |
| MW-36 | 2 | 115 to 135 | 135 | Deep Zone |

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# VAPOR RECOVERY WELL AND INDUCED VACUUM MONITORING POINT LOCATIONS

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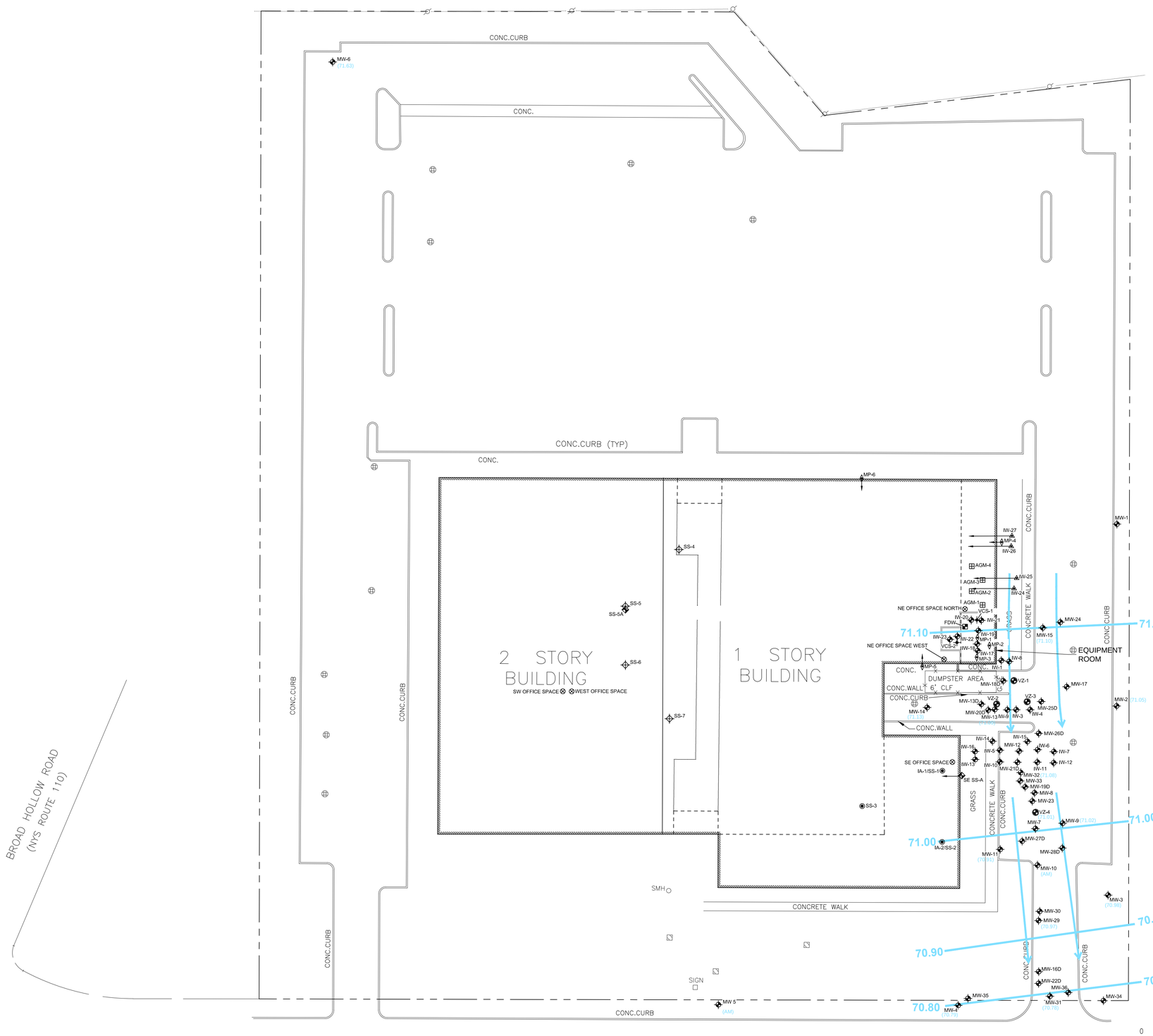
FIGURE 5




LEGEND:

| | |
|---|---|
| IW–24 | LOCATION AND DESIGNATION OF ANGLE WELL |
| MW–15 (71.10) | LOCATION AND DESIGNATION OF MONITORING WELL AND WATER–LEVEL ELEVATION (FT RMSL) |
| VZ–3 | LOCATION AND DESIGNATION OF VADOSE ZONE WELL |
| VCS–1 | LOCATION AND DESIGNATION OF VCS EXTRACTION POINT |
| MP–1 | LOCATION AND DESIGNATION OF VCS MONITORING POINT |
| AGM–1 | LOCATION AND DESIGNATION OF GEOPROBE SOIL AND SOIL VAPOR BORING |
| FDW | FORMER DIFFUSION WELL |
| NE OFFICE SPACE NORTH | LOCATION AND DESIGNATION OF INDOOR AIR QUALITY SAMPLE |
| IA–1/ SS–1 | LOCATION AND DESIGNATION OF SUB–SLAB SOIL VAPOR AND CO–LOCATED INDOOR AIR QUALITY SAMPLE |
| SS–4 | LOCATION AND DESIGNATION OF SUPPLEMENTAL SUB–SLAB SOIL VAPOR SAMPLE |
| SE SS–A | LOCATION AND DESIGNATION OF PERMANENT SUB–SLAB SOIL VAPOR PROBE |
| | STORM DRAIN |
| bls | BELOW LAND SURFACE |
| 71.10 | LINE OF EQUAL WATER–LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (FT RMSL) (DASHED WHERE INFERRED) |
| | DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW |
| (AM) | ANOMALOUS MEASUREMENT |

NOTES:

1. BASE MAP BY NELSON & POPE, TITLED MONITORING WELL LOCATION PLAN, DATED AUGUST 2003, DRAWING FILE NAME 85049T.
2. THE LOCATIONS OF ALL INDOOR AIR QUALITY AND SOIL VAPOR SAMPLES ARE ESTIMATED.
3. ELEVATIONS ARE RELATIVE TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929.
4. CONTOUR INTERVAL IS 0.10 FEET.
5. WATER–LEVEL ELEVATIONS MEASURED ON MARCH 25, 2013.

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# CONFIGURATION OF THE WATER TABLE AND GROUNDWATER FLOW DIRECTION MARCH 2013

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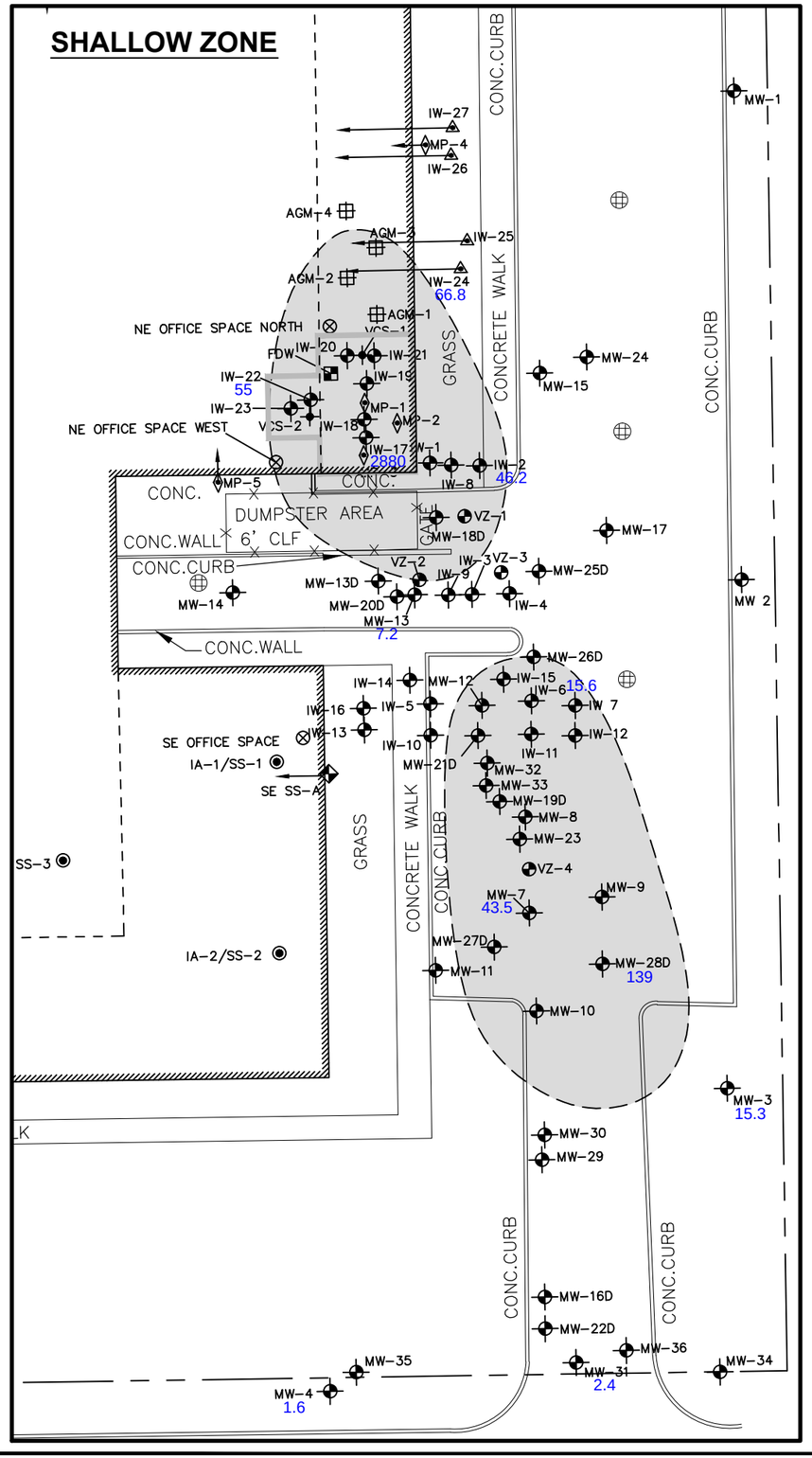
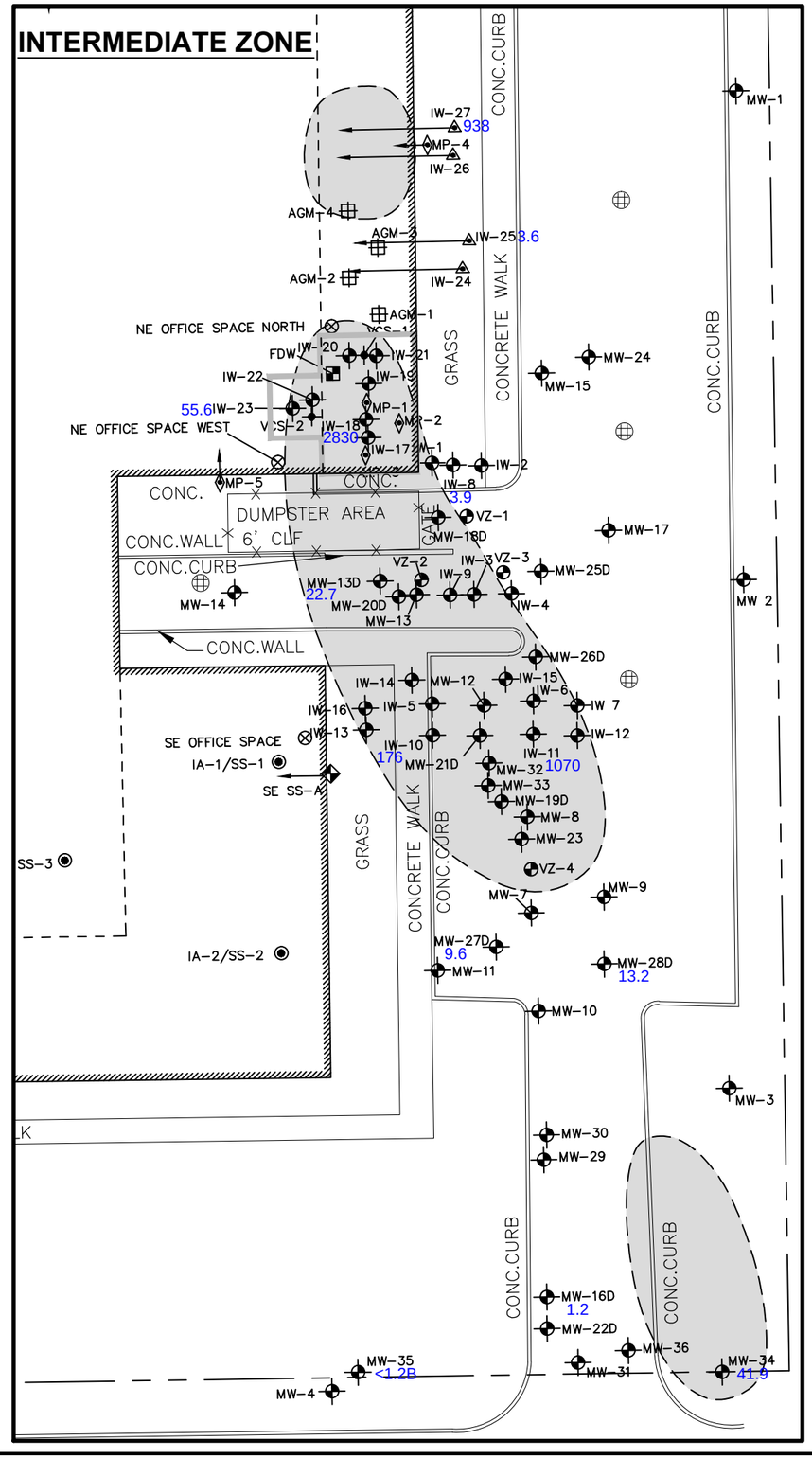
FIGURE
6

## SHALLOW ZONE




## INTERMEDIATE ZONE




**LEGEND:**

| | |
|---|---|
| MW-1 55.6 | LOCATION AND DESIGNATION OF MONITORING WELL AND ASSOCIATED TOC VALUE (mg/L) |
| IW-27 | LOCATION AND DESIGNATION OF ANGLE WELL |
| | STORM DRAIN |
| | APPROXIMATE FOOTPRINT OF TOC CONCENTRATIONS GREATER THAN 20 mg/L |
| mg/L | MILLIGRAMS PER LITER |
| TOC | TOTAL ORGANIC CARBON |

**NOTE:**

1. AS AN INJECTION WELL, IW-6 TYPICALLY HAS A TOC CONCENTRATION WELL ABOVE 20 mg/L. THEREFORE, IT WAS INCLUDED IN THE AREA OF TOC GREATER THAN 20 mg/L.

0 30' 60'

APPROXIMATE SCALE IN FEET

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

# ESTIMATED TOTAL ORGANIC CARBON FOOTPRINT GREATER THAN 20 mg/L IN DECEMBER 2012

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FIGURE 7

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# Appendix A

Summary of Historic Reagent Injection Methodology

# APPENDIX A

## SUMMARY OF HISTORIC REAGENT INJECTION METHODOLOGY

This appendix provides a summary of primary/major injection methodologies implemented since the inception of the IRZ program at the site:

- Ø August 2003 through November 2004 – Injection into downgradient injection wells IW-5, IW-6, IW-10, IW-11, IW-13, IW-14, IW-15, and IW-16. Injections were generally completed using a gravity feed system from an on-site mixing tank or bulk tanker delivery. Injection volumes were typically low and ranged from between 150 gallons to 300 gallons per wells. The injection solution strength typically ranged from 10 to 20 percent by volume. The injection frequency ranged from weekly to monthly. Sodium bicarbonate was occasionally added to the injection solution as a buffering agent.

- Ø December 2004 through March 2005 – Same injection wells as previous operating period; however, the injection methodology is modified with a new strategy aimed at minimizing pH decline through the addition of a more dilute organic carbon solution through larger injection volumes, a decrease in injection solution strength, and a decrease in injection frequency. The use of sodium bicarbonate is discontinued. Injection volumes ranged between 500 and 1500 gallons and the injection solution strength between 2 and 5 percent by volume. Injections were completed bi-monthly.

- Ø May 2005 through October 2005 – The injection methodology was further tailored to reduce pH fluctuations and expand on the concepts that began in December 2004. This involved increasing the injection volumes further and reducing the concentration of molasses. The revised injection volumes ranged between approximately 5000 to 10,000 gallons per well and the injection concentration ranged between 1 and 2 percent by volume. In addition, injection wells IW-5 and IW-10 were omitted from the injection program due to the larger radius of influence achieved with the revised injection volumes. Finally, the injection methodology was revised to a semi-automated constant feed in-line mixing process to accommodate the larger injection volumes.

- Ø December 2005 through March 2008 – Incorporation of source area injection wells IW-26 and IW-27 at injection volumes of approximately 10,000 gallons per well. The downgradient injection methodology generally stayed the same.

- Ø June 2008 to present – Removal of source area injection well IW-26 and replacement with injection well IW-24 at 10,000 gallons injection volume. The revision was made after data confirmed that the area of aquifer between these two wells was remediated. All other injection methodology generally stayed the same.

- Ø May 2010 – A single injection of a 10 percent by volume molasses/whey blend was completed at injection well IW-20 as a pilot test in an effort to accelerate the rate of remediation within the source area. Specifically, it is believed that the injection of a high concentration, high protein, based electron donor containing cheese whey will enhance the rate of parent compound (PCE) dissolution into the dissolved phase, making it available for treatment in the dissolved phase. The molasses/whey solution pH was neutralized with sodium hydroxide to minimize the decrease in pH that typically accompanies high solution strength injections. The solution was also spiked with

a bromide tracer to track the downgradient migration of the molasses/whey blend. Post injection monitoring of the pilot test is currently on going.

- Ø April 2012 – With NYSDEC approval (NYSDEC 2012), removal of downgradient western injection wells IW-13, IW-14, and IW-16 from the injection program. In addition, it was recommended the injection frequency at source area intermediate injection well IW-27 be reduced to an every six to eight month injection schedule. Results of the May 2010 bromide injection data and VOC data from western downgradient monitoring wells indicated that the injection into the western injection wells were no longer required. Subsequent groundwater monitoring for VOCs at IW-13 and IW-16 indicates that VOCs are at or near MCLs for all compounds and confirms their removal from the injection program. Subsequent TOC monitoring at injection well IW-27 indicated that the proposed reduction to the injection frequency was too long. Injections into IW-27 were returned to every four months beginning in August 2012.

Detailed injection logs showing the exact volume, solution strength, and other notable data are provided in Appendix C of the PRR.

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## Appendix B

Site Management Certification Forms

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

**Site Details** **Box 1**

**Site No.** **V00128**

**Site Name 25 Melville Park Road**

Site Address: 25 Melville Park Road Zip Code: 11747-
City/Town: Melville
County: Suffolk
Site Acreage: 6.0

Reporting Period: June 06, 2012 to September 23, 2013

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

**Box 2**

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

**IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

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

Signature of Owner, Remedial Party or Designated Representative

Date

**SITE NO. V00128** **Box 3**

**Description of Institutional Controls**

| Parcel | Owner | Institutional Control |
|---|---|---|
| **268-1-4** | BP Moby Holdings, LLC | Ground Water Use Restriction<br>Soil Management Plan<br>Landuse Restriction<br>Building Use Restriction<br>Monitoring Plan<br>Site Management Plan<br>O&M Plan<br>IC/EC Plan |

· Require compliance with the approved Site Management Plan (SMP).
· Restrict the use of groundwater beneath the Site as a source of potable or process water, without necessary water quality treatment as determined by the Suffolk County Department of Health Services (SCDHS).
· Limit the use and development of the property to commercial or industrial uses only.
· Require the property owner to complete and submit to the NYSDEC an annual certification to ensure that the Institutional Controls (ICs) are still in place.
· All Engineering Controls (ECs) must be operated and maintained as specified in the SMP.
· All ECs on the Controlled Property (the Site) must be inspected and certified at a frequency and in a manner defined in the SMP.
· Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP.
· On-Site environmental monitoring devices, including but not limited to, injection wells, groundwater monitoring wells, VCS extraction and monitoring points, and soil vapor probes, must be protected and replaced, as necessary, or properly abandoned, as directed by the NYSDEC, to ensure continued functioning in the manner specified in the SMP.

**Box 4**

**Description of Engineering Controls**

| Parcel | Engineering Control |
|---|---|
| **268-1-4** | Groundwater Treatment System<br>Vapor Mitigation<br>Cover System |

· Downgradient and source area Insitu Reactive Zone (IRZs) that involve the delivery of organic carbon (i.e., dilute molasses solution) to the subsurface through a network of injection wells.
· Non Aqueous Phase Liquid (NAPL) recovery that involves the manual removal of NAPL from the monitoring well network by hand bailing.
· A Vapor Control System (VCS) in the northeast portion of the building consisting of extraction points VCS-1 and VCS-2 and induced vacuum monitoring points MP-1 through MP-6.
In addition to the VCS, the heating, ventilation, and air conditioning (HVAC) system is operated to maintain a positive pressure within the building to help prevent the potential migration of vapors into indoor air.
· Groundwater, NAPL, sub-slab soil vapor, and indoor air monitoring must be performed as defined in the SMP.

**Box 5**

**Periodic Review Report (PRR) Certification Statements**

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

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

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

| YES | NO |
|---|---|
| ☒ | ☐ |

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

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

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

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

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

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

| YES | NO |
|---|---|
| ☒ | ☐ |

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

**IC CERTIFICATIONS**
**SITE NO. V00128**

**Box 6**

**SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE**

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I RAYMOND SUMMER at PHILIPS INTERNATIONAL HOLDING CORP 295 MADISON AVENUE, NEW YORK, NY
print name print business address

am certifying as PROPERTY DIRECTOR / MANAGING AGENT FOR OWNER (Owner or Remedial Party)

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

PHILIPS INTERNATIONAL HOLDING CORP
AS MANAGING AGENT FOR MP MOOS HOLDING LLC

BY: _____ 10-30-13
Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date

## IC/EC CERTIFICATIONS

**Box 7**

### Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I KENNETH ZEGEL at TWO HUNTINGTON QUAD, STE 1S10, MELVILLE, NY
print name print business address

am certifying as a Professional Engineer for the BP MOBY HOLDINGS LLC
(Owner or Remedial Party)

STATE OF NEW YORK
KENNETH ZEGEL
LICENSED PROFESSIONAL ENGINEER
Stamp Required for PE

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

10/29/13
Date

ARCADIS

*Infrastructure · Water · Environment · Buildings*

ARCADIS of New York, Inc.
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631 249 7600
Fax 631 249 7610
**www.arcadis-us.com**

ENVIRONMENT

Linda Greenfield
BP Moby Holdings LLC
c/o Philips International Holding Corp.
295 Madison Avenue, 2nd Floor
New York, NY 10017

Subject:
25 Melville Park Road Heating, Ventilation, and Air Conditioning System Certification Statement, 25 Melville Park Road, Melville, New York.

Date:
October 10, 2013

Contact:
Kenneth Zegel, PE

Phone:
631.391.5219

Email:
ken.zegel@arcadis-us.com

Our ref:
NY001332.2012.M0012

Dear Ms. Greenfield:

Pursuant to the New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan for the subject property and the August 20, 2013 letter from the NYSDEC titled *Reminder Notice: Site Management Periodic Review Report (PRR) and IC/EC Certification Submittal*, certification of the institutional controls (ICs) and engineering controls (ECs) are required to be completed by the property owner, remedial party, or designated representative on an annual basis. Furthermore, all ECs require certification by a professional engineer licensed in New York State.

ARCADIS of New York, Inc., (ARCADIS) has agreed to provide the necessary professional engineering services to fulfill the above requirements for the current PRR period. However, since ARCADIS does not operate or maintain the positive pressure HVAC system, please provide an authorized company signature certifying operation of the HVAC system in accordance with the requirements described below. A certification page is provided on Page 2 of this letter.

Please do not hesitate to contact me with any questions.

Sincerely,

ARCADIS of New York, Inc.

Kenneth Zegel, PE
Senior Engineer

Copies:
Raymond Sohmer, Philips International Holding Corp.
Scott Furman, Sive Paget & Riesel, P.C.

*Certification Statement*

I hereby certify that the HVAC system was operated and maintained in accordance with the requirements set forth in the Record of Decision dated March 31, 2004 during the reporting period. Specifically, the HVAC system:

- Operated to maintain a positive pressure within the building to help prevent the potential migration of vapors into indoor air.
- Remained unchanged since the date the EC was put in-place or was last approved by the NYSDEC.

PHILIPS INTERNATIONAL HOLDING CORP.
AS AGENT FOR BP MOBY HOLDINGS LLC
by: RAYMOND SOHMER
PROPERTY DIRECTOR

~~BP Moby Holdings LLC (Print Name)~~

RAYMOND SOHMER, PROPERTY DIRECTOR

~~BP Moby Holdings LLC (Signature)~~

10.25.2013

Signature Date

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# Appendix C

Injection Logs

ARCADIS

Summary of Reagent Injection Parameters, Injection Well IW-6, 25 Melville Park Road, Melville, New York.

| Injection Start Date | Injection No. | Raw Molasses Volume (gallons) | Water Volume (gallons) | Solution Strength (%) | Volume Injected (gallons) | Injection Flowrate (gpm) | Injection Pressure (psi) | Notes and Observations |
|---|---|---|---|---|---|---|---|---|
| 12/13/2012 | 52 | 111 | 4889 | 2.22 | 5000 | 12 | 0 | |
| 5/2/2013 | 53 | 100 | 4900 | 2.00 | 5000 | 12 | 0 | |

ARCADIS

Summary of Reagent Injection Parameters, Injection Well IW-11, 25 Melville Park Road, Melville, New York.

| Injection Start Date | Injection No. | Raw Molasses Volume (gallons) | Water Volume (gallons) | Solution Strength (%) | Volume Injected (gallons) | Injection Flowrate (gpm) | Injection Pressure (psi) | Notes and Observations |
|---|---|---|---|---|---|---|---|---|
| 12/13/2012 | 53 | 167 | 7334 | 2.22 | 7500 | 23 | 0 | |
| 5/2/2013 | 54 | 150 | 7350 | 2.00 | 7500 | 17 | 0 | |

ARCADIS

Summary of Reagent Injection Parameters, Injection Well IW-15, 25 Melville Park Road, Melville, New York.

| Injection Start Date | Injection No. | Raw Molasses Volume (gallons) | Water Volume (gallons) | Solution Strength (%) | Volume Injected (gallons) | Injection Flowrate (gpm) | Injection Pressure (psi) | Notes and Observations |
|---|---|---|---|---|---|---|---|---|
| 12/13/2012 | 53 | 111 | 4889 | 2.22 | 5000 | 20 | 0 | |
| 5/2/2013 | 54 | 100 | 4900 | 2.00 | 5000 | 13 | 0 | |

ARCADIS

Summary of Reagent Injection Parameters, Injection Well IW-24, 25 Melville Park Road, Melville, New York.

| Injection Start Date | Injection No. | Raw Molasses Volume (gallons) | Water Volume (gallons) | Solution Strength (%) | Volume Injected (gallons) | Injection Flowrate (gpm) | Injection Pressure (psi) | Notes and Observations |
|---|---|---|---|---|---|---|---|---|
| 12/12/2012 | 15 | 222 | 9778 | 2.22 | 10000 | 17 | 0 | |
| 5/1/2013 | 16 | 200 | 9800 | 2.00 | 10000 | 18 | 0 | |

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Summary of Reagent Injection Parameters, Injection Well IW-27, 25 Melville Park Road, Melville, New York.

| Injection Start Date | Injection No. | Raw Molasses Volume (gallons) | Water Volume (gallons) | Solution Strength (%) | Volume Injected (gallons) | Injection Flowrate (gpm) | Injection Pressure (psi) | Notes and Observations |
|---|---|---|---|---|---|---|---|---|
| 12/12/2012 | 26 | 222 | 9778 | 2.22 | 10000 | 17 | 0 | |
| 5/1/2013 | 27 | 200 | 9800 | 2.00 | 10000 | 18 | 0 | |

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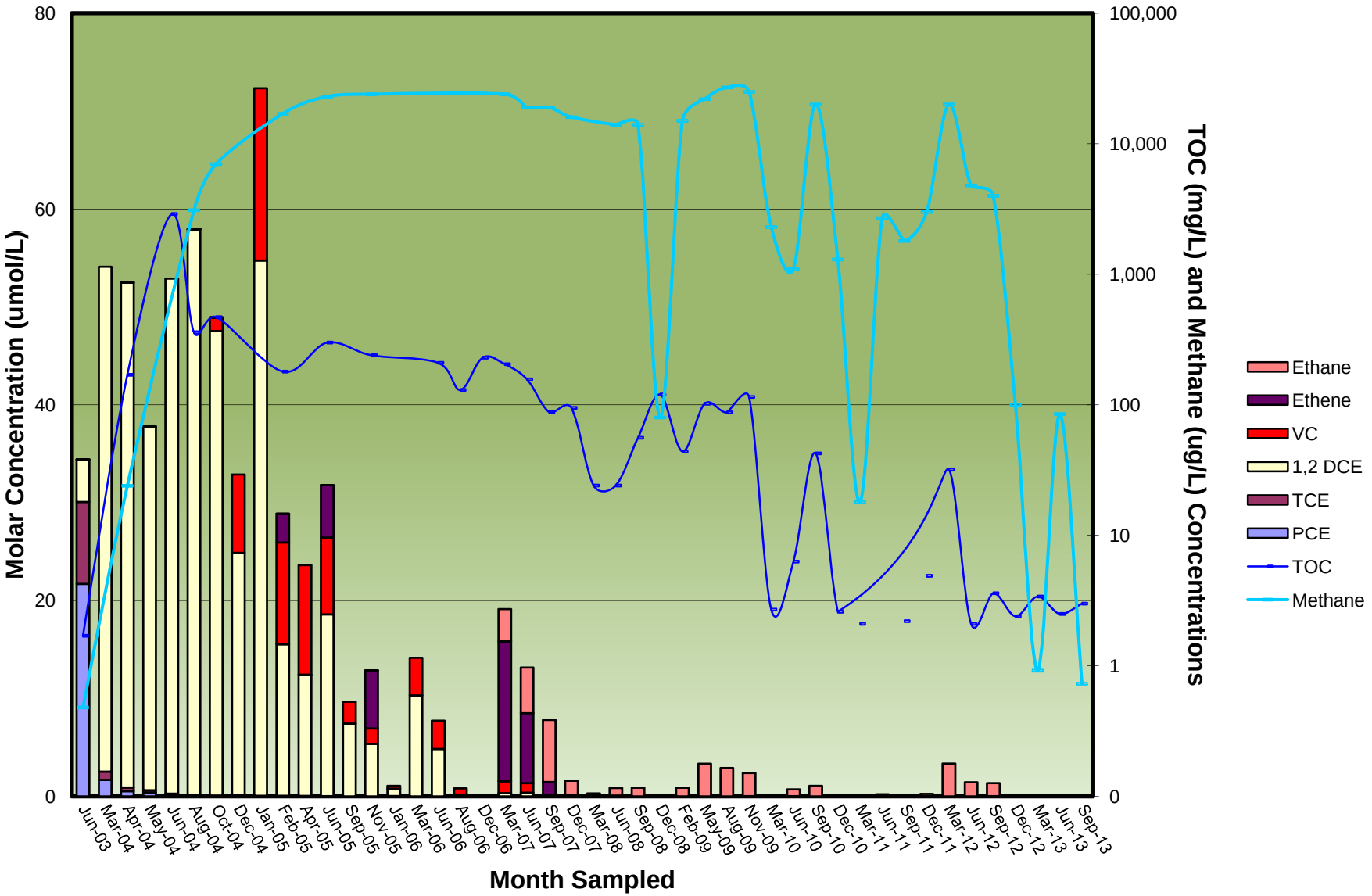
## Appendix D

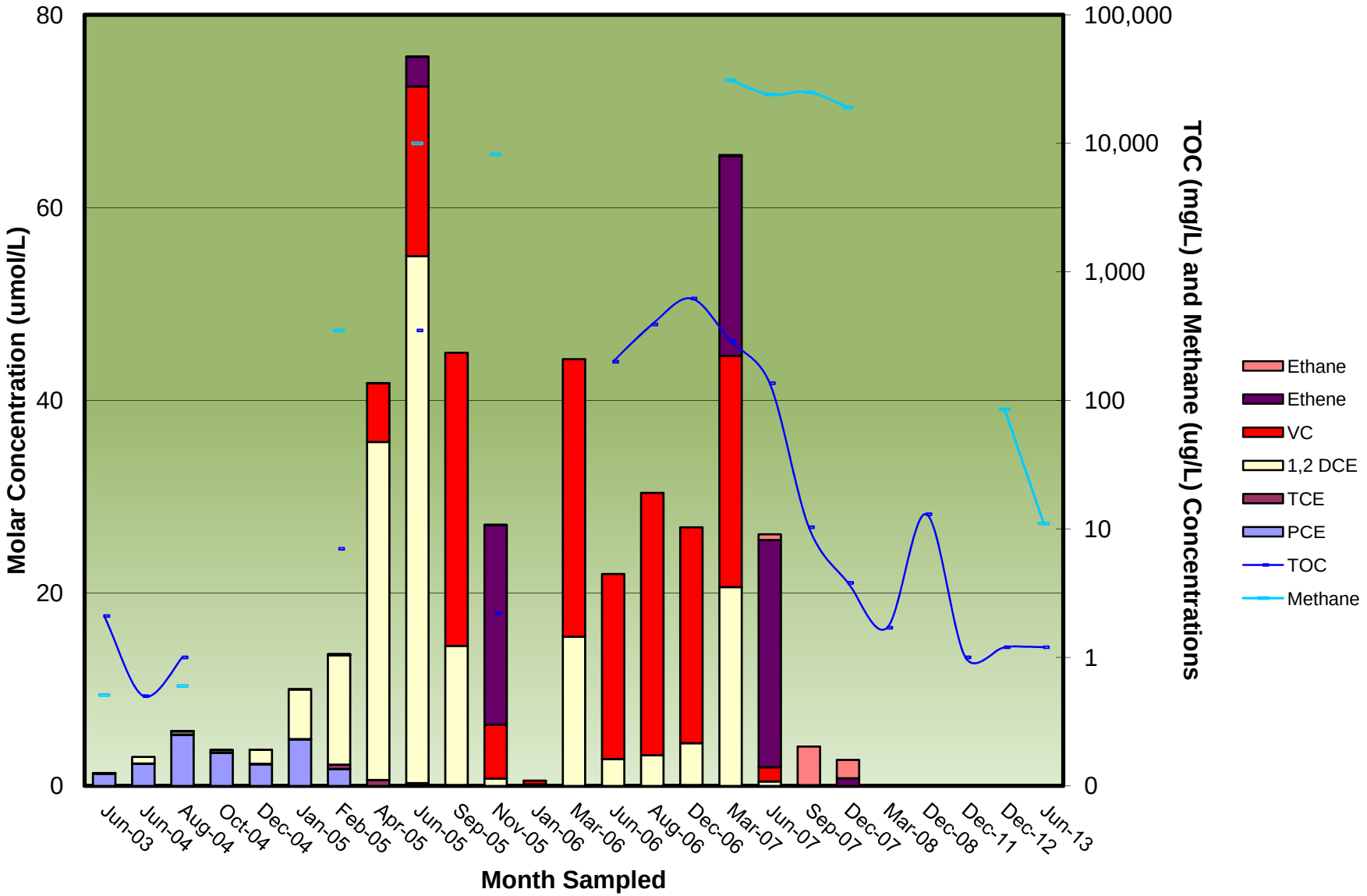
IRZ Performance Data Trend Plots

**Figure D-1. Degradation Trends for Downgradient Compliance Monitoring Well MW-31**



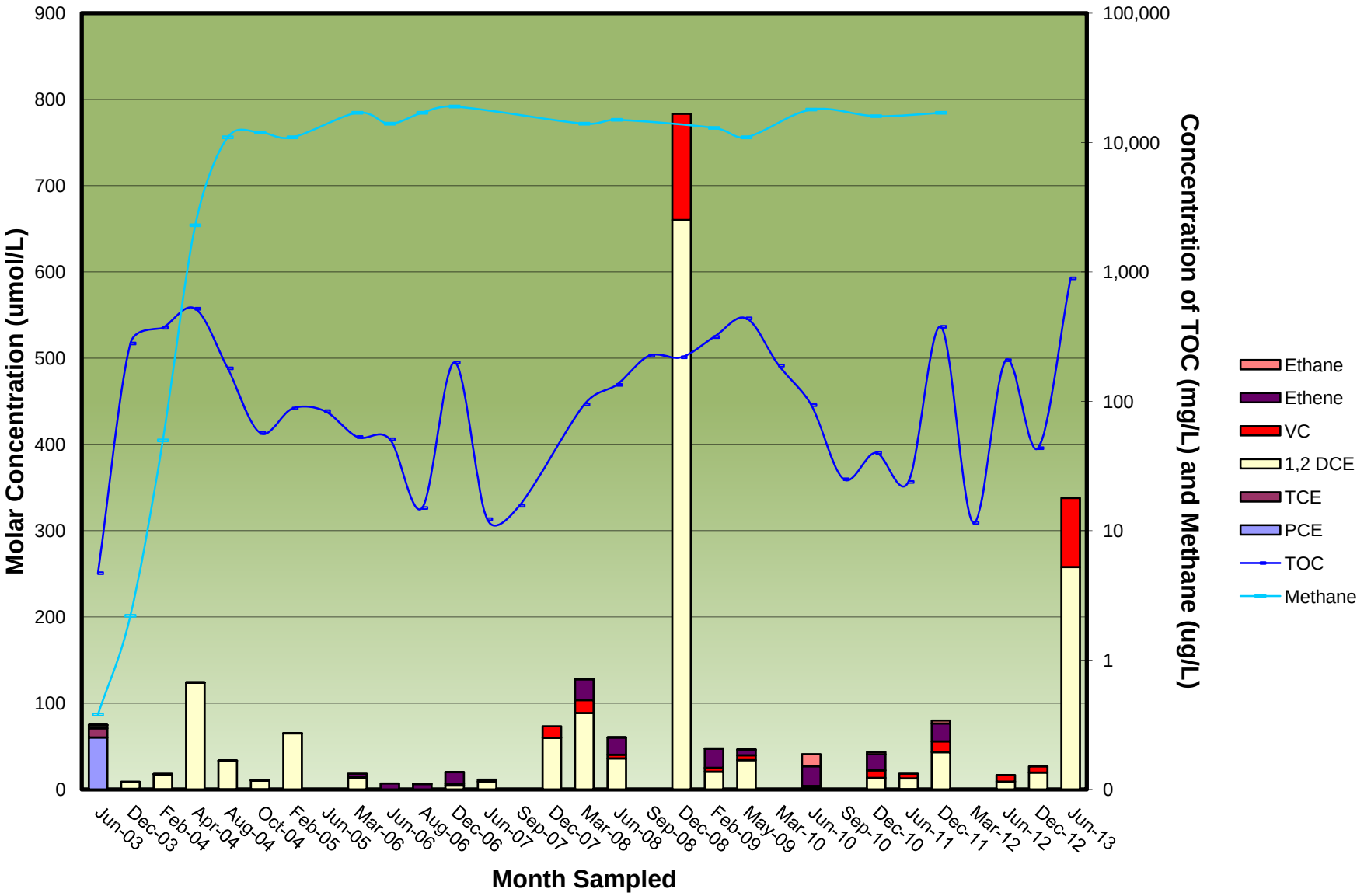

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

**Figure D-2. Degradation Trends for Downgradient Compliance Monitoring Well MW-16D**



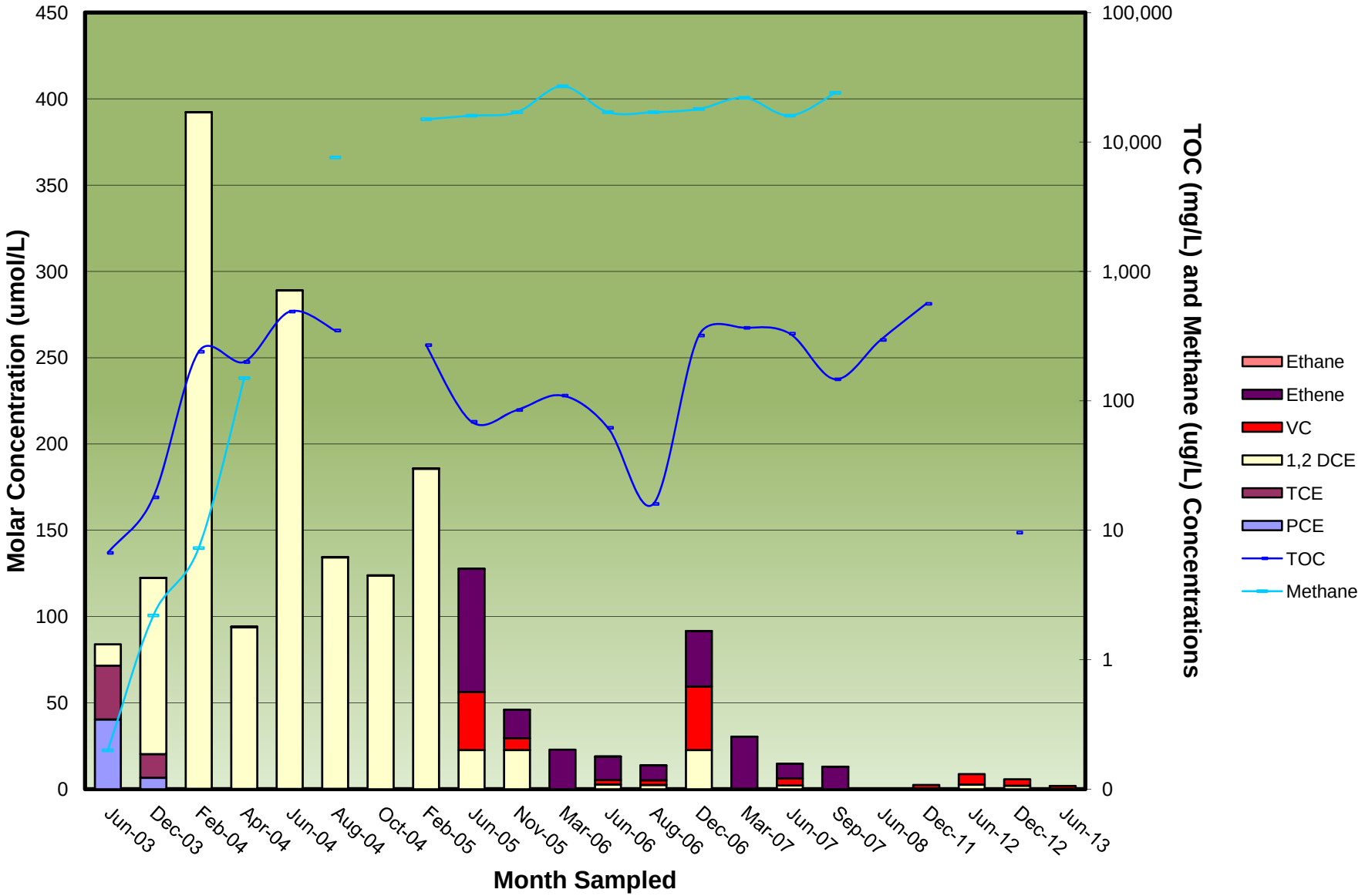

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

**Figure D-3. Degradataion Trends for Mid-Plume Monitoring Well MW-7**



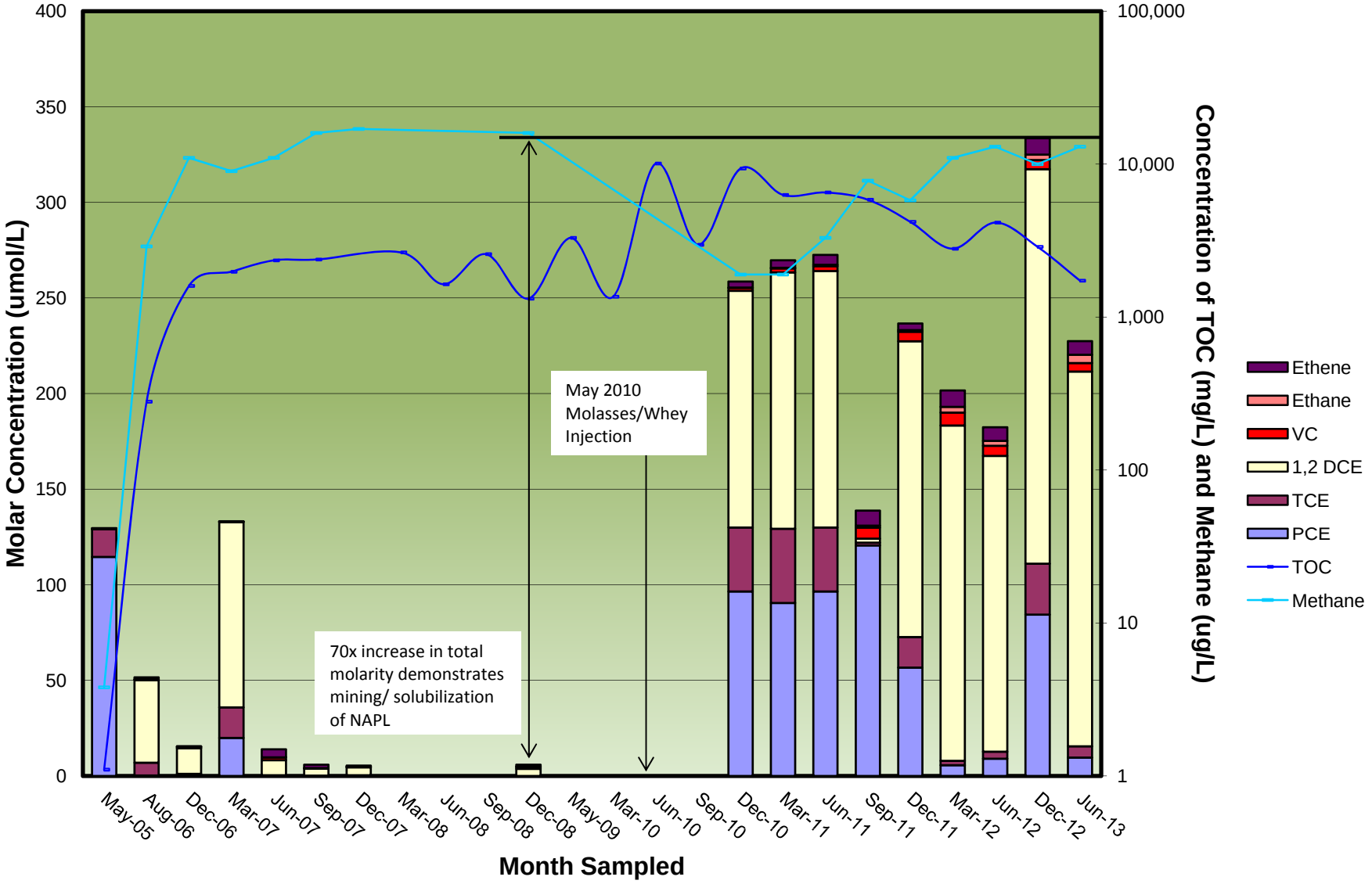

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

**Figure D-4. Degradation Trends for Mid-Plume Monitoring Well MW-27D**



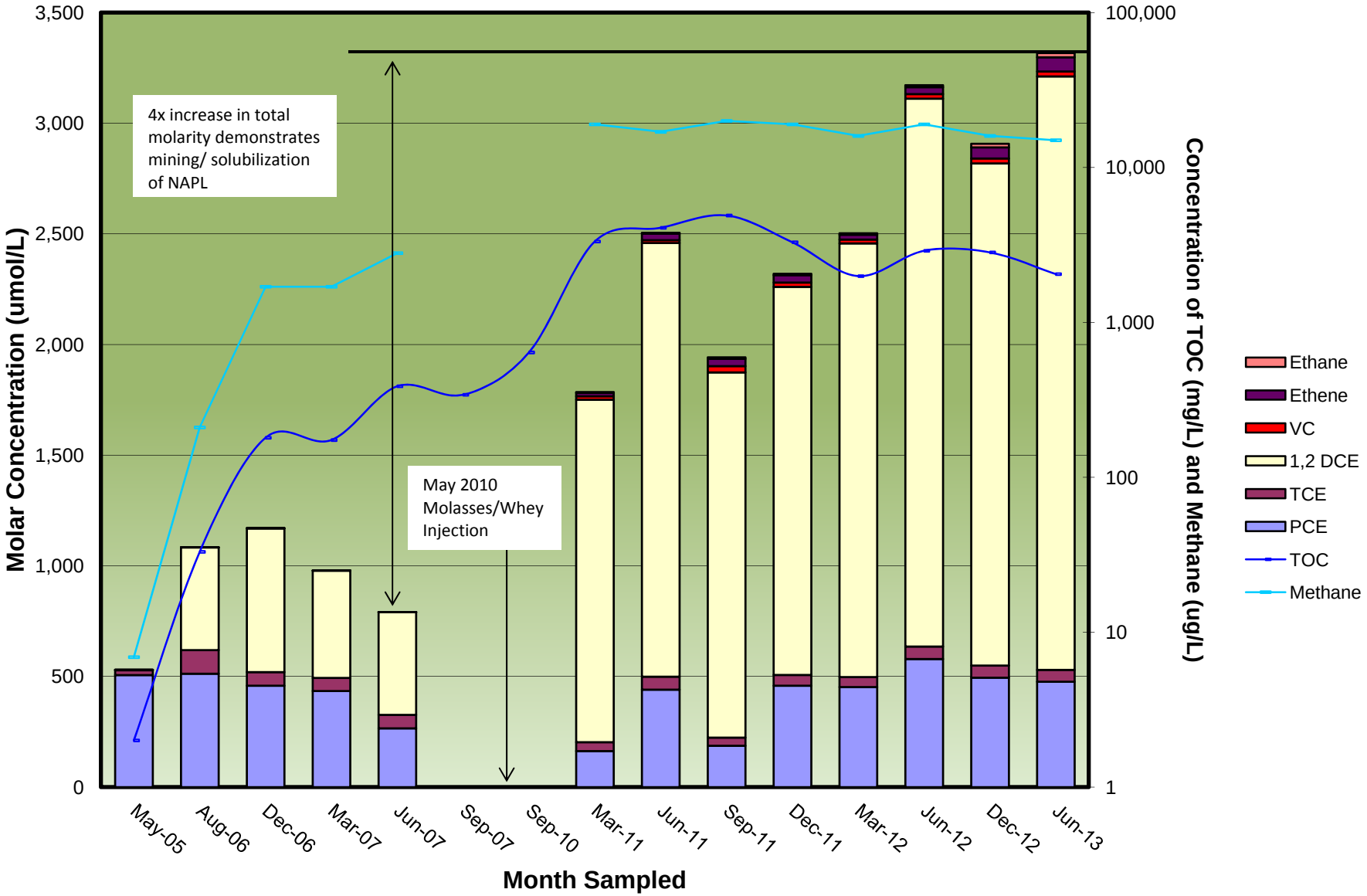

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

## Figure D-5. Degradation Trends for Source Area Monitoring Well IW-17



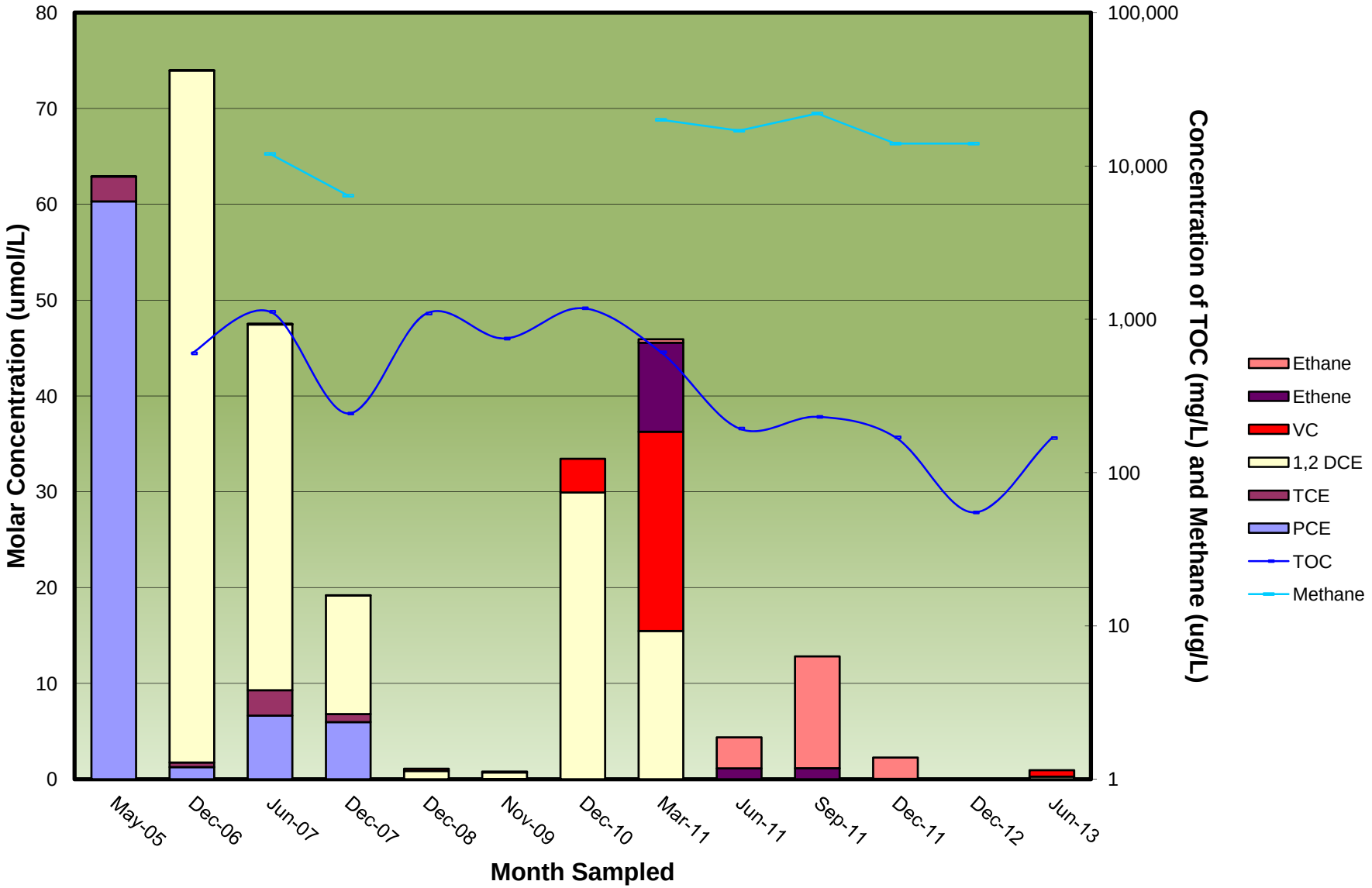

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

## Figure D-6. Degradation Trends for Source Area Monitoring Well IW-18



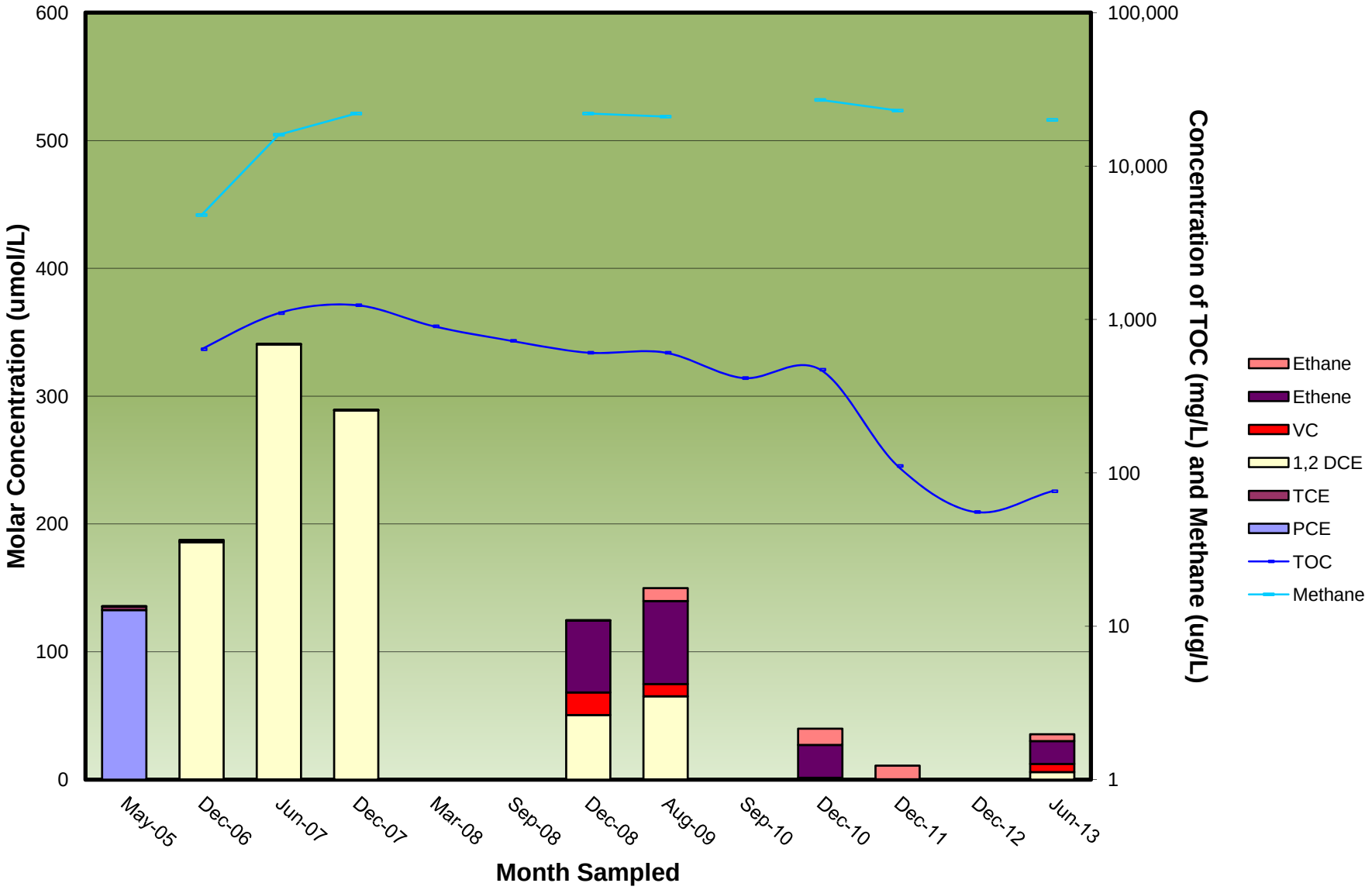

Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

**Figure D-7. Degradation Trends for Source Area Monitoring Well IW-22**




Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.

**Figure D-8. Degradation Trends for Source Area Monitoring Well IW-23**




Note: The concentration of PCE, TCE, 1,2-DCE, VC ethene, and ethane are plotted in the units of micromoles per liter. Micromoles per liter are calculated by taking the mass based concentration in micrograms per liter and dividing the respective compound by its molecular weight.