ARCADIS Design & Consultancy for natural and built assets

Omega Melville LLC

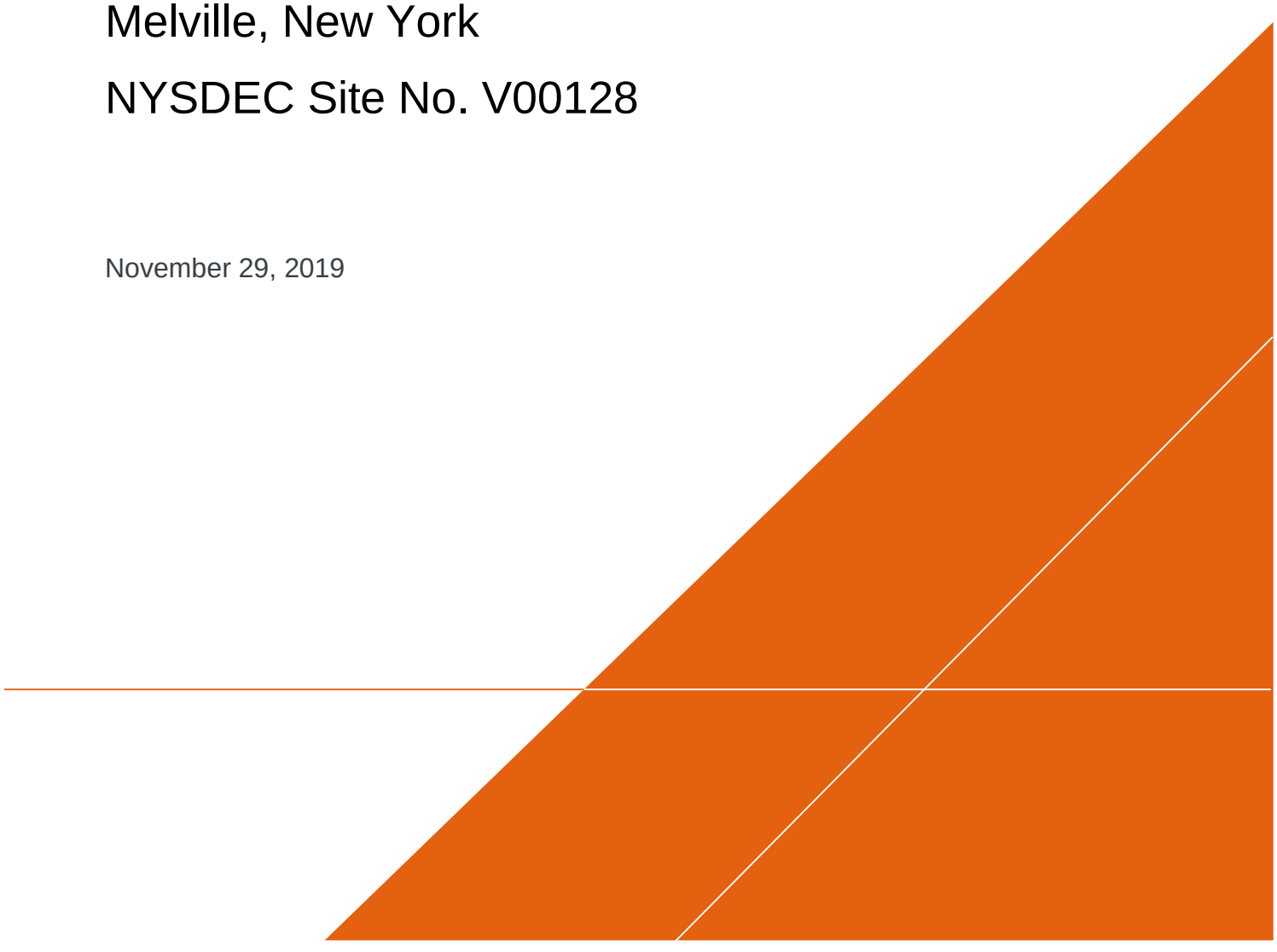
PERIODIC REVIEW REPORT

25 Melville Park Road

Melville, New York

NYSDEC Site No. V00128

November 29, 2019



Christopher Keen
Senior Scientist

Peter Milionis
Project Manager

Christina Berardi Tuohy, P.E.
New York Professional Engineer
License Number 078743

PERIODIC REVIEW REPORT

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

Prepared for:

Omega Melville LLC

Prepared by:

Arcadis of New York, Inc.
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631 249 7600
Fax 631 249 7610

Our Ref.:

30017733.NB019.C

Date:

November 29, 2019

CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

Arcadis of New York, Inc. (Arcadis), on behalf of Omega Melville LLC, 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.

Several remedial action objectives (RAOs) have been established for protection of both human health and the environment at the Site. The following remedial actions have been implemented at the Site to meet the RAOs.

- Enhanced Reductive Dechlorination (ERD) to remediate chlorinated volatile organic compound (CVOC) impacts in groundwater;
- Non-aqueous phase liquid (NAPL) recovery;
- Operation of a vapor control system (VCS) to prevent vapor intrusion; and,
- Implementation of institutional controls and engineering controls (ICs/ECs).

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:
  - 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 operation and maintenance (O&M) activities were completed in accordance with the requirements provided in the Site Management Plan (SMP; Arcadis 2010) and SMP Addendum (Arcadis 2015).
- Each remedy component performed as designed and has mitigated the identified risks to human health and the environment.
- The timing of the emulsified vegetable oil (EVO) injections will be based on an ongoing evaluation of the groundwater monitoring data. The next EVO injection will be implemented during the fourth quarter of 2019.
- Based upon the findings herein and the future anticipated Site activities, it is recommended that the current periodic review period (annual) be continued.

1 SITE OVERVIEW

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

1.1 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 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.

1.2 Conceptual Site Model

There are two primary impacted zones at the Site. The shallow aquifer zone extends from approximately 45 to 70 feet below land surface (ft bls) and the intermediate aquifer zone extends from approximately 70 to 100 ft bls. The most likely source of impacts is a historical release(s) from the former manufacturing operations, whereby NAPL migrated vertically through the vadose zone to the aquifer zones described above; the exact release mechanism(s) is unknown. The on-site dissolved-phase volatile organic compound (VOC) plume currently extends from the source area beneath the northeast portion of the building to the general vicinity of monitoring wells MW-4 and MW-31 in the shallow zone, and MW-34, MW-35, and MW-37 in the intermediate zone, based on groundwater monitoring between December 2018 and September 2019. The dissolved-phase VOC plume in the source area is present to a depth of approximately 90 ft bls and appears to be migrating downgradient of the source area within a narrow horizontal region. The NAPL extent has been defined and, historically, generally extended from the vicinity of angle wells IW-27 and IW-25 to the loading dock area.

In 2013 Arcadis completed a supplemental source area investigation to refine the CSM and further delineate source area NAPL and groundwater impacts. A detailed summary of the current CSM is provided in Progress Report 79 (Arcadis 2013). 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 2018 groundwater sampling events.

1.3 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.

1.4 Remedial Program Elements

The following are the primary components of the selected remedy:

- The operation and maintenance of downgradient and source area in-situ reactive zones (IRZs) by periodic injection of organic carbon to the subsurface until the remedial objectives have been achieved, or until the New York State Department of Environmental Conservation (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. In 2013 and 2014 Arcadis completed a feasibility evaluation for alternate source area remedial technologies and has implemented an optimized ERD program. The optimized ERD program was initially proposed in the 2014 PRR (Arcadis 2014) and is discussed in detail in the 2015 PRR. A detailed history of the injection activities completed as part of the ERD remedy is included in Appendix A.

2 EVALUATION OF REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

The selected remedy was effective at achieving each of the RAOs during the reporting period. The groundwater monitoring data are discussed in Section 5.2.1. 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.

CVOCs were detected at property boundary wells MW-4 and MW-31 (shallow zone), and MW-34, MW-35, and MW-37 (intermediate zone) at concentrations above the groundwater quality criteria; however, the data collected from these wells indicate that the groundwater is methanogenic, the majority of the mass has been converted to daughter products, and complete dechlorination is occurring as evidenced by the presence of non-toxic end products (ethane and ethene). CVOCs were not detected at property boundary wells MW-16D (intermediate zone) and MW-36 (deep zone) above the groundwater quality criteria.

Additional monitoring in accordance with the approved long-term groundwater monitoring plan will continue to be performed to confirm a stable to decreasing trend.

3 IC/EC PLAN COMPLIANCE REPORT

ICs and ECs have been implemented at the Site to ensure achievement of the RAOs described in Section 1.3. The Site has three primary ECs. The ECs consist of the following:

- Downgradient and source area IRZs that involve the delivery of organic carbon 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; and,
- 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 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 must be reported at the frequency and in a manner defined in the SMP; and,
- 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 ICs 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 Suffolk County Department of Health Services (SCDHS);
- Limit the use and development of the property to commercial or industrial uses only; and,
- Require the property owner to complete and submit to the NYSDEC an annual certification to ensure that the ICs are still in place.

A new sidewalk was installed on the eastern side of the northeast portion of the of the building (within the former manufacturing operations area identified in the SMP) during the reporting period. The new sidewalk was installed in the grass area outside the east wall of the former manufacturing area. The sidewalk installation work was unrelated to the Site activities that are performed in connection with the operation, maintenance and monitoring of the remedy. In an e-mail dated May 8, 2019, Omega Melville LLC notified the NYSDEC of the sidewalk installation work that was performed. Omega Melville LLC indicated in the e-mail that the depth of the new sidewalk is approximately 3 inches. In an e-mail dated May 13, 2019, the NYSDEC indicated that Omega Melville LLC should make sure that the handling of the soil complies with the Site Management Plan and is reported in the Periodic Review Report.

As described in the NYSDEC-approved Soil Management Plan (Attachment C of the Site Management Plan dated August 13, 2010), none of the original surface soil layer still exists near the former manufacturing area. The entire area around the former manufacturing area is mostly paved at present. There is a small unpaved (i.e., grass) area outside the east wall of the former manufacturing area. This area is more than six inches above the original grade prior to 1984, when the Site was last used for manufacturing. Therefore, none of the original surface soils are exposed at present. Based on this information, the soil that was removed to install the new sidewalk was not the original surface soil layer.

The excavated soil was stockpiled on the Site in the northeastern portion of the parking lot. A soil sample was collected from the stockpiled soil on September 18, 2019. The stockpiled soil investigation is summarized in a report dated October 2, 2019 that was prepared by Advanced Cleanup Technologies, Inc. (ACT). The ACT report indicated that the constituents that were detected in the stockpiled soil sample are present at concentrations below the 6 NYCRR Table 375-6.8(b): Restricted Use Soil Cleanup Objectives (SCOs) - Protection of Public Health Commercial Use SCOs.

In an e-mail dated October 28, 2019, Omega Melville LLC transmitted the ACT report to the NYSDEC and proposed that the soil be reused on site. In an e-mail dated October 29, 2019, the NYSDEC indicated that it was appropriate to reuse the stockpiled soil on site because the soil sample analytical results were below commercial SCOs. The NYSDEC also indicated that the Site Management Plan includes a Soil Management Plan that identifies a cover material to be placed above soils reused on site and requested additional details regarding how the material will be covered. Omega Melville LLC indicated that the stockpiled soil volume is small and requested that the NYSDEC approve the soil to be reused on site without a cover material. In an e-mail dated October 30, 2019, the NYSDEC indicated that since this is a small amount of material that is understood to have been excavated from the surface of the Site, the NYSDEC will permit the material to be spread on the ground within the property boundary. The NYSDEC also indicated that the material should be placed at least 10 feet from the property boundary and that sod or grass seed with hay must be placed to maintain the material on the property and prevent soil from eroding and migrating off the property.

Arcadis is providing the overall IC/EC certification for the Site (i.e., Box 7 of the NYSDEC Institutional and Engineering Controls Certification Form) with the property owner providing certification confirming that all work has been completed in accordance with the requirements of the Soil Management Plan.

The annual site inspection was completed on September 19, 2019. 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.

4 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 SMP was revised in July 2015 with submittal of a SMP Addendum (Arcadis 2015), which was approved by the NYSDEC in an email dated July 27, 2015. The NYSDEC approved the SMP Addendum in a follow up letter dated August 11, 2015. 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. Detailed descriptions of the monitoring program elements are provided in the SMP (Arcadis 2010) and SMP Addendum (Arcadis 2015).

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

- Quarterly IRZ performance monitoring and groundwater compliance monitoring was performed in December 2018, March 2019, June 2019, and September 2019;
- Annual groundwater plume configuration monitoring was performed in December 2018;
- Annual water-level measurements were collected in March 2019;
- Quarterly NAPL gauging was performed in December 2018, April 2019, June 2019, and September 2019;
- Annual IAQ monitoring and sub-slab soil vapor monitoring were performed in March 2019; and,
- Quarterly VCS monitoring was performed in December 2018, March 2019, June 2019, and September 2019.

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 5 of this PRR.

4.1 Groundwater Monitoring

Tables 2 and 3 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 2018 groundwater sampling events. Interpretation of the groundwater analytical results with respect to the effectiveness of the remedial actions (specifically the IRZs) is included in Section 5.2.1.

4.2 Water-Level Measurements

Arcadis collected water-level measurements from the hydraulic monitoring well network on March 12 and 13, 2019 (see Table 4). 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).

4.3 NAPL Gauging

Table 5 provides the NAPL gauging data from December 2018 through September 2019. NAPL was detected in well IW-18 at thicknesses ranging from 1.59 feet to 3.34 feet during the PRR reporting period gauging events. Trace thicknesses (ranging from 0.01 to 0.04 feet) of LNAPL were detected in wells IW-3, IW-9, IW-17, IW-21, IW-23, and IW-25 during the September 2019 gauging event.

4.4 IAQ Monitoring and Sub-Slab Soil Vapor Monitoring

The annual vapor intrusion monitoring program consists of collecting two (2) indoor air quality samples (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 March 2, 2019. Table 6 presents a summary of the March 2019 analytical data.

The 2019 sub-slab soil vapor sample data were similar to the 2018 sub-slab soil vapor sample data. Tetrachloroethene (PCE) was detected in the SE SS-A and SS-5A sub-slab soil vapor samples at concentrations of 240 and 73 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 3.5 and 6.1 $\mu g/m^3$, respectively. Trichloroethene (TCE) was detected in the SE SS-A and SS-5A samples at concentrations of 8.8 $\mu g/m^3$ and 0.16 $\mu g/m^3$, respectively. 1,1-dichloroethane (1,1-DCA) was detected in the SE SS-A sample at a concentration of 0.36 $\mu g/m^3$. 2-butanone was detected in the SE SS-A and SS-5A samples at concentrations of 0.5 and 1.3 $\mu g/m^3$, respectively.

PCE was detected in the SE Office Space indoor air quality sample and its associated duplicate sample at concentrations of 0.23 and 0.16 $\mu g/m^3$, respectively. PCE was detected in the SW Office Space indoor air quality sample at a concentration of 0.30 $\mu g/m^3$. TCE was detected in the SE Office Space indoor air quality sample and its associated duplicate sample at concentrations of 0.093 and 0.067 $\mu g/m^3$, respectively. TCE was detected in the SW Office Space indoor air quality sample at a concentration of 0.79 $\mu g/m^3$. 2-butanone was detected in the SE Office Space indoor air quality sample and its associated duplicate sample at concentrations of 1.5 $\mu g/m^3$ and 0.76 $\mu g/m^3$, respectively. 2-butanone was detected in the SW Office Space indoor air quality sample at a concentration of 1.2 $\mu g/m^3$.

Evaluating the 2019 sub-slab soil vapor data in conjunction with the 2019 indoor air quality data in the context of the updated May 2017 NYSDOH decision matrices indicates that no further action is warranted. The site-related CVOCs will continue to be monitored on an annual basis and the next vapor intrusion monitoring event will be conducted during the 2020 heating season. The 2020 data will be compared to the March 2019 data upon receipt and transmitted to the NYSDEC for review.

4.5 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 2018 through September 2019 are provided in Table 7.

5 OPERATION AND MAINTENANCE (O&M) PLAN COMPLIANCE REPORT

The O&M Plan provided in the SMP (Arcadis 2010) and SMP Addendum (Arcadis 2015) describe 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 summary of the O&M methodology and activities completed during the reporting period is provided below.

5.1 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.

5.1.1 In-Situ Reactive Zone Activities

Maintenance of the downgradient and source area IRZs involves the periodic injection of a fermentable organic carbon substrate through a network of injection wells and groundwater monitoring program. The injection well locations are shown on Figure 7. 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 processes.

A second injection of emulsified vegetable oil (EVO) in the downgradient injection wells was implemented in June 2018. Consistent with the previous optimized ERD program reagent injections in August 2015 and May/June 2017, a longer lasting electron donor in the form of a commercially available EVO product was injected. EVO was introduced into injection wells IW-6, IW-11, IW-13, IW-14, and IW-15. At the request of the NYSDEC, western downgradient injection well IW-13 was added to the 2017 injection. The June 2018 injection also included western downgradient injection well IW-14. A bullet summary of the injection methodology history is provided in Appendix A. The reagent injection logs are provided Appendix C.

5.1.2 Groundwater Performance Monitoring

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, total organic carbon (TOC), methane, ethene, ethane, and the field parameter pH.

Four performance monitoring events were completed during this reporting period. The December 2018, March 2019, June 2019, and September 2019 events were completed in accordance with the NYSDEC-approved revised groundwater monitoring program that was described in the SMP Addendum (Arcadis 2015).

5.1.3 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 2018, April 2019, June 2019, and September 2019. A summary of the gauging and recovery data are provided in Tables 5 and 8.

5.1.4 Vapor Control System

Maintenance of the VCS involved quarterly site visits that include the following activities:

- 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 is noted if the barometric pressure is rising or falling;
  - Induced vacuum readings at all monitoring points;
  - Recovery vacuum and flow rate 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. Site inspections are 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 2018, March 2019, June 2019, and September 2019.

5.2 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.

5.2.1 Downgradient and Source Area In-Situ Reactive Zones

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 1 of this PRR. Key analytical and field parameter data that support this conclusion includes:

- 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 milligrams per liter (mg/L) at monitoring wells located within 60 to 100 days hydraulically downgradient of the injection wells is considered optimal for ERD. A summary of the area with TOC greater than 20 mg/L during the December 2018 sampling event is provided on Figure 8. The extent of TOC exceeding 20 mg/L is generally consistent with the extent of the CVOC plume in groundwater in both the shallow and intermediate zones, which indicates adequate TOC has been distributed to the aquifer to maintain reducing conditions and drive the ERD process. A summary of the TOC analytical data collected during the reporting period is provided in Table 3.
- Optimal reductive dechlorination rates are generally achieved at pH values greater than 5 SU, depending on the extent and distribution of subsurface biomass. 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 presence of elevated dissolved methane relative to baseline conditions provides a positive indication that the strongly reducing conditions required for complete reductive dechlorination have been established. 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 the downgradient monitoring wells that are part of the revised annual (Quarter 4) monitoring program for light hydrocarbons are provided in Appendix D. These select IRZ monitoring wells (MW-28M and MW-31 in the shallow zone and IW-18, MW-23, MW-34, MW-35, and MW-37 in the intermediate zone) will be considered the key monitoring wells for performance evaluation. Results indicate the concentration of methane is elevated at each of these key monitoring wells.
- Ethene and ethane are 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. Ethane and ethene detections were widespread during monitoring activities conducted during this reporting period. 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 key monitoring wells (MW-28M and MW-31 in the shallow zone and IW-18, MW-23, MW-34, MW-35, and MW-37 in the intermediate zone) are provided in Appendix D.
- CVOCs were detected at property boundary wells in the shallow (MW-4 and MW-31) and intermediate (MW-34, MW-35, and MW-37) zones at concentrations above the groundwater quality criteria; however, the data collected from these wells indicates that the groundwater is methanogenic, the majority of the mass has been converted to daughter products, and complete

dechlorination is occurring as evidenced by the presence of non-toxic end products (ethane and ethene). The only constituent that was detected at MW-34 above the groundwater quality criteria was trans-1,2-dichloroethene (trans-1,2-DCE), which was detected at a concentration of 5 micrograms per liter (ug/L) in June 2019. As discussed in the 2018 PRR, it was anticipated that the concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC) at MW-35 would decrease over time following the June 2018 EVO injections at western downgradient injection wells IW-13 and IW-14. Additional investigation activities to support an evaluation of potential supplemental injections were described in the 2018 PRR

In Progress Report 101 dated April 30, 2019, Arcadis proposed to the NYSDEC that the planned supplemental investigation to evaluate groundwater conditions upgradient of monitoring well MW-35 was not warranted at that time based on the March 2019 groundwater analytical results. Chlorinated VOC concentrations detected between September 2018 and June 2019 in monitoring wells MW-4 and MW-35 exhibited a declining trend and Arcadis proposed that the supplemental investigation was not warranted at that time based on the June 2019 groundwater analytical results. In an e-mail dated July 8, 2019, the NYSDEC agreed that the supplemental investigation was not warranted at that time.

Chlorinated VOC concentrations detected in monitoring well MW-4 in September 2019 continued to exhibit a declining trend. Chlorinated VOC concentrations detected in monitoring well MW-35 in September 2019 exhibited a generally stable trend; the concentrations of cis-1,2-DCE and VC in MW-35 slightly increased relative to June 2019 but are below the levels that were detected between January 2018 and March 2019. The light hydrocarbons data collected at MW-35 continue to indicate the groundwater is methanogenic and that complete dechlorination is occurring. Arcadis will continue to monitor conditions at monitoring wells MW-4 and MW-35.

In an e-mail dated September 12, 2019, the NYSDEC noted that the cis-1,2-DCE and VC concentrations in monitoring well MW-37 increased between March 2019 and June 2019 and requested that Arcadis assess the MW-37 location after the September 2019 data are collected to determine if an increasing trend is apparent. The September 2019 data exhibited cis-1,2-DCE and VC concentrations similar to the concentrations detected in March 2019; the September 2019 concentrations are below the groundwater quality criteria.

The downgradient IRZ is achieving its respective RAO.

- Groundwater samples were collected from off-site monitoring well ERM-MW-02 in December 2018 and March 2019 for the analysis of VOCs and light hydrocarbons. CVOC concentrations detected between March 2017 and March 2019 in monitoring well ERM-MW-02 exhibited a declining trend. In March 2019, CVOCs were not detected at monitoring well ERM-MW-02 above the groundwater quality criteria. The light hydrocarbons data collected at ERM-MW-02 indicates the groundwater is methanogenic and that complete dechlorination is occurring. In Progress Report 101, Arcadis requested the discontinuation of monitoring groundwater conditions at off-site monitoring well ERM-MW-02. In an e-mail dated May 6, 2019, the NYSDEC agreed with the discontinuation of groundwater monitoring at off-site monitoring well ERM-MW-02.

- The optimized ERD program continues to be effective. The absence of PCE above the applicable groundwater standard at the majority of on-site wells indicates the ERD program is effectively mining out NAPL and promoting biological degradation of VOCs in the source zone.
- The concentrations of CVOCs at monitoring well IW-18 remain elevated but the light hydrocarbons data collected at IW-18 in December 2018 indicates the groundwater is methanogenic and that complete dechlorination is occurring. NAPL was detected in well IW-18 at thicknesses ranging from 1.59 feet to 3.34 feet during the PRR reporting period. A summary of the VOC analytical data collected during the reporting period is provided in Table 2.

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. Additional sampling frequency and analytical parameters will continue to be added to the upcoming sampling events to verify that an effective IRZ is being maintained.

5.2.2 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 7.5 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 8.

5.2.3 Vapor Control System

A summary of the field parameters collected during the reporting period are provided in Table 7. 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 4.4, PCE was detected in the SE Office Space indoor air quality sample and its associated duplicate sample at concentrations of 0.23 and 0.16 $\mu g/m^3$, respectively. PCE was detected in the SW Office Space indoor air quality sample at a concentration of 0.30 $\mu g/m^3$. The detected PCE concentrations are well below the NYSDOH guideline for PCE (30 $\mu g/m^3$). TCE was detected in the SE Office Space indoor air quality sample and its associated duplicate sample at concentrations of 0.093 and 0.067 $\mu g/m^3$, respectively. TCE was detected in the SW Office Space indoor air quality sample at a concentration of 0.79 $\mu g/m^3$. The detected TCE concentrations are below the NYSDOH guideline for TCE (2 $\mu g/m^3$).

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.

5.3 Operation and Maintenance Deficiencies

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

5.4 Conclusions and Recommendations for Improvements

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

6 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 and SMP Addendum.
- 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 4 and 5 herein.
- The timing of the EVO injections will be based on an ongoing evaluation of the groundwater monitoring data. The next EVO injection will be implemented during the fourth quarter of 2019.
- Based upon the findings herein and the future anticipated site activities, it is recommended that the current periodic review period (annual) be continued.

7 REFERENCES

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

ARCADIS of New York, Inc. 2013. Progress Report 79, 25 Melville Park Road Site, Melville, New York. October 31, 2013.

ARCADIS of New York, Inc. 2014. Periodic Review Report, 25 Melville Park Road Site, Melville, New York. October 31, 2014.

ARCADIS of New York, Inc. 2015. Site Management Plan Addendum, 25 Melville Park Road Site, Melville, New York. July 24, 2015.

ARCADIS of New York, Inc. 2015. Periodic Review Report, 25 Melville Park Road Site, Melville, New York. November 13, 2015.

New York State Department of Environmental Conservation. 2007. Letter Re: Proposed Changes to Vapor Control System Monitoring, 25 Melville Park Road, V00128. April 9, 2007.

United States Environmental Protection Agency (USEPA), 1993, Radon Reduction Techniques for Existing Detached Houses: Technical Guidance (Third Edition) for Active Depressurization Systems, October 1993.

TABLES

Table 1
Remedy Effectiveness Summary for the Periodic Review Period of September 2018 to September 2019
25 Melville Park Road Site
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 ECs recorded in the EE. - No changes to institutional or engineering controls during the reporting period as documented through IC/EC certifications. - Remediation of contaminated groundwater toward the remediation goals as documented in Sections 4 and 5 of this PRR. Specifically, o Operation of the downgradient IRZ is preventing the off-site migration of dissolved-phase chlorinated solvents. o Operation of the source area IRZ is enhancing the removal of NAPL and treating dissolved-phase chlorinated solvents. o NAPL hand bailing is physically 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 4 and 5 of this PRR. - Remediation of contaminated groundwater, which is the source of soil vapors, as described in Sections 4 and 5 of this PRR. Specifically, o Operation of the source area IRZ is enhancing the removal of NAPL and treating dissolved-phase chlorinated solvents. o NAPL hand-bailing is physically 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 above SGVs at the downgradient property boundary as documented in Sections 4 and 5 of this PRR, however, the light hydrocarbons data collected at the property boundary wells indicate the groundwater is methanogenic and that complete dechlorination is occurring.
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 4 and 5 of this PRR. - NAPL hand bailing removed all recoverable NAPL as documented in Sections 4 and 5 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 above SGVs at the downgradient property boundary as documented in Sections 4 and 5 of this PRR, however, the light hydrocarbons data collected at the property boundary wells indicate the groundwater is methanogenic and that complete dechlorination is occurring.
Ensure that indoor air quality continues to meet New York State Department of Health NYSDOH guidance values.	Yes	- The VCS operated continuously and in accordance with its design objectives during the reporting period. Supporting data provided in Sections 4 and 5 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
SGVs - Standards and Guidance Values

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

ARCADIS Design & Consultancy for natural and built assets

Compound (Units in ug/L)	NYSDEC TOGS (1.1.1) SGV (ug/L)	Sample ID: Sample Date: Zone:	IW-22 12/28/18 Shallow	MW-15 12/26/18 Shallow	MW-17 12/27/18 Shallow	MW-13 12/26/18 Shallow	MW-14 12/26/18 Shallow	IW-3 12/26/18 Shallow	MW-32 12/26/18 Shallow	MW-7 12/27/18 Shallow	MW-7 6/26/19 Shallow	MW-11 12/27/18 Shallow	MW-28M 12/27/18 Shallow	MW-28M 3/28/19 Shallow
Chloromethane	-		<5 J	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Bromomethane	5		<5 J	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5 J	<5
Vinyl Chloride	2		**270**	<1	<1	**210**	**12**	**9.7**	**0.24 J**	**2.2**	**5**	<1	**0.5 J**	**0.44 J**
Chloroethane	5		**5.4**	<5	<5	<50	**0.54 J**	**1.9 J**	<5	<5	<5	<5	<5	<5
Methylene Chloride	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	50		**11**	<10	<10	<100	**5.3 J**	**6.9 J**	<10	**11**	<10	**12**	**11**	<10
Carbon Disulfide	60		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	5		**8.5**	<5	<5	**9.6 J**	**1.3 J**	**1.1 J**	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	5		**2.5 J**	<5	<5	**2.6 J**	**2.3 J**	**1.2 J**	<5	<5	<5	**0.67 J**	<5	<5
cis-1,2-Dichloroethene	5		**90**	<5	<5	**16000 D**	**3 J**	**7.6**	**0.68 J**	**2.9 J**	**12**	<5	**1.8 J**	**1.3 J**
Chloroform	7		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	0.6		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Ethyl Ketone	50		<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	1		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	0.4		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5		<5	<5	<5	**3.7 J**	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane	50		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	1		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	1		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	0.4		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Isobutyl Ketone	-		<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	**0.57 J**	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	5		**1.5 J**	<5	<5	<50	**0.48 J**	**3 J**	**5.1**	**1.3 J**	**260**	**0.68 J**	<5	<5
Chlorobenzene	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	5		**0.85 J**	<5	<5	<50	<5	**0.34 J**	<5	**0.38 J**	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes, Total	5		**3 J**	<5	<5	**8.5 J**	<5	**2.3 J**	<5	**1.9 J**	<5	<5	<5	<5

See footnotes on last page.

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-28M 6/27/19 Shallow	MW-28M 9/25/19 Shallow	MW-3 12/26/18 Shallow	MW-29 12/27/18 Shallow	MW-4 12/26/18 Shallow	MW-4 3/28/19 Shallow	MW-4 6/26/19 Shallow	MW-4 9/25/19 Shallow	MW-31 12/27/18 Shallow	MW-31 3/28/19 Shallow	MW-31 6/26/19 Shallow	MW-31 9/25/19 Shallow
Chloromethane	-		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5 J	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	2		<1	**0.27 J**	<1	**160**	**54**	**20**	**7.1**	**0.19 J**	**83**	**83**	**6.4**	**1.6**
Chloroethane	5		<5	<5	<5	**2 J**	**8.6**	**16**	**8.5**	<5	**5.4**	**6.4**	**5.1**	**1.9 J**
Methylene Chloride	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	50		<10	<10	**12**	**10**	**13**	<10	<10	<10	**9.8 J**	<10	<10	<10
Carbon Disulfide	60		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	**0.42 J**	<5	<5 J	<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	**1.5 J**	**8**	**7.3**	**3.4 J**	**0.52 J**	**5.4**	**5.5**	**2.5 J**	**1.5 J**
trans-1,2-Dichloroethene	5		<5	<5	<5	**0.71 J**	**2.5 J**	**2.3 J**	**1.6 J**	<5	**4.3 J**	**3.4 J**	**1.2 J**	**1.1 J**
cis-1,2-Dichloroethene	5		**1.3 J**	**1.4 J**	<5	**210**	**360**	**240**	**70**	**24**	**66**	**74**	**11**	**1.7 J**
Chloroform	7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	0.6		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Ethyl Ketone	50		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Isobutyl Ketone	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	**0.52 J**	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes, Total	5		<5	<5	<5	<5	**1.1 J**	**0.35 J**	<5	<5	**1.1 J**	**2 J**	<5	<5

See footnotes on last page.

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 12/28/18 Intermediate	IW-18 12/27/18 Intermediate	IW-18 3/28/19 Intermediate	IW-18 6/27/19 Intermediate	IW-18 9/26/19 Intermediate	IW-8 12/26/18 Intermediate	MW-13D 12/26/18 Intermediate	IW-9 12/26/18 Intermediate	MW-23 12/27/18 Intermediate	MW-23 3/28/19 Intermediate	MW-23 6/27/19 Intermediate	MW-23 9/26/19 Intermediate
Chloromethane	-		<5 J	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Bromomethane	5		<5 J	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	2		**2.2**	**4100**	**4800**	**4200**	**2700**	**0.19 J**	**2.6**	**14**	**0.56 J**	**0.75 J**	**0.4 J**	**0.73 J**
Chloroethane	5		**1.6 J**	<2500	<5000	<5000	<5000	<5	**1.3 J**	**1.7 J**	<5	<5	<5	<5
Methylene Chloride	5		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Acetone	50		**13**	<5000	<10000	<10000	<10000	**7.3 J**	<10	**11**	<10	<10	<10	<10
Carbon Disulfide	60		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	**490 J**	**380 J**	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	5		**2.6 J**	**730 J**	**680 J**	**690 J**	**640 J**	<5	<5	**0.58 J**	<5	<5	<5	<5
trans-1,2-Dichloroethene	5		**1.4 J**	<2500	<5000	<5000	<5000	<5	**7.4**	**14**	**0.29 J**	**0.73 J**	**0.52 J**	**0.82 J**
cis-1,2-Dichloroethene	5		**1.8 J**	**340000 D**	**330000**	**350000**	**270000**	**0.45 J**	**2.5 J**	**120**	**0.78 J**	**1.5 J**	**0.9 J**	**1.3 J**
Chloroform	7		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	0.6		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Methyl Ethyl Ketone	50		<10	**26000**	<10000	<10000	<10000	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	**1300 J**	**1500 J**	**1900 J**	**900 J**	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	5		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	1		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	0.4		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5		**0.69 J**	**6000**	**6600**	**8200**	**7000**	<5	<5	**2.6 J**	<5	<5	<5	<5
Dibromochloromethane	50		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	1		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Benzene	1		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	0.4		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Bromoform	50		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Methyl Isobutyl Ketone	-		<10	<5000	<10000	<10000	<10000	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	50		<10	<5000	<10000	<10000	<10000	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	**46000**	**63000**	**64000**	**47000**	<5	<5	**4.6 J**	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Toluene	5		**0.52 J**	<2500	<5000	<5000	<5000	<5	<5	**1.3 J**	<5	<5	<5	<5
Chlorobenzene	5		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	5		**0.57 J**	<2500	<5000	<5000	<5000	<5	<5	**1.5 J**	<5	<5	<5	<5
Styrene	5		<5	<2500	<5000	<5000	<5000	<5	<5	<5	<5	<5	<5	<5
Xylenes, Total	5		**3.1 J**	**570 J**	<5000	<5000	<5000	<5	<5	**11**	<5	<5	<5	<5

See footnotes on last page.

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-30 12/27/18 Intermediate	MW-16D 12/27/18 Intermediate	MW-34 12/26/18 Intermediate	MW-34 3/28/19 Intermediate	MW-34 6/27/19 Intermediate	MW-34 9/25/19 Intermediate	MW-35 12/26/18 Intermediate	MW-35 3/28/19 Intermediate	MW-35 6/27/19 Intermediate	MW-35 9/25/19 Intermediate	MW-37 12/27/18 Intermediate	MW-37 3/28/19 Intermediate
Chloromethane	-		<5	<5	<5	<5 J	<5	<5	<5	<5	<5	<5	<5	<5 J
Bromomethane	5		<5 J	<5 J	<5	<5 J	<5	<5	<5	<5	<5	<5	<5 J	<5 J
Vinyl Chloride	2		<1	<1	**0.26 J**	**0.46 J**	**0.49 J**	**0.42 J**	**180**	**97**	**40**	**83**	**2.9**	**2.2**
Chloroethane	5		<5	<5	**1.6 J**	**1.4 J**	**0.73 J**	**0.6 J**	**16**	**11**	**9.7**	**16**	<5	**0.64 J**
Methylene Chloride	5		<5	<5	<5	<5	<5	<5	**0.32 J**	<5	<5	<5	<5	<5
Acetone	50		<10	**8.2 J**	**12**	<10	<10	<10	<10	<10	<10	<10	**9.1 J**	<10
Carbon Disulfide	60		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	**0.44 J**	<5	**0.26 J**	**15**	**18**	**16**	**15**	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	**4.8 J**	**4.7 J**	**5**	**1.9 J**	**26**	**19**	**14**	**16**	**2.5 J**	**1.6 J**
cis-1,2-Dichloroethene	5		**0.3 J**	**0.36 J**	**0.54 J**	**0.63 J**	**0.68 J**	**0.46 J**	**450**	**140**	**79**	**110**	**4 J**	**2.8 J**
Chloroform	7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	0.6		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Ethyl Ketone	50		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**0.71 J**	**0.82 J**
Dibromochloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	1		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Isobutyl Ketone	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5	<5	**0.84 J**	**0.79 J**	**0.41 J**	**0.83 J**	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes, Total	5		<5	<5	<5	<5	<5	<5	**2.5 J**	**3.5 J**	**2.7 J**	<5 B	<5	<5

See footnotes on last page.

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-37 6/26/19 Intermediate	MW-37 9/25/19 Intermediate	ERM-MW-02 12/27/18 Intermediate	ERM-MW-02 3/28/19 Intermediate	MW-18D 12/26/18 Deep	MW-18D 6/26/19 Deep	FDW 12/26/18 Deep	MW-36* 12/27/18 Deep				
Chloromethane	-		<5	<5	<5	<5 J	<5	<5	<5	<5				
Bromomethane	5		<5	<5	<5 J	<5 J	<5	<5	<5	<5 J				
Vinyl Chloride	2		**37**	**0.75 J**	**4.1**	**1.5**	**3.3**	**0.72 J**	**0.48 J**	<1				
Chloroethane	5		<5	**0.78 J**	**0.44 J**	**0.73 J**	**3.6 J**	<5	<5	<5				
Methylene Chloride	5		<5	<5	<5	<5	<5	<5	<5	<5				
Acetone	50		<10	<10	**9.2 J**	<10	**12**	<10	**6.4 J**	**5.8 J**				
Carbon Disulfide	60		<5	<5	<5	<5	<5	<5	<5	<5				
1,1-Dichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5				
1,1-Dichloroethane	5		<5	<5	<5	<5	**2.5 J**	**2.5 J**	<5	<5				
trans-1,2-Dichloroethene	5		**4.3 J**	**1 J**	**1.1 J**	**0.87 J**	**0.87 J**	**0.96 J**	<5	<5				
cis-1,2-Dichloroethene	5		**58**	**0.89 J**	**6.6**	**1.5 J**	**12**	**4 J**	**1.5 J**	<5				
Chloroform	7		<5	<5	<5	<5	<5	<5	<5	<5				
1,2-Dichloroethane	0.6		<5	<5	<5	<5	<5	<5	<5	<5				
Methyl Ethyl Ketone	50		<10	<10	<10	<10	<10	<10	<10	<10				
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5				
Carbon Tetrachloride	5		<5	<5	<5	<5	<5	<5	<5	<5				
Bromodichloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5				
1,2-Dichloropropane	1		<5	<5	<5	<5	<5	<5	<5	<5				
cis-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5				
Trichloroethene	5		**0.67 J**	<5	**7.9**	**1.8 J**	**0.84 J**	**0.52 J**	**4.5 J**	<5				
Dibromochloromethane	50		<5	<5	<5	<5	<5	<5	<5	<5				
1,1,2-Trichloroethane	1		<5	<5	<5	<5	<5	<5	<5	<5				
Benzene	1		<5	<5	<5	<5	<5	<5	<5	<5				
trans-1,3-Dichloropropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5				
Bromoform	50		<5	<5	<5	<5	<5	<5	<5	<5				
Methyl Isobutyl Ketone	-		<10	<10	<10	<10	<10	<10	<10	<10				
2-Hexanone	50		<10	<10	<10	<10	<10	<10	<10	<10				
Tetrachloroethene	5		<5	<5	<5	<5	**0.48 J**	<5	**6.8**	<5				
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5				
Toluene	5		<5	<5	**0.44 J**	<5	<5	<5	<5	<5				
Chlorobenzene	5		<5	<5	<5	<5	<5	<5	<5	<5				
Ethylbenzene	5		<5	<5	<5	<5	<5	<5	<5	<5				
Styrene	5		<5	<5	<5	<5	<5	<5	<5	<5				
Xylenes, Total	5		<5	<5	<5	<5	<5	<5	<5	<5				

See footnotes on last page.

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

ug/L	Micrograms per liter.
B	Non-detect due to associated blank contamination.
D	Detected at secondary dilution.
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.

Note: This table includes the current sampling event data and the previous sampling event data.

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

Parameters		Sample ID: Sample Date: Zone:	IW-22 12/28/18 Shallow	IW-17 12/28/18 Shallow	IW-17 3/28/19 Shallow	IW-17 6/27/19 Shallow	IW-17 9/26/19 Shallow	IW-1 12/27/18 Shallow	MW-13 12/26/18 Shallow	IW-6 12/27/18 Shallow	IW-6 3/28/19 Shallow	IW-6 6/27/19 Shallow
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		24.1	158	103	82.2	72.9	46	227	168	59.7	46.4
VOCs												
Tetrachloroethene	ug/L		<5	--	--	--	--	--	<50	--	--	--
Trichloroethene	ug/L		<5	--	--	--	--	--	3.7 J	--	--	--
cis-1,2-Dichloroethene	ug/L		90	--	--	--	--	--	16000 D	--	--	--
Vinyl Chloride	ug/L		270	--	--	--	--	--	210	--	--	--
LIGHT HYDROCARBONS												
Ethane	ug/L		--	--	--	--	--	--	--	--	--	--
Ethene	ug/L		--	--	--	--	--	--	--	--	--	--
Methane	ug/L		--	--	--	--	--	--	--	--	--	--
FIELD PARAMETERS												
pH	Standard Units		6.36	5.78	6.38	6.40	7.48	6.53	6.14	6.28	5.80	5.89

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	IW-6 9/26/19 Shallow	MW-7 12/27/18 Shallow	MW-7 6/26/19 Shallow	MW-28M 12/27/18 Shallow	MW-28M 3/28/19 Shallow	MW-28M 6/27/19 Shallow	MW-28M 9/25/19 Shallow	MW-31 12/27/18 Shallow	MW-31 3/28/19 Shallow	MW-31 6/26/19 Shallow
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		40.7 J	37.2	32.4	13.1	18.3	4.5	15.1	16.3	18.6	4.9
VOCs												
Tetrachloroethene	ug/L		--	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	ug/L		--	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	ug/L		--	2.9 J	12	1.8 J	1.3 J	1.3 J	1.4 J	66	74	11
Vinyl Chloride	ug/L		--	2.2	5	0.5 J	0.44 J	<1	0.27 J	83	83	6.4
LIGHT HYDROCARBONS												
Ethane	ug/L		--	--	1.4	2.1	1.1	0.24	0.29	330	300	160
Ethene	ug/L		--	--	1	0.47	0.062 J	0.088 J	0.066 J	120	98	1.9
Methane	ug/L		--	--	13000	8300	10000	7800	10000	17000	18000	7900
FIELD PARAMETERS												
pH	Standard Units		6.71	6.46	6.07	6.48	6.25	5.74	5.87	6.56	6.40	6.27

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	MW-31 9/25/19 Shallow	MW-4 3/28/19 Shallow	MW-4 6/26/19 Shallow	MW-4 9/25/19 Shallow						
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		3	1.5	1.6	1.5						
VOCs												
Tetrachloroethene	ug/L		<5	<5	<5	<5						
Trichloroethene	ug/L		<5	<5	<5	<5						
cis-1,2-Dichloroethene	ug/L		1.7 J	240	70	24						
Vinyl Chloride	ug/L		1.6	20	7.1	0.19 J						
LIGHT HYDROCARBONS												
Ethane	ug/L		190	210	120	0.37						
Ethene	ug/L		1.9	1.2	0.044 J	<0.20						
Methane	ug/L		6400	2500	1800	12						
FIELD PARAMETERS												
pH	Standard Units		6.39	6.40	6.34	6.21						

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	IW-27 3/28/19 Intermediate	IW-27 6/27/19 Intermediate	IW-27 9/26/19 Intermediate	IW-28 12/27/18 Intermediate	IW-29 12/27/18 Intermediate	IW-23 12/28/18 Intermediate	IW-18 12/27/18 Intermediate	IW-18 3/28/19 Intermediate	IW-18 6/27/19 Intermediate	IW-18 9/26/19 Intermediate
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		202	118	40.7 J	314	1650	7.3	602	928	970	895
VOCs												
Tetrachloroethene	ug/L		--	--	--	--	--	<5	46000	63000	64000	47000
Trichloroethene	ug/L		--	--	--	--	--	0.69 J	6000	6600	8200	7000
cis-1,2-Dichloroethene	ug/L		--	--	--	--	--	1.8 J	340000 D	330000	350000	270000
Vinyl Chloride	ug/L		--	--	--	--	--	2.2	4100	4800	4200	2700
LIGHT HYDROCARBONS												
Ethane	ug/L		--	--	--	--	--	--	210	--	--	--
Ethene	ug/L		--	--	--	--	--	--	1000	--	--	--
Methane	ug/L		--	--	--	--	--	--	25000	--	--	--
FIELD PARAMETERS												
pH	Standard Units		6.52	6.74	7.20	6.29	5.14	6.58	5.42	5.38	5.21	6.05

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	IW-11 3/28/19 Intermediate	IW-11 6/27/19 Intermediate	IW-11 9/26/19 Intermediate	MW-13D 12/26/18 Intermediate	MW-23 12/27/18 Intermediate	MW-23 3/28/19 Intermediate	MW-23 6/27/19 Intermediate	MW-23 9/26/19 Intermediate	MW-16D 12/27/18 Intermediate	MW-34 12/26/18 Intermediate
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		282	172	96.7 J	7	26.4	27.1	5	19.3	<1.6 B	30.5
VOCs												
Tetrachloroethene	ug/L		--	--	--	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	ug/L		--	--	--	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	ug/L		--	--	--	2.5 J	0.78 J	1.5 J	0.9 J	1.3 J	0.36 J	0.54 J
Vinyl Chloride	ug/L		--	--	--	2.6	0.56 J	0.75 J	0.4 J	0.73 J	<1	0.26 J
LIGHT HYDROCARBONS												
Ethane	ug/L		--	--	--	--	12	19	16	18	--	150
Ethene	ug/L		--	--	--	--	1.8	0.068 J	<0.20	0.059 J	--	0.013 J
Methane	ug/L		--	--	--	--	22000	24000	22000	25000	--	27000
FIELD PARAMETERS												
pH	Standard Units		5.60	6.10	6.44	6.54	6.38	6.30	6.19	6.26	6.64	6.69

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	MW-34 3/28/19 Intermediate	MW-34 6/27/19 Intermediate	MW-34 9/25/19 Intermediate	MW-35 12/26/18 Intermediate	MW-35 3/28/19 Intermediate	MW-35 6/27/19 Intermediate	MW-35 9/25/19 Intermediate	MW-37 12/27/18 Intermediate	MW-37 3/28/19 Intermediate	MW-37 6/26/19 Intermediate
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		24.7	18.9	8.1	--	11.3	11	9.2	5.1	6.2	7.1
VOCs												
Tetrachloroethene	ug/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	ug/L		<5	<5	<5	<5	<5	<5	<5	0.71 J	0.82 J	0.67 J
cis-1,2-Dichloroethene	ug/L		0.63 J	0.68 J	0.46 J	450	140	79	110	4 J	2.8 J	58
Vinyl Chloride	ug/L		0.46 J	0.49 J	0.42 J	180	97	40	83	2.9	2.2	37
LIGHT HYDROCARBONS												
Ethane	ug/L		130	87	76	800	1300	1500	1000	43	17	26
Ethene	ug/L		<0.20	0.14 J	0.26	280	720	210	180	2.7	2.2	16
Methane	ug/L		27000	21000	26000	12000	18000	17000	13000	17000	13000	13000
FIELD PARAMETERS												
pH	Standard Units		6.54	6.69	6.55	--	6.51	6.59	6.27	6.58	6.46	6.27

See footnotes on last page.

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

Parameters		Sample ID: Sample Date: Zone:	MW-37 9/25/19 Intermediate	ERM-MW-02 12/27/18 Intermediate	ERM-MW-02 3/28/19 Intermediate							
	UNITS											
CLASSICAL CHEMISTRY ANALYTES												
Total Organic Carbon	mg/L		1.6	6.6	7.4							
VOCs												
Tetrachloroethene	ug/L		<5	<5	<5							
Trichloroethene	ug/L		<5	7.9	1.8 J							
cis-1,2-Dichloroethene	ug/L		0.89 J	6.6	1.5 J							
Vinyl Chloride	ug/L		0.75 J	4.1	1.5							
LIGHT HYDROCARBONS												
Ethane	ug/L		18	26	31							
Ethene	ug/L		1.5	1.4	1.3							
Methane	ug/L		14000	25000	23000							
FIELD PARAMETERS												
pH	Standard Units		6.22	6.51	6.61							

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

Table 4
Water-Level Measurements Collected from Monitoring Wells on March 12 and 13, 2019
25 Melville Park Road Site
Melville, New York

ARCADIS Design & Consultancy for natural and built assets

Well Designation	Elevation of Measuring Point (feet NGVD 29)	Depth to Water (feet bmp)	Water-Level Elevation (feet NGVD 29)
MW-1	119.15	48.76	70.39
MW-2	117.66	47.32	70.34
MW-3	118.06	47.90	70.16
MW-4	117.98	47.84	70.14
MW-5	118.27	48.30	69.97
MW-6	119.24	48.47	70.77
MW-7	117.53	47.28	70.25
MW-9	117.22	46.98	70.24
MW-10	117.68	47.48	70.20
MW-11	118.29	48.11	70.18
MW-13	117.46	47.07	70.39
MW-13D	117.48	47.19	70.29
MW-14	116.13	45.78	70.35
MW-15	116.85	46.48	70.37
MW-16D	117.49	47.60	69.89
MW-18D	118.10	47.99	70.11
MW-19D	117.31	47.30	70.01
MW-20D	117.68	46.95	70.73
MW-29	117.54	47.39	70.15
MW-30	117.67	47.59	70.08
MW-31	117.35	47.29	70.06
MW-32	117.57	47.28	70.29
MW-33	117.60	47.30	70.30
MW-34	118.03	47.98	70.05
MW-35	118.25	48.33	69.92
MW-36	117.39	47.30	70.09
MW-37	117.45	47.34	70.11

NGVD 29 National Geodetic Vertical Datum of 1929.
bmp Below measuring point.
NA Not accessible.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/28/18	51.08	ND	ND	68.50	0.00	0.00	54.42	51.08	ND	85.62	3.34	0.00
1/10/19	NM	NM	NM	NM	NM	NM	53.74	50.54	ND	85.60	3.20	0.00
4/4/19	49.53	ND	ND	68.54	0.00	0.00	51.23	49.64	ND	85.58	1.59	0.00
6/27/19	48.40	ND	ND	70.00	0.00	0.00	51.22	48.36	ND	86.45	2.86	0.00
9/26/19	NM	NM	NM	NM	NM	NM	51.39	49.15	ND	84.48	2.24	0.00
9/27/19	49.21	49.20	ND	68.45	0.01	0.00	NM	NM	NM	NM	NM	NM

See footnotes on last page.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/28/18	NM	NM	NM	NM	NM	NM	51.56	ND	ND	98.61	0.00	0.00
4/4/19	NM	NM	NM	NM	NM	NM	49.73	ND	ND	98.55	0.00	0.00
6/26/19	NM	NM	NM	NM	NM	NM	48.41	ND	ND	99.69	0.00	0.00
9/27/19	NM	NM	NM	NM	NM	NM	49.02	ND	ND	98.45	0.00	0.00

See footnotes on last page.

Table 5
Fluid-Level Gauging Measurements in Monitoring Wells
25 Melville Park Road Site
Melville, New York

ARCADIS Design & Consultancy for natural and built assets

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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/28/18	50.78	ND	ND	66.88	0.00	0.00	50.82	ND	ND	68.59	0.00	0.00
4/4/19	49.16	ND	ND	66.88	0.00	0.00	49.24	ND	ND	68.67	0.00	0.00
6/26/19	48.00	ND	ND	67.41	0.00	0.00	NM	NM	NM	NM	NM	NM
6/28/19	NM	NM	NM	NM	NM	NM	48.11	ND	ND	68.70	0.00	0.00
9/27/19	48.81	48.80	ND	66.82	0.01	0.00	48.90	ND	ND	68.64	0.00	0.00

See footnotes on last page.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/28/18	50.58	ND	ND	99.65	0.00	0.00	50.94	ND	NM	NM	0.00	NM
4/4/19	49.00	ND	ND	99.60	0.00	0.00	49.34	ND	NM	NM	0.00	NM
6/26/19	47.88	ND	ND	100.82	0.00	0.00	48.25	ND	NM	NM	0.00	NM
9/27/19	48.69	48.68	ND	100.06	0.01	0.00	49.02	ND	NM	NM	0.00	NM

See footnotes on last page.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/26/18	NM	NM	NM	NM	NM	NM	48.54	ND	ND	88.86	0.00	0.00
12/28/18	50.40	ND	ND	58.73	0.00	0.00	NM	NM	NM	NM	NM	NM
4/4/19	48.85	ND	ND	58.70	0.00	0.00	46.78	ND	ND	88.89	0.00	0.00
6/26/19	47.71	ND	ND	59.43	0.00	0.00	NM	NM	NM	NM	NM	NM
6/28/19	NM	NM	NM	NM	NM	NM	45.73	ND	ND	89.90	0.00	0.00
9/26/19	NM	NM	NM	NM	NM	NM	46.46	46.42	ND	88.90	0.04	0.00
9/27/19	48.53	ND	ND	58.68	0.00	0.00	NM	NM	NM	NM	NM	NM

See footnotes on last page.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/26/18	48.62	ND	ND	57.98	0.00	0.00	48.70	ND	ND	60.15	0.00	0.00
4/4/19	47.05	ND	ND	57.90	0.00	0.00	46.78	ND	ND	60.13	0.00	0.00
6/28/19	45.99	ND	ND	58.31	0.00	0.00	45.65	ND	ND	60.66	0.00	0.00
9/26/19	46.65	ND	ND	58.24	0.00	0.00	NM	NM	NM	NM	NM	NM
9/27/19	NM	NM	NM	NM	NM	NM	46.41	46.40	ND	60.10	0.01	0.00

See footnotes on last page.

Table 5
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 (ft)	DNAPL Thickness (ft)	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	Depth to DNAPL (ft btoc)	Total Depth (ft btoc)	LNAPL Thickness (ft)	DNAPL Thickness (ft)
12/26/18	48.03	ND	ND	54.68	0.00	0.00	NM	NM	NM	NM	NM	NM
12/28/18	NM	NM	NM	NM	NM	NM	53.71	ND	ND	99.68	0.00	0.00
4/4/19	46.45	ND	ND	54.63	0.00	0.00	52.07	ND	ND	90.78	0.00	0.00
6/26/19	45.30	ND	ND	55.40	0.00	0.00	50.63	ND	ND	AM	0.00	0.00
9/27/19	46.10	ND	ND	54.62	0.00	0.00	53.64	53.63	ND	96.79	0.01	0.00

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

Table 6
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: Sample Date: Sample Type:	SS-5A 3/2/2019 Sub-Slab	SW Office Space 3/2/2019 Indoor Air	SE SS-A 3/2/2019 Sub-Slab	SE Office Space 3/2/2019 Indoor Air	DUP030219 3/2/2019 Indoor Air
Vinyl chloride		<0.46	<0.047	<0.41	<0.044	<0.041
cis-1,2-Dichloroethene		<0.71	<0.14	<0.64	<0.14	<0.13
Trichloroethene		**0.16 J**	**0.79**	**8.8**	**0.093 J**	**0.067 J**
1,1-Dichloroethene		<0.71	<0.072	<0.64	<0.068	<0.064
trans-1,2-Dichloroethene		<3.5	<0.72	<3.2	<0.68	<0.64
1,1,1-Trichloroethane		**6.1**	<0.20	**3.5**	<0.19	<0.18
Tetrachloroethene		**73**	**0.30**	**240**	**0.23**	**0.16 J**
1,1-Dichloroethane		<0.72	<0.15	**0.36 J**	<0.14	<0.13
2-Butanone (Methyl Ethyl Ketone)		**1.3 J**	**1.2 J**	**0.50 J**	**1.5 J**	**0.76 J**

ug/m^3 Micrograms per cubic meter.
J Estimated value.
Bold Indicates detection above laboratory Method Detection Limit.

Table 7
Summary of Vapor Control System Operating Data
25 Melville Park Road Site
Melville, New York

Date	Time	VCS-1 Extraction Well Parameters						VCS-2 Extraction Well Parameters					
		Wellhead Vacuum (in. W.C.)	Wellhead Temperature (°F)	Wellhead Relative Humidity (%)	Air Velocity (fpm)	Air Flow Rate (cfm)	PID Measured Concentration (ppmv)	Wellhead Vacuum (in. W.C.)	Wellhead Temperature (°F)	Wellhead Relative Humidity (%)	Air Velocity (fpm)	Air Flow Rate (cfm)	PID Measured Concentration (ppmv)
12/19/2018	1:15 PM	-11.0	52.3	--	1,588	36.4	0.0	-9.5	60.3	--	2,230	51.1	0.0
3/12/2019	12:45 PM	-12.0	56.1	--	1,620	37.1	0.1	-9.5	48.0	--	2,190	50.1	0.1
6/20/2019	9:30 AM	-11.0	64.6	--	1,770	40.5	0.0 [4]	-9.5	65.4	--	2,204	50.5	0.0 [4]
9/19/2019	9:00 AM	-10.0	67.2	--	1,660	38.0	0.0 [5]	-9.5	67.4	--	2,000	45.8	0.0 [5]

Notes and Abbreviations:

°F	degrees Fahrenheit
cfm	cubic feet per minute
fpm	feet per minute
ft	feet
in. Hg	inches of mercury
in. W.C	inches of water column
NYSDEC	New York State Department of Environmental Conservation
OM&M	operation, maintenance, and monitoring
PID	photoionization detector
ppmv	parts per million by volume
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. Pressure measured at new barb installed mid-point of stack effluent.

Table 7
Summary of Vapor Control System Operating Data
25 Melville Park Road Site
Melville, New York

Date	Time	Blower Parameters				Stack Parameters				Induced Vacuum Measurements						Barometric Pressure	
		Influent Vacuum (in. W.C.)	Effluent Vacuum (in. W.C.)	Effluent Temperature (°F)	Effluent Relative Humidity (%)	Discharge Temperature (°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 (+/-)
12/19/2018	1:15 PM	-15.0	4.0 [3]	--	--	--	--	--	--	-0.41	-0.17	-0.12	-0.07	-0.10	-0.01	30.12	(-)
3/12/2019	12:45 PM	-15.0	5.0 [3]	--	--	--	--	--	--	-0.43	-0.17	-0.12	-0.04	-0.10	-0.02	30.20	(+)
6/20/2019	9:30 AM	-15.0	4.0 [3]	--	--	--	--	--	--	-0.45	-0.20	-0.14	-0.08	-0.11	-0.02	29.65	(-)
9/19/2019	9:00 AM	-15.0	4.0 [3]	--	--	--	--	--	--	-0.43	-0.17	-0.12	-0.07	-0.11	-0.03	30.34	(+)

Notes and Abbreviations:

°F	degrees Fahrenheit
cfm	cubic feet per minute
fpm	feet per minute
ft	feet
in. Hg	inches of mercury
in. W.C	inches of water column
NYSDEC	New York State Department of Environmental Conservation
OM&M	operation, maintenance, and monitoring
PID	photoionization detector
ppmv	parts per million by volume
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. Pressure measured at new barb installed mid-point of stack effluent.

Table 8
Summary of NAPL Recovery Efforts
25 Melville Park Road Site
Melville, New York

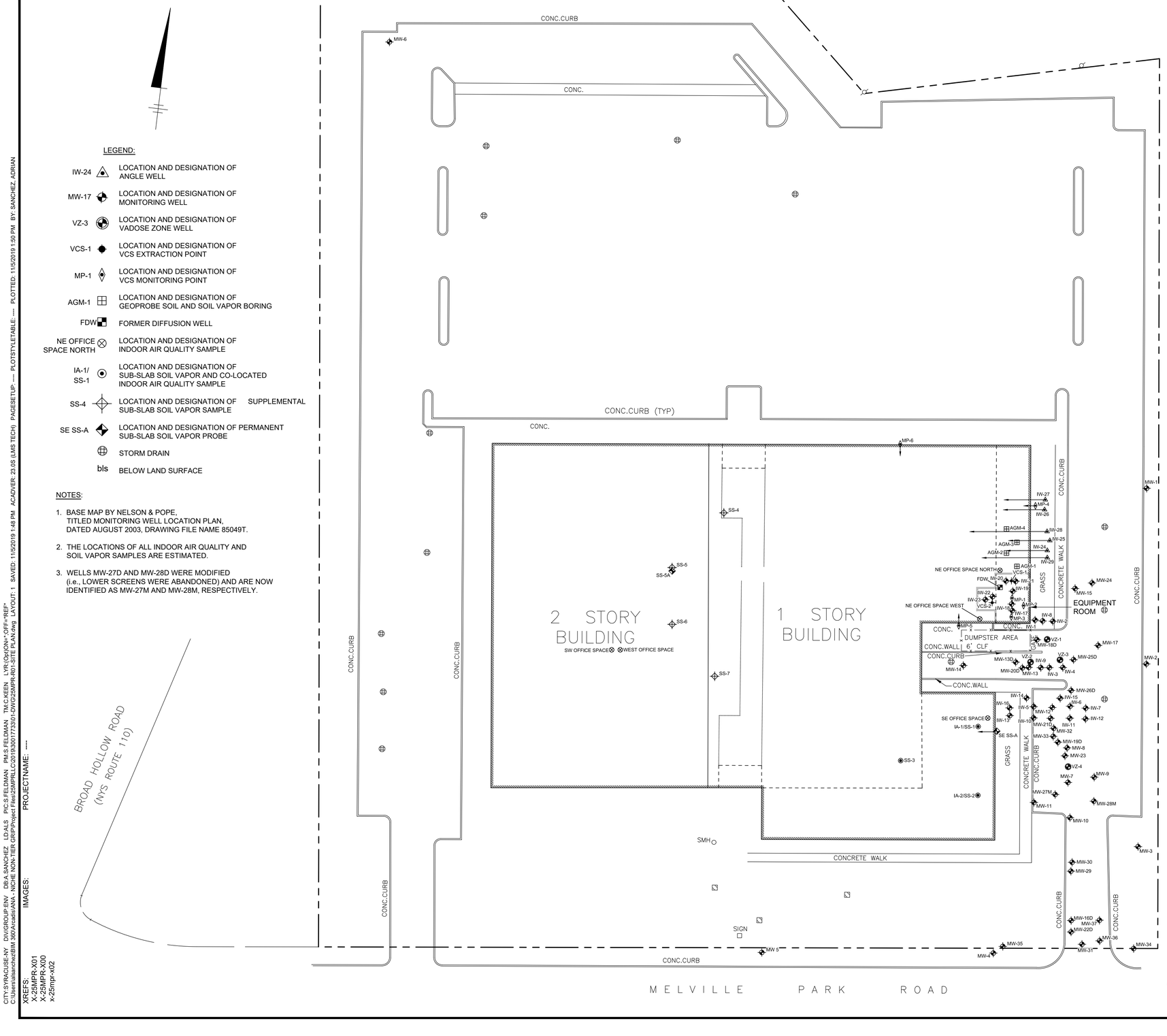
Well ID:	IW-1	IW-3	IW-9	IW-18	IW-19	IW-20	IW-22	IW-25	MW-13	Total Gallons Recovered
NAPL Recovered Between December 2018 and September 2019 (Gallons)	0	0	0.5	7	0	0	0	0	0	7.5

NAPL: Non-Aqueous Phase Liquid.

Notes:

Total Gallons Recovered represents a combination of NAPL and water.

FIGURES



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
IW-28	2	69 to 95	95	Intermediate Zone
IW-29	2	68 to 95	95	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	Abandoned
	4	75 to 90	90	Abandoned
MW-26D	4	35 to 50	85	Abandoned
	4	70 to 85	85	Abandoned
MW-27M [3]	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
MW-28M [3]	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
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
MW-37	2	87.5 to 97.5	97.5	Intermediate Zone

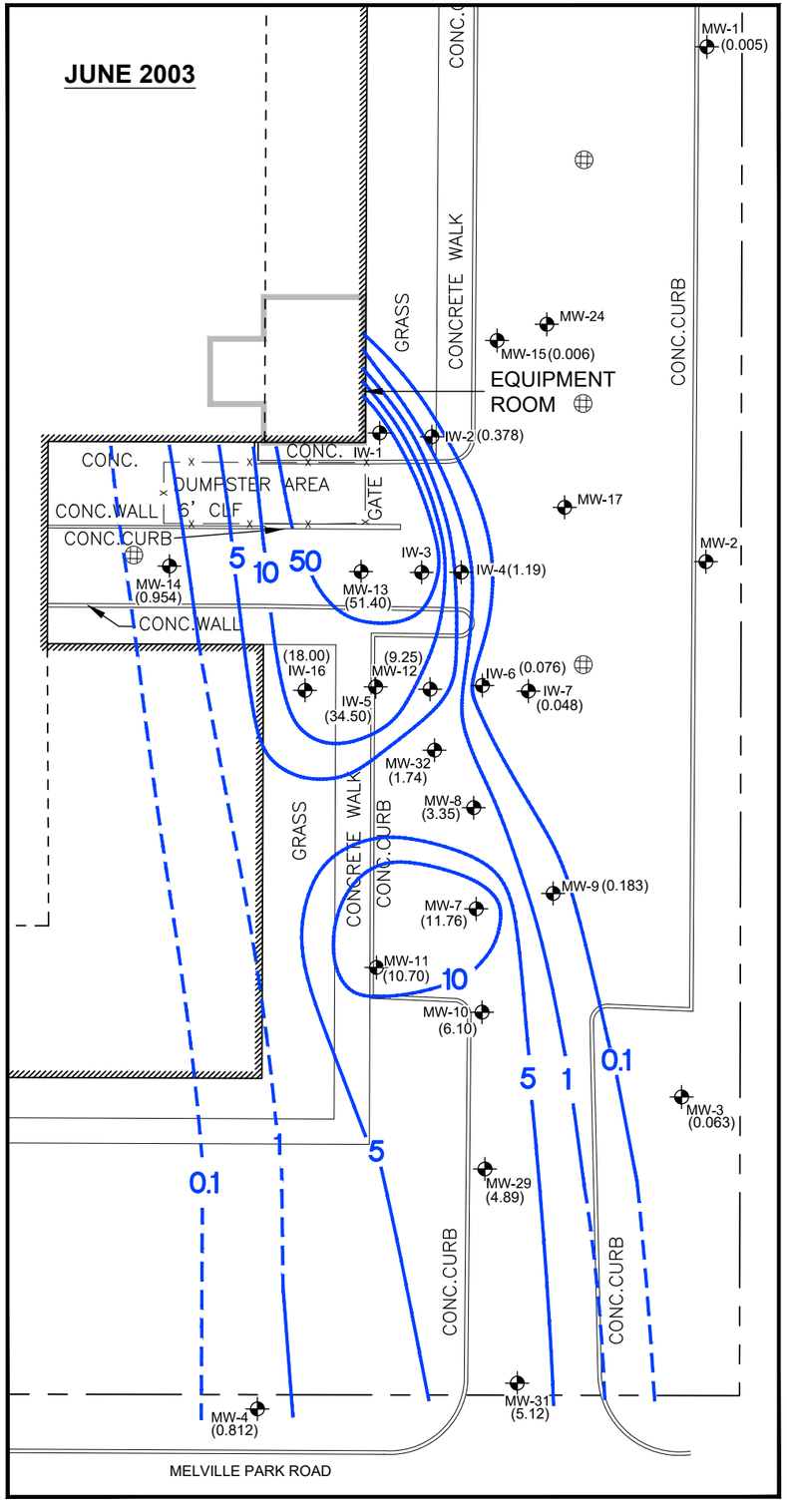
25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

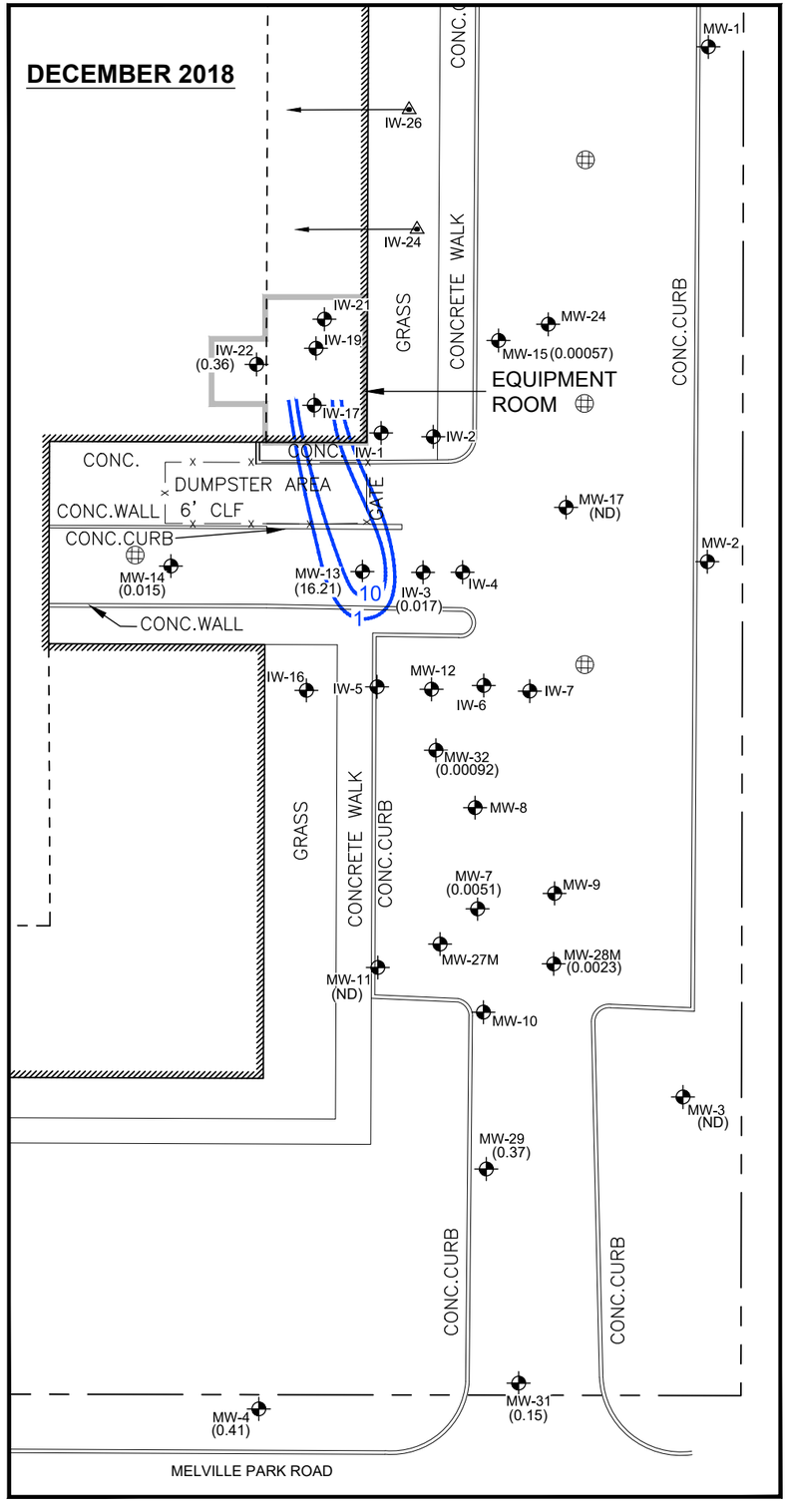
SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:(On)ON=*;OFF=*REF*
C:\Users\alsanchez\BIM 360\Acradis\ANA - NICHE NON-TIER GRIP\Project Files\25MPRLLC\20193001733\01-DWG\25MPR-R01-SITE PLAN.dwg LAYOUT: 1 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/5/2019 1:50 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X01
X-25MPR-X00
x-25mpr-x02
IMAGES:
PROJECTNAME: ----





LEGEND:

MW-7 (0.0051)	LOCATION AND DESIGNATION OF MONITORING WELL AND ASSOCIATED TOTAL CVOC CONCENTRATION (mg/L)
IW-24	LOCATION AND DESIGNATION OF ANGLE WELL
	STORM DRAIN
1	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.
3. WELLS MW-27D AND MW-28D WERE MODIFIED (i.e., LOWER SCREENS WERE ABANDONED) AND ARE NOW IDENTIFIED AS MW-27M AND MW-28M, RESPECTIVELY.

0 30' 60'

SCALE IN FEET

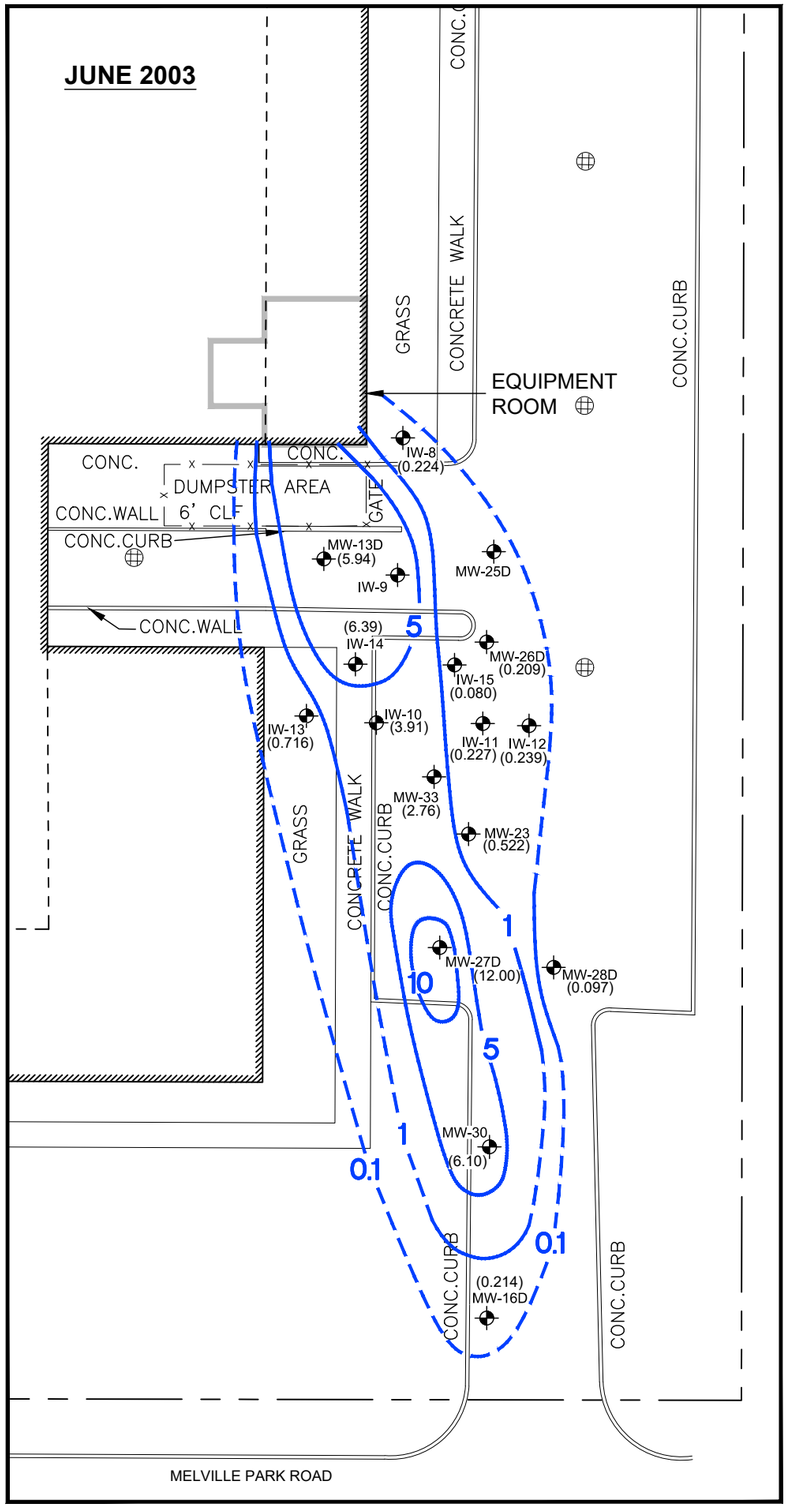
25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

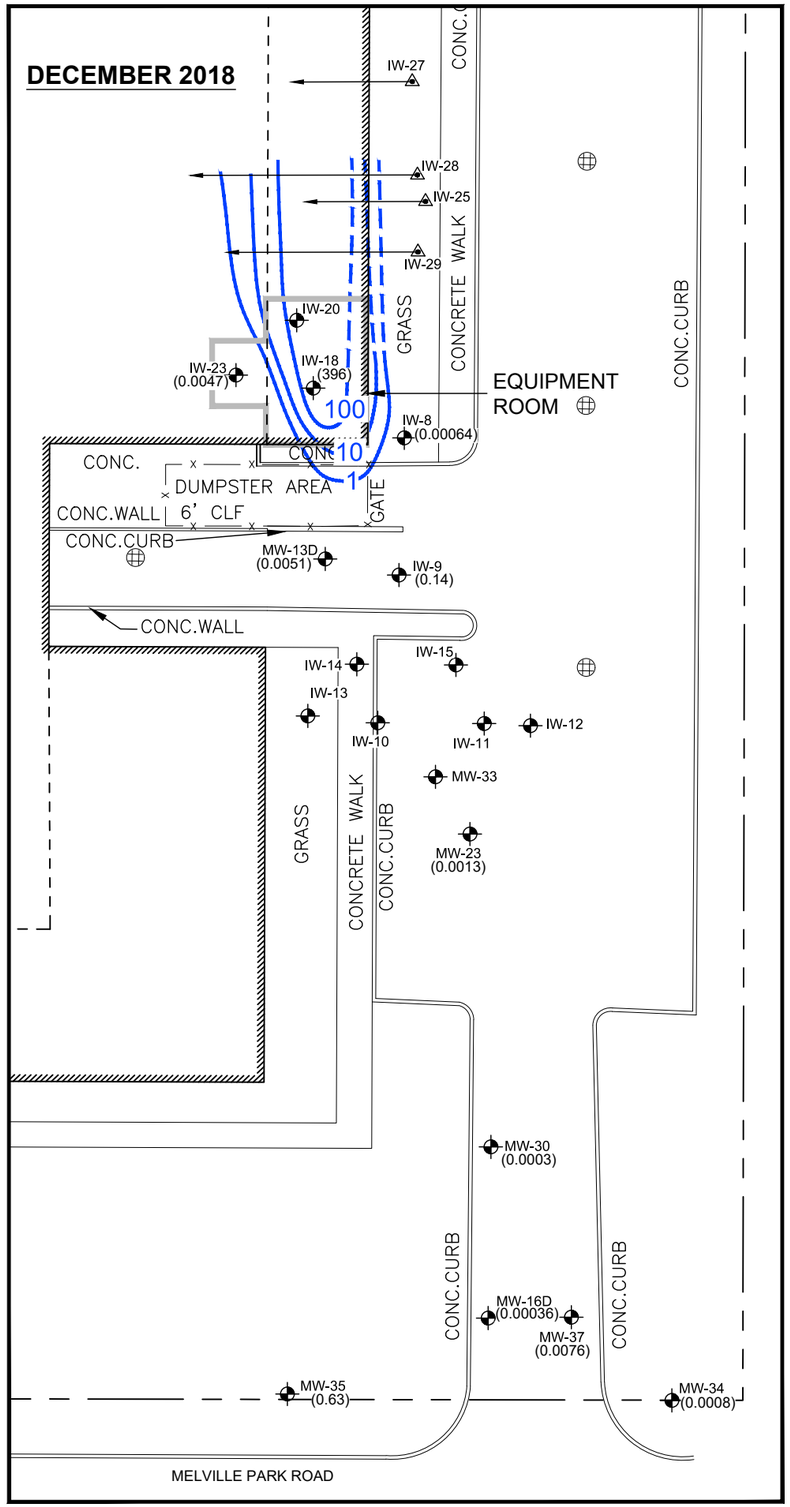
DISTRIBUTION OF TOTAL CVOCs IN THE SHALLOW AQUIFER ZONE (45-70 FT BLS) JUNE 2003 VERSUS DECEMBER 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:(Opt)ON=*;OFF=*REF*
C:\Users\sblanchez\BIM 360\Arcadis\ANA - NICHE NON-TIER GRP\Project Files\25MPRLLC\2019\3001773\01-DWG\25MPR-R02-CVOC_SHALLOW.dwg LAYOUT:2 SAVED: 11/5/2019 1:48 PM
11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-25MPR-X00
X-25MPR-X01





LEGEND:

MW-13D (0.0051)	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. TOTAL CVOCs REFERS TO THE SUM OF PCE, TCE, CIS-1,2-DCE, AND VC.
3. NAPL WAS DETECTED IN WELL IW-18 IN DECEMBER 2018.

0 30' 60'

SCALE IN FEET

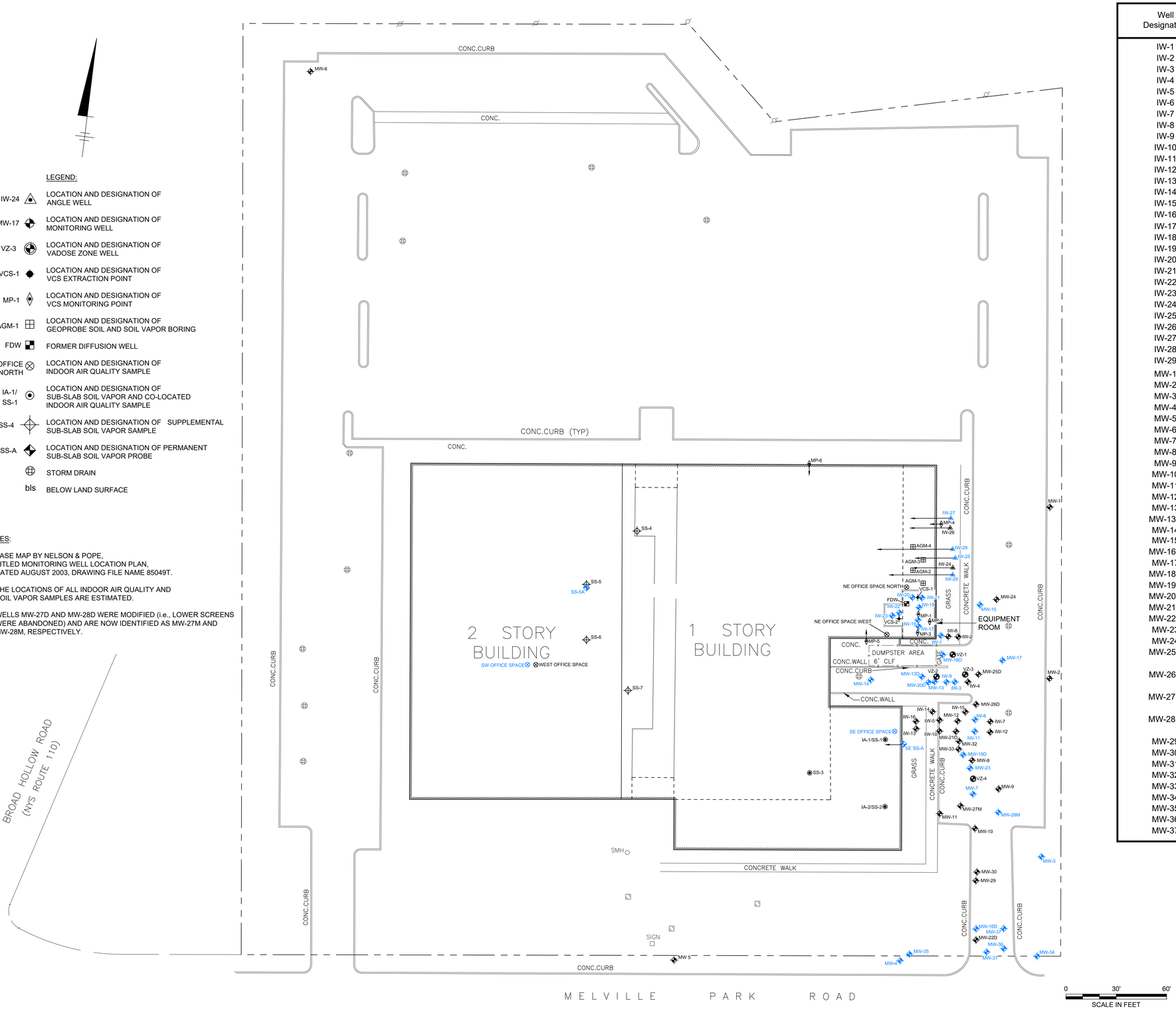
25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

DISTRIBUTION OF TOTAL CVOCs IN THE INTERMEDIATE AQUIFER ZONE (70-100 FT BLS) JUNE 2003 VERSUS DECEMBER 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 3

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:(Opt)ON=*;OFF=*REF*
C:\Users\asanchez\BIM 360\Acad\sANA - NICHE NON-TIER GRP\Project Files\25MPRLLC\2019\300177330\1-DWG\25MPR-R03-CVOC INTERMEDIATE.dwg LAYOUT: 3 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X00
X-25MPR-X01
IMAGES:
PROJECTNAME: ---



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
IW-28	2	69 to 95	95	Intermediate Zone
IW-29	2	68 to 95	95	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	Abandoned
	4	75 to 90	90	Abandoned
MW-26D	4	35 to 50	85	Abandoned
	4	70 to 85	85	Abandoned
MW-27M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
MW-28M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
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
MW-37	2	87.5 to 97.5	97.5	Intermediate Zone

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

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

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

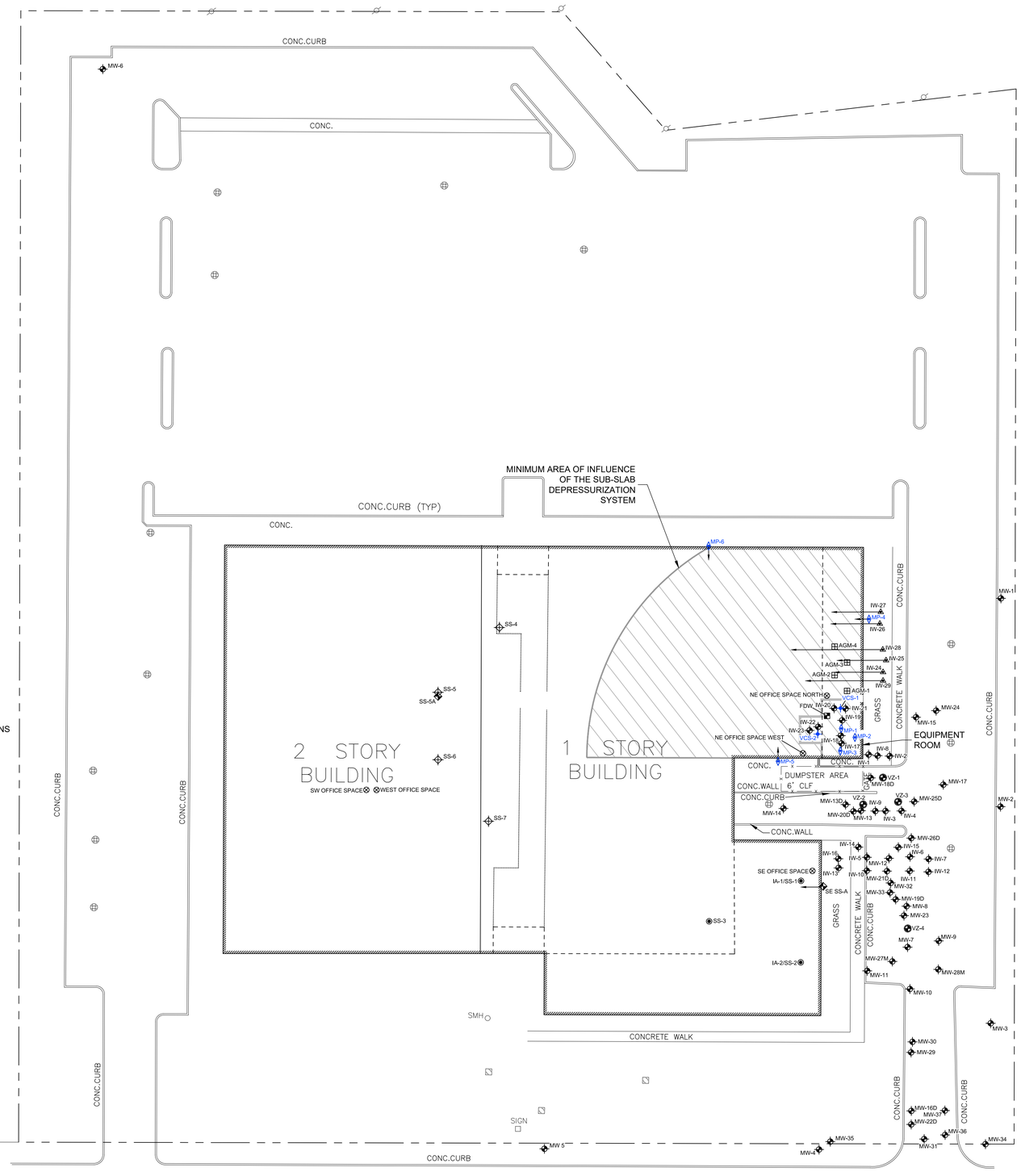
CITY:SYRACUSE-NY DIV/GROUP-ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:{On|Off}=*;OFF=*REF*
C:\Users\alsanchez\BIM 360\Acradia\ANA - NICHE NON-TIER GRIP\Project Files\25MPRLLC\20193001773301-DWG\25MPR-R04-MONITORING.dwg LAYOUT: 4 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP:---- PLOTSTYLETABLE:---- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X01
X-25MPR-X00
IMAGES:
PROJECTNAME: ----

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
- bls — BELOW LAND SURFACE

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. WELLS MW-27D AND MW-28D WERE MODIFIED (i.e., LOWER SCREENS WERE ABANDONED) AND ARE NOW IDENTIFIED AS MW-27M AND MW-28M, RESPECTIVELY.



0 30' 60'
SCALE IN FEET

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
IW-28	2	69 to 95	95	Intermediate Zone
IW-29	2	68 to 95	95	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	Abandoned
	4	75 to 90	90	Abandoned
MW-26D	4	35 to 50	85	Abandoned
	4	70 to 85	85	Abandoned
MW-27M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
MW-28M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
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
MW-37	2	87.5 to 97.5	97.5	Intermediate Zone

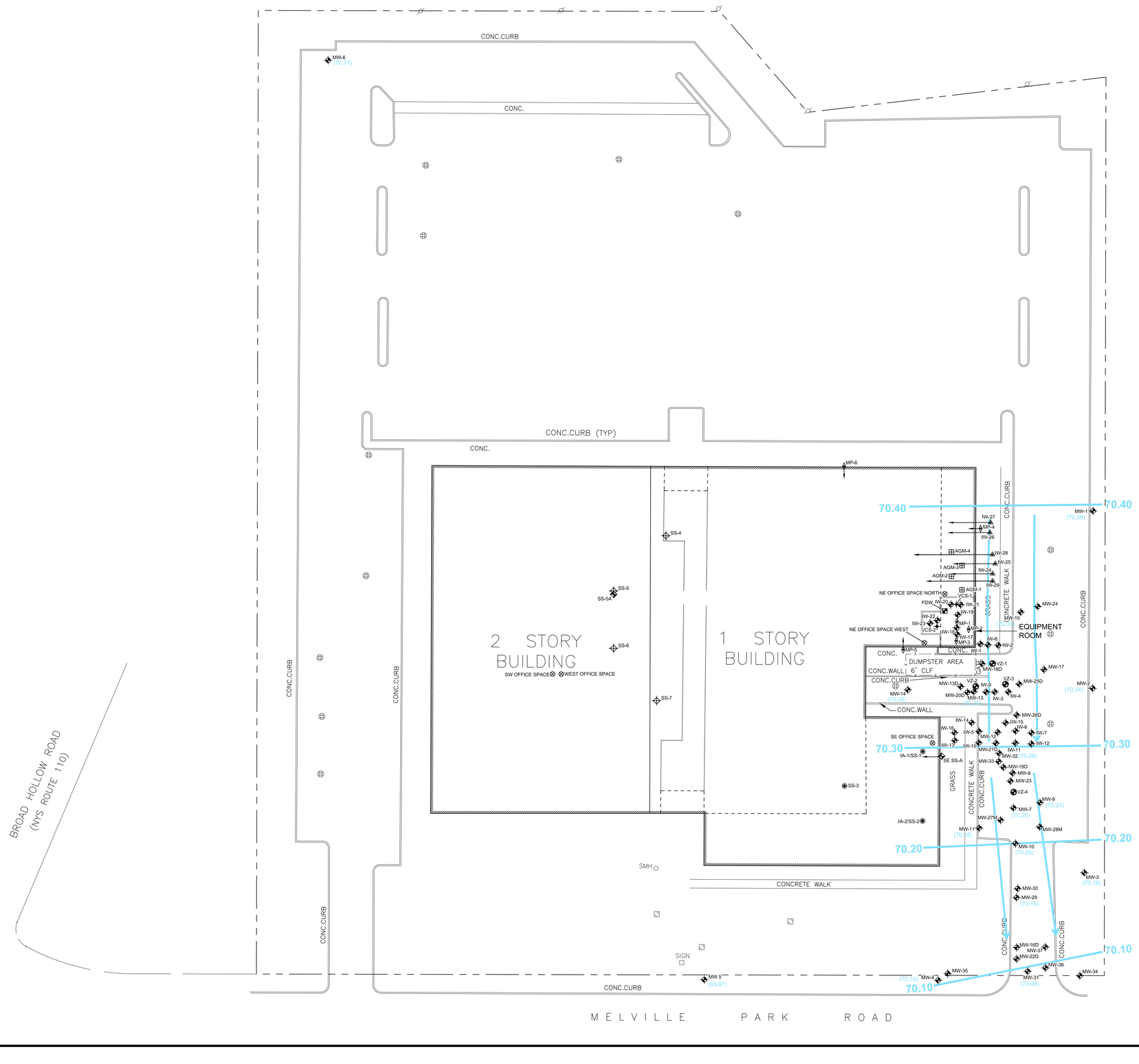
25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

VAPOR RECOVERY WELL AND INDUCED VACUUM MONITORING POINT LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

CITY:SYRACUSE-NY DIV/GROUP-ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:(On);ON=*;OFF=*REF*
C:\Users\ahlanche2\BIM 360\Arcadis\ANA - NICHE NON-TIER GRP\Project Files\25MPRLLC\2019\30017733\01-DWG\25MPR-R05-VR VM.dwg LAYOUT: 5 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X01
X-25MPR-X02
X-25MPR-X00
IMAGES:
PROJECTNAME: ----



LEGEND:

IW-24	LOCATION AND DESIGNATION OF ANGLE WELL
MW-1 (70.39)	LOCATION AND DESIGNATION OF MONITORING WELL AND WATER-LEVEL ELEVATION (FT NGVD 1929)
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
70.40	LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO NGVD 1929 (DASHED WHERE INFERRED)
	DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW

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. WELLS MW-27D AND MW-28D WERE MODIFIED (I.E., LOWER SCREENS WERE ABANDONED) AND ARE NOW IDENTIFIED AS MW-27M AND MW-28M, RESPECTIVELY.
5. CONTOUR INTERVAL IS 0.10 FEET.
6. WATER-LEVEL ELEVATIONS MEASURED ON MARCH 12 AND 13, 2019.

0 30' 60'
SCALE IN FEET

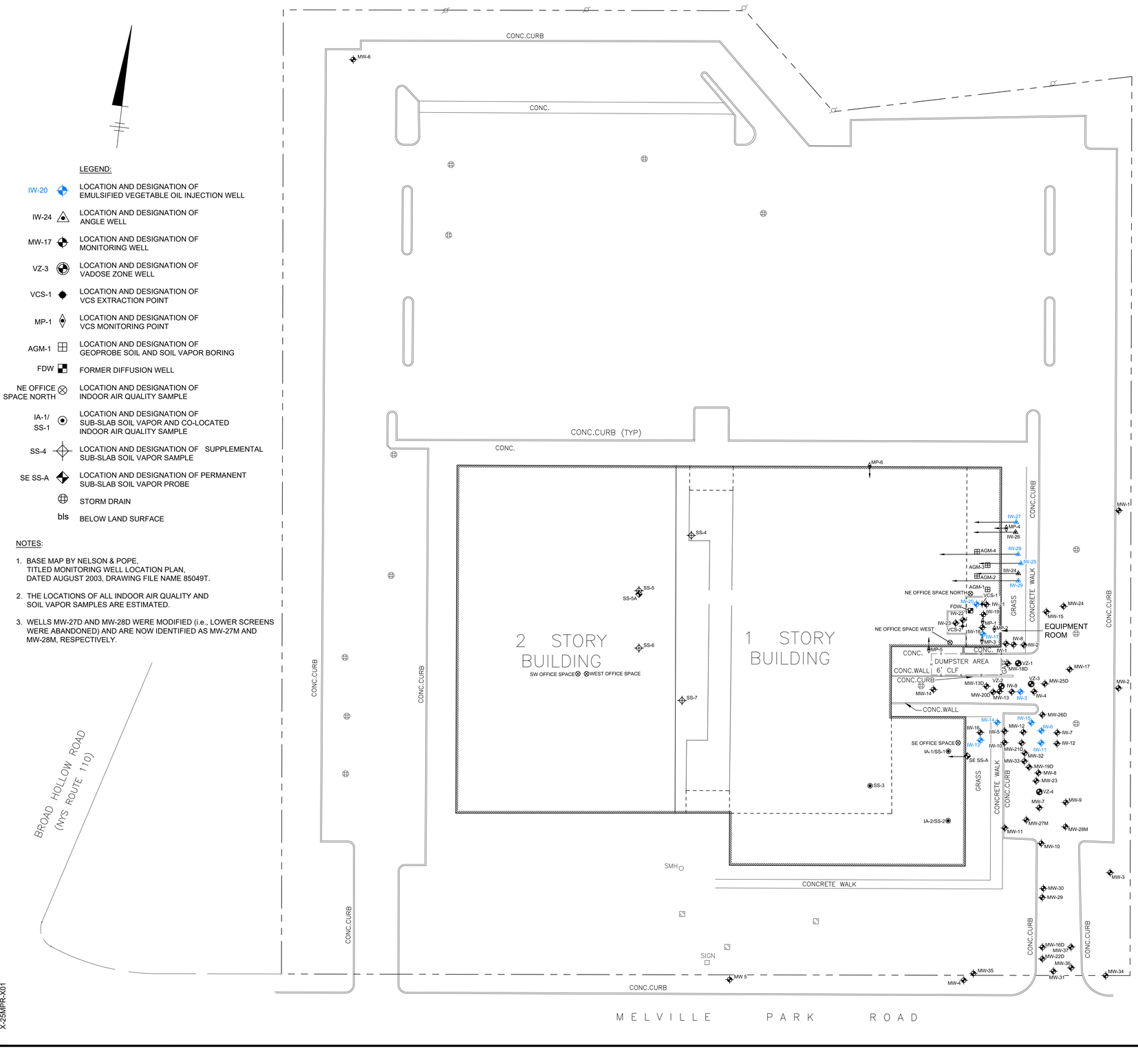
25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

CONFIGURATION OF THE WATER TABLE AND GROUNDWATER FLOW DIRECTION MARCH 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:{On|Off}=*;OFF=*REF*
C:\Users\alsanchez\BIM 360\Acradis\ANA - NICHE NON-TIER GRIP\Project Files\25MPRLLC\2019\3001773\01-DWG\25MPR-R06-GW MAP.dwg LAYOUT: 6 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X01
X-25MPR-X00
IMAGES:
PROJECTNAME: ----



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
IW-28	2	69 to 95	95	Intermediate Zone
IW-29	2	68 to 95	95	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	Abandoned
	4	75 to 90	90	Abandoned
MW-26D	4	35 to 50	85	Abandoned
	4	70 to 85	85	Abandoned
MW-27M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
MW-28M (3)	4	40 to 55	90	Shallow Zone
	4	75 to 90	90	Abandoned
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
MW-37	2	87.5 to 97.5	97.5	Intermediate Zone

25 MELVILLE PARK ROAD
MELVILLE, NEW YORK

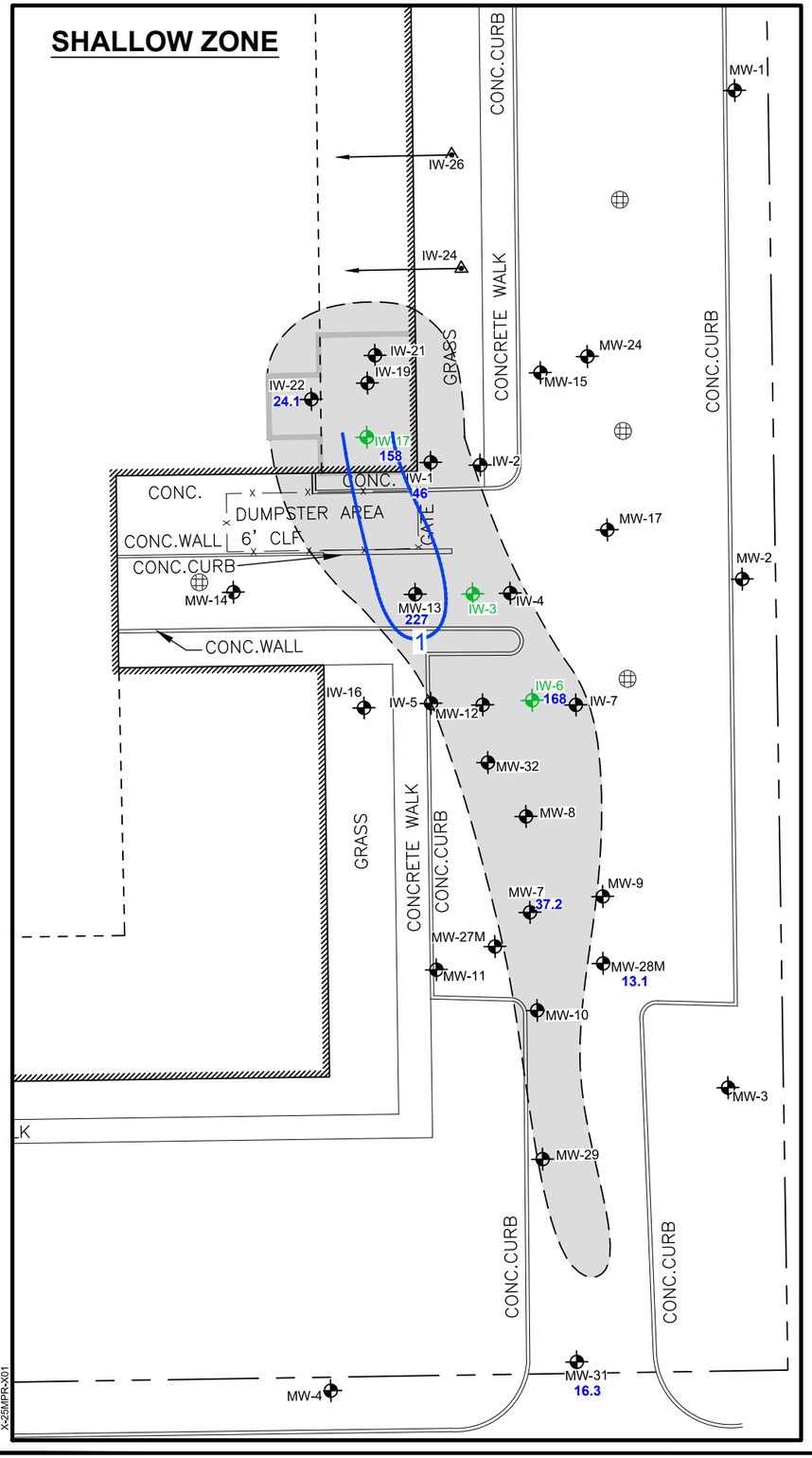
OPTIMIZED ERD INJECTION WELL LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

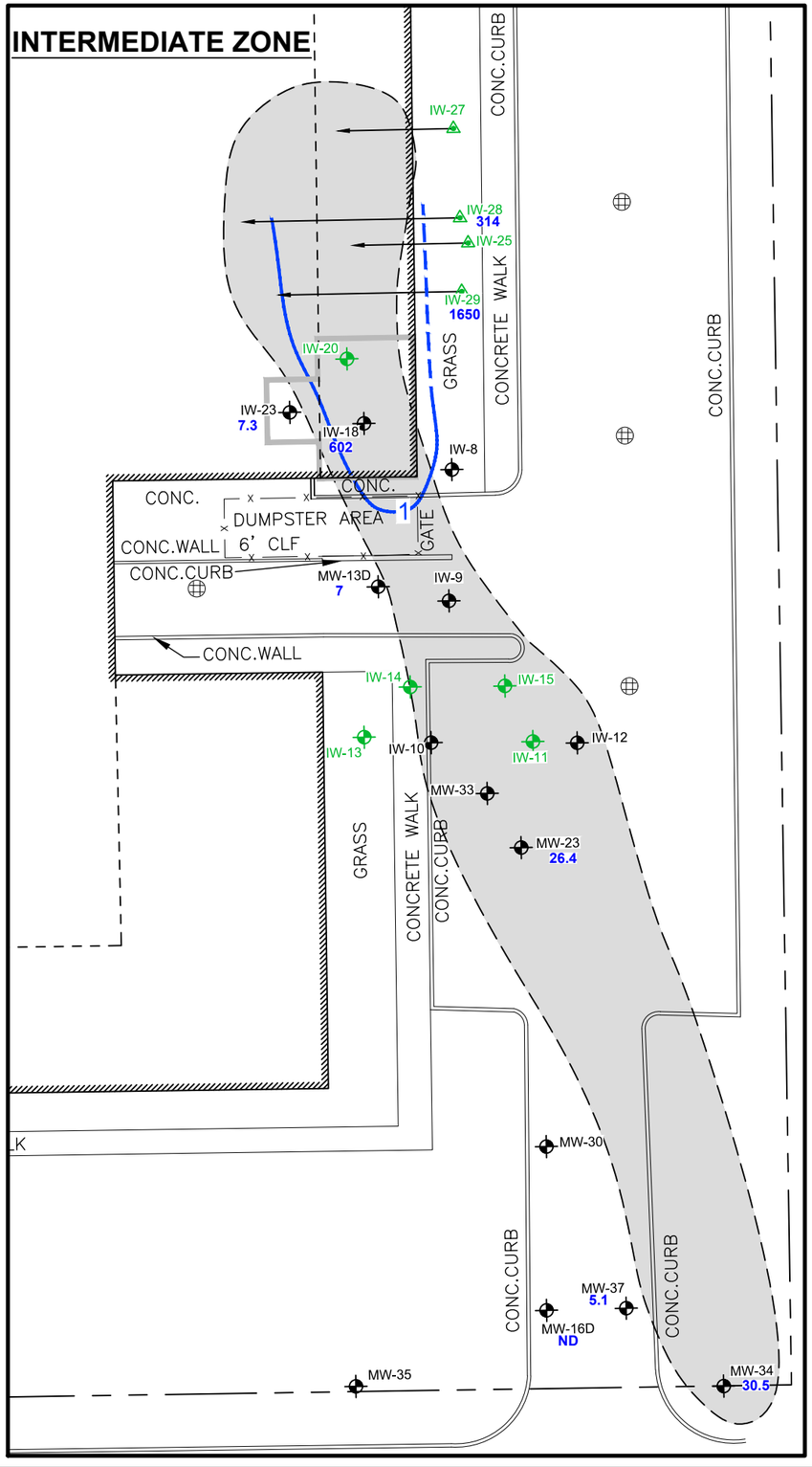
FIGURE 7

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:(On)ON=*;OFF=*REF*
C:\Users\alsanchez\BIM 360\Acadia\ANA - NICHE NON-TIER GRIP\Project Files\25MPRLLC\2019\30\01773\01-DWG\25MPR-R07-ERD INJECTION.dwg LAYOUT: 7 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X00
X-25MPR-X01
IMAGES:
PROJECTNAME: ----

SHALLOW ZONE



INTERMEDIATE ZONE



LEGEND:

MW-7 37.2	LOCATION AND DESIGNATION OF MONITORING WELL AND ASSOCIATED TOC VALUE (mg/L)
IW-26	LOCATION AND DESIGNATION OF ANGLE WELL
	LOCATION AND DESIGNATION OF INJECTION WELL
	STORM DRAIN
	APPROXIMATE FOOTPRINT OF TOC CONCENTRATIONS GREATER THAN 20 mg/L
mg/L	MILLIGRAMS PER LITER
TOC	TOTAL ORGANIC CARBON
1	APPROXIMATE EXTENT OF TOTAL CVOC CONCENTRATIONS EXCEEDING 1 mg/L
CVOC	CHLORINATED VOLATILE ORGANIC COMPOUND

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 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:S.FELDMAN PM:S.FELDMAN TM:C.KEEN LYR:LOn(ON=*;OFF=*REF*
C:\Users\alsanchez\BIM 360\Arcadis\ANA - NICHE NON-TIER GRP\Project Files\25MPRLLC\2019\30017733\01-DWG\25MPR-R08-ORGANIC CARBON.dwg LAYOUT: 8 SAVED: 11/5/2019 1:48 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 11/5/2019 1:51 PM BY: SANCHEZ, ADRIAN
XREFS:
X-25MPR-X00
X-25MPR-X01
IMAGES:
PROJECTNAME: ---

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 in-situ reactive zone (IRZ) program at the site:

- 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.

- 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.

- 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 5,000 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.

- 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.

- 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.

- 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.

- 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.

- August 2015 - In accordance with the NYSDEC-approved Site Management Plan (SMP) Addendum (Arcadis 2015), an optimized enhanced reductive dechlorination (ERD) injection was completed using an approximately 2.7% solution of emulsified vegetable oil (EVO) that included a sodium bicarbonate buffer. In addition to the sodium bicarbonate buffer, sulfate (in the form of Epsom salts) was also added to the injection solution. As described in the NYSDEC-approved SMP Addendum, two new angle injection wells were installed (IW-28 and IW-29) to improve coverage of the source area that had been identified beneath the northeast portion of the building. An optimized ERD injection network consisting of six additional injection wells (IW-3, IW-17, IW-20, IW-25 and newly installed IW-28 and IW-29) as well as four previous injection wells (IW-6, IW-11, IW-15 and IW-27) were used for the injection. The injection volumes added to each well varied from 5,900 gallons to 15,000 gallons.

- May/June 2017 - A second injection of EVO in the source area injection wells and an injection of molasses in the downgradient injection wells was implemented. Consistent with the first optimized ERD program reagent injection in August 2015, a longer lasting electron donor in the form of a commercially available EVO product was injected into an expanded well network that was installed to cover the entirety of the suspected source area. The EVO included sodium bicarbonate as an amendment to minimize a potential decrease in pH due to potential formation of volatile fatty acids during fermentation of the carbon. EVO was introduced into injection wells IW-3, IW-17, IW-20, IW-25, IW-27, IW-28, and IW-29. Molasses was introduced into injection wells IW-6, IW-11, IW-13, and IW-15. At the request of the NYSDEC, well IW-13 was added to this injection.

- June 2018 - A second injection of EVO in the downgradient injection wells was implemented. Consistent with the previous optimized ERD program reagent injections, a longer lasting electron donor in the form of a commercially available EVO product was injected. EVO was introduced into injection wells IW-6, IW-11, IW-13, IW-14, and IW-15. Similar to the May/June 2017 injection, well IW-13 was added to this injection; in addition, well IW-14 was added to this injection.

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: 6.000

Reporting Period: September 23, 2018 to September 23, 2019

	YES	NO
1. Is the information above correct?	X	
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?		X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		X
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?		X

Box 2

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

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	Omega Melville LLC	Ground Water Use Restriction Soil Management Plan Landuse Restriction Building Use Restriction Monitoring Plan Site Management Plan O&M Plan 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 Vapor Mitigation 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
X	

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
X	

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 VIM GOYAL at 25 MELVILLE PARK ROAD MELVILLE NY 11747
print name print business address

am certifying as OWNER (Owner or Remedial Party)

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

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

10/12/19
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 Christina Berardi Tuohy at Arcadis of New York, Inc., Two Huntington Quadrangle, Suite 1S10, Melville, NY 11747
print name — print business address

am certifying as a Professional Engineer for the Omega Melville LLC
(Owner or Remedial Party)

Christina Berardi Tuohy — Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

11/26/2019 — Date

ARCADIS Design & Consultancy for natural and built assets

Vim Goyal
Omega Melville LLC
25 Melville Park Road
Melville, NY 11747

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

ENVIRONMENT

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

Date:
October 10, 2019

Contact:
Christina Berardi Tuohy, P.E.

Phone:
(631) 391-5213

Email:
ChristinaBerardi.Tuohy@arcadis.com

Our ref:
30017733.M0019.C

Dear Mr. Goyal:

Pursuant to the New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan for the subject property and the August 9, 2019 letter from the NYSDEC titled *Reminder Notice: Site Management Periodic Review Report 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 Periodic Review Report period. However, since Arcadis does not operate or maintain the positive pressure heating, ventilation, and air conditioning (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 3 of this letter.

Please do not hesitate to contact me with any questions.

Sincerely,

Arcadis of New York, Inc.
Christina Berardi Tuohy

Christina Berardi Tuohy, P.E.
Senior Engineer

Vim Goyal
October 10, 2019

Copies:

File

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.

Vim Goyal

Omega Melville LLC (Print Name)

Omega Melville LLC (Signature)

10/12/19

Signature Date

ARCADIS Design & Consultancy for natural and built assets

Vim Goyal
Omega Melville LLC
25 Melville Park Road
Melville, NY 11747

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

ENVIRONMENT

Subject:
25 Melville Park Road Soil Management Certification Statement,
25 Melville Park Road
Melville, New York

Date:
October 30, 2019

Contact:
Christina Berardi Tuohy, P.E.

Phone:
(631) 391-5213

Email:
ChristinaBerardi.Tuohy
@arcadis.com

Our ref:
30017733.M0019.C

Dear Mr. Goyal:

Pursuant to the New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan for the subject property, 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 Periodic Review Report period. However, since Arcadis did not oversee or implement the soil management activities associated with the new sidewalk installation in 2019, please provide an authorized company signature certifying that all work has been completed 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.
Christina Berardi Tuohy

Christina Berardi Tuohy, P.E.
Senior Engineer

Copies:

File

Certification Statement

I hereby certify that all work associated with the new sidewalk installation was completed in accordance with the requirements set forth in the NYSDEC approved Soil Management Plan dated August 13, 2010 (Appendix C of the Site Management Plan).

Vim GoyAL

Omega Melville LLC (Print Name)

Vimal Goyal

Omega Melville LLC (Signature)

10/30/19

Signature Date

APPENDIX C

Injection Logs

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
8/14/2003	1	19	--	172	9.9	191	25	0	Vacuum on well head after injection; 371 grams KBr tracer added
8/28/2003	2	19	--	172	9.9	191	48	0	Vacuum on well head after injection
9/11/2003	3	19	--	172	9.9	191	48	0	Vacuum on well head after injection
9/29/2003	4	19	--	172	9.9	191	48	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
10/13/2003	5	25.5	--	166.5	13.3	192	55	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
10/27/2003	6	19	--	172	9.9	191	48	8	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
11/17/2003	7	19	--	172	9.9	191	48	7	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
12/8/2003	8	25.5	--	166.5	13.3	192	48	8	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
12/29/2003	9	25.5	--	165.5	13.4	191	64	7.5	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
1/21/2004	10	25.5	--	165.5	13.4	191	48	4	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
2/10/2004	11	25.5	--	165.5	13.4	191	38	6	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
3/8/2004	12	25.5	--	165.5	13.4	191	48	4	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
4/5/2004	13	25.5	--	165.5	13.4	191	64	5	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
5/3/2004	14	25.5	--	165.5	13.4	191	64	11	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
6/1/2004	15	25.5	--	165.5	13.4	191	64	4	Vacuum on well head after injection, 9 lbs of sodium bicarbonate added
6/21/2004	15a	0	--	191	0.0	191	64	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
6/28/2004	16	25.5	--	165.5	13.4	191	48	1	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
7/26/2004	17	25.5	--	165.5	13.4	191	64	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
8/30/2004	18	25.5	--	165.5	13.4	191	48	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
10/1/2004	19	25.5	--	165.5	13.4	191	64	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
11/8/2004	20	25.5	--	165.5	13.4	191	64	0	Vacuum on well head after injection, 19 lbs of sodium bicarbonate added
12/13/2004	21	26	--	874	2.9	900	43	0	Vacuum on well head after injection, 10 lbs of sodium bicarbonate added
1/26/2005	22	26	--	874	2.9	900	69	0	Vacuum on well head after injection
3/9/2005	23	25	--	475	5.0	500	33	0	Vacuum on well head after injection
5/4/2005	24	111	--	4889	2.22	5000	15.9	0	Vacuum on well head after injection
5/12/2005	24a	3.3	--	163.7	2.0	167	8	3	
6/20/2005	25	112	--	4649	2.4	4761	14	0	Vacuum on well head after injection
8/15/2005	26	111	--	4889	2.22	5000	18.9	0	Vacuum on well head after injection
10/17/2005	27	62	--	4938	1.24	5000	16.5	0	Vacuum on well head after injection
12/22/2005	28	79	--	6271	1.24	6350	25	0	Vacuum on well head after injection
4/19/2006	29	62	--	4938	1.24	5000	21	0	Vacuum on well head after injection
6/30/2006	30	111	--	4889	2.22	5000	26	0	Vacuum on well head after injection
11/14/2006	31	111	--	4889	2.22	5000	32	0	Vacuum on well head after injection
1/25/2007	32	111	--	4889	2.22	5000	21	0	Vacuum on well head after injection
3/27/2007	33	111	--	4889	2.22	5000	27	0	Vacuum on well head after injection
6/14/2007	34	114	--	5086	2.22	5200	17	0	
9/19/2007	35	111	--	4889	2.22	5000	15	0	
12/19/2007	36	111	--	4889	2.22	5000	18	0	
3/19/2008	37	111	--	4889	2.22	5000	17	0	
6/18/2008	38	111	--	4889	2.22	5000	17	0	
9/17/2008	39	111	--	4889	2.22	5000	12	0	
12/23/2008	40	111	--	4889	2.22	5000	21	0	Vacuum on well head after injection

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
3/25/2009	41	41	--	1808	2.22	1849	22	0	Ran out of molasses solution for injection
4/20/2009	41a	70	--	3081	2.22	3151	25	0	Supplementary injection to complete 5,000 gallon total injection volume
6/24/2009	42	111	--	4889	2.22	5000	20	10	
9/17/2009	43	111	--	4889	2.22	5000	21	4	
1/6/2010	44	111	--	4889	2.22	5000	19	10	
5/6/2010	45	111	--	4889	2.22	5000	19	0.2	
9/16/2010	46	111	--	4889	2.22	5000	19	0	4 psi @ start then vacuum
2/10/2011	47	124	--	5976	2.03	6100	18	0	
7/20/2011	48	115	--	5085	2.22	5200	9	0	
11/2/2011	49	111	--	4889	2.22	5000	13	0	
4/17/2012	50	111	--	4889	2.22	5000	7	0	
8/1/2012	51	111	--	4889	2.22	5000	9	0	
12/13/2012	52	111	--	4889	2.22	5000	12	0	
5/2/2013	53	100	--	4900	2.0	5000	12	0	
10/10/2013	54	104	--	5096	2.0	5200	13	0	
3/19/2014	55	100	--	4900	2.0	5000	10	0	
7/16/2014	56	150	--	7350	2.0	7500	15	0	A surplus of molasses was noted at the conclusion of the injection. The surplus molasses was diluted and injected into injection well IW-6.
11/25/2014	57	100	--	4900	2.0	5000	18	8	
8/7/2015	58	--	400	13380	2.9	13780	13	0	2,280 additional gallons of EVO solution was injected
5/23/2017	59	225	--	11034	2.0	11259	21	0	
6/4/2018	60	--	191	11056	1.7	11247	20	-10	

ARCADIS Design & Consultancy for natural and built assets

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
8/14/2003	1	26.4	--	237.8	10.0	264	44	0	Vacuum on well head after injection; 556 grams KBr tracer added
8/28/2003	2	26.4	--	237.8	10.0	264	66	0	Vacuum on well head after injection
9/11/2003	3	26.4	--	237.8	10.0	264	53	0	Vacuum on well head after injection
9/29/2003	4	40	--	224	15.2	264	66	0	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/13/2003	5	52.8	--	211.2	20.0	264	53	0	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/27/2003	6	40	--	224	15.2	264	44	4	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
11/17/2003	7	35	--	493	6.6	528	66	8	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/8/2003	8	35	--	229	13.3	264	53	4	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/29/2003	9	35	--	493	6.6	528	45	0	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
1/21/2004	10	35	--	493	6.6	528	59	0	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
2/10/2004	11	35	--	493	6.6	528	26	0	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
3/8/2004	12	35	--	493	6.6	528	53	6	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
4/5/2004	13	35	--	493	6.6	528	53	8	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
5/3/2004	14	35	--	493	6.6	528	53	10	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/1/2004	15	35	--	493	6.6	528	59	3	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/21/2004	15a	0	--	528	0.0	528	66	0	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
6/28/2004	16	35	--	493	6.6	528	59	16	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
7/26/2004	17	35	--	493	6.6	528	53	20	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
8/30/2004	18	35	--	493	6.6	528	48	21	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
10/1/2004	19	35	--	493	6.6	528	48	26	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
11/8/2004	20	35	--	493	6.6	528	53	22	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/14/2004	21	40	--	1360	2.9	1400	61	22	Vacuum on well head after injection, 10 lbs of sodium bicarbonate added
1/25/2005	22	40	--	1360	2.9	1400	61	28	Vacuum on well head after injection
3/9/2005	23	40	--	760	5.0	800	36	4	Vacuum on well head after injection
5/5/2005	24	164	--	7189	2.23	7353	15	0	Vacuum on well head after injection
5/12/2005	24a	3.3	--	163.7	2.0	167	8	5.5	
6/21/2005	25	182	--	8145	2.2	8312	15	0	Vacuum on well head after injection
8/15/2005	26	167	--	7334	2.22	7501	24.8	4	
10/17/2005	27	92	--	7408	1.23	7500	17.8	0	Vacuum on well head after injection
12/22/2005	28	93	--	7407	1.24	7500	25	0	0psi @ start, 8psi @ 3500gal to end
2/14/2006	29	92	--	7408	1.23	7500	30	6	6psi for duration of injection
4/21/2006	30	92	--	7409	1.23	7500	18	6	0psi start, 6psi for duration of injection
6/30/2006	31	167	--	7334	2.22	7500	21	6	0psi start, 6psi for duration of injection
11/15/2006	32	167	--	7334	2.22	7500	34	0	Vacuum on well head after injection
1/25/2007	33	167	--	7333	2.23	7500	24	0	Vacuum on well head after injection
3/28/2007	34	167	--	7333	2.23	7500	18	0	
6/14/2007	35	167	--	7333	2.23	7500	24	0	
9/19/2007	36	167	--	7333	2.23	7500	26	0	
12/19/2007	37	167	--	7333	2.23	7500	21	0	
3/18/2008	38	167	--	7333	2.23	7500	17-25	0	
6/17/2008	39	167	--	7333	2.22	7500	13-20	0	
9/17/2008	40	167	--	7334	2.22	7500	18	0	
12/23/2008	41	167	--	7334	2.22	7500	21	6	Vacuum on well head after injection

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
3/25/2009	42	167	--	7334	2.22	7500	18-19	2	10 psi @ start then drop to 2psi
6/24/2009	43	167	--	7334	2.22	7500	20	10	
9/16/2009	44	167	--	7334	2.22	7500	20	0	
1/6/2010	45	167	--	7334	2.22	7500	19	0	
5/6/2010	46	167	--	7334	2.22	7500	19	0.1	
9/16/2010	47	167	--	7334	2.22	7500	17	0	
2/10/2011	48	164	--	8136	1.97	8300	17	0	
7/20/2011	49	167	--	7334	2.22	7500	19	0	10 psi @ start then drop to 0 psi
11/2/2011	50	167	--	7334	2.22	7500	15	0	
4/17/2012	51	167	--	7334	2.22	7500	17	0	
8/1/2012	52	167	--	7334	2.22	7500	14	0	10 psi @ start then drop to 0 psi
12/13/2012	53	167	--	7334	2.22	7500	23	0	
5/2/2013	54	150	--	7350	2.0	7500	17	0	
10/10/2013	55	152	--	7448	2.0	7600	15	0	
3/19/2014	56	150	--	7350	2.0	7500	13	0	
7/16/2014	57	144	--	7056	2.0	7200	14	0	
11/25/2014	58	146	--	7154	2.0	7300	16	0	6 psi @ start then drop to 0 psi when flow rate was decreased to below 16 gpm
8/12/2015	59	--	261	8739	2.9	9000	20	0	Reagent solution observed in well manhole, well casing turned freely, halted injection. 900 additional gallons of EVO solution was injected
5/23/2017	60	99	--	4833	2.0	4932	10.5	0	Reagent solution observed in well manhole while pumping at 13 gpm @ 8.4 psi; reduced flow to 6.0 gpm; injection was ceased because of daylighting prior to achieving target injection volume.
6/4/2018	61	--	133	8102	1.61	8235	15.0	-12	Flow reduced to 1.34 gpm @ 6 psi for the end of injection due to daylighting

Summary of Reagent Injection Parameters, Injection Well IW-13, 25 Melville Park Road, Melville, New York.

Injection Start Date	Injection No.	Raw Molasses Volume (gallons)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
8/14/2003	1	26.4	--	237.8	10.0	264	45	0	Vacuum on well head after injection
8/28/2003	2	26.4	--	237.8	10.0	264	66	0	Vacuum on well head after injection
9/11/2003	3	26.4	--	237.8	10.0	264	44	0	Vacuum on well head after injection
9/29/2003	4	26.4	--	237.8	10.0	264	47	0	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added,
10/13/2003	5	52.8	--	211.2	20.0	264	66	2.5	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added,
10/27/2003	6	40	--	224	15.2	264	66	0	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added,
11/17/2003	7	35	--	229	13.3	264	44	0	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/8/2003	8	35	--	229	13.3	264	66	11	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/29/2003	9	35	--	229	13.3	264	66	8	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
1/19/2004	10	35	--	229	13.3	264	53	10	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
2/10/2004	11	35	--	229	13.3	264	53	14.5	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
3/8/2004	12	35	--	229	13.3	264	66	17	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
4/5/2004	13	35	--	229	13.3	264	53	24	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
5/3/2004	14	35	--	229	13.3	264	53	26	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/1/2004	15	35	--	229	13.3	264	53	27	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/21/2004	15a	0	--	264	0.0	264	66	10	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
6/28/2004	16	35	--	229	13.3	264	53	22	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
7/26/2004	17	35	--	229	13.3	264	38	37	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
8/30/2004	18	35	--	229	13.3	264	44	33	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
10/1/2004	19	35	--	229	13.3	264	53	37	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
11/8/2004	20	35	--	229	13.3	264	38	35	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/13/2004	21	40	--	1360	2.9	1400	45	34	Vacuum on well head after injection, 10 lbs of sodium bicarbonate added
1/26/2005	22	40	--	1360	2.9	1400	50	34.2	Vacuum on well head after injection
3/9/2005	23	40	--	760	5.0	800	36	12	Vacuum on well head after injection
5/5/2005	24	165	--	7231	2.23	7396	15	0	Vacuum on well head after injection
5/12/2005	24a	3.3	--	163.7	2.0	167	8	7	
6/21/2005	25	171	--	8412	2.3	8584	15	0	Vacuum on well head after injection
8/15/2005	26	167	--	7334	2.22	7501	18.5	13	
10/18/2005	27	92	--	7408	1.23	7500	23.4	10	10psi @ start, 20psi @ end
12/21/2005	28	92	--	7408	1.23	7500	25	0	
2/15/2006	29	92	--	7408	1.23	7500	14.5	30	
4/19/2006	30	92	--	7408	1.23	7500	14.7	20	10psi @ start, 20psi @ end
7/3/2006	31	167	--	7334	2.2	7500	16.7	30	10psi @ start, 30psi @ end
11/14/2006	32	167	--	7333	2.22	7500	10	20	10psi @ start, 20psi @ end
1/23/2007	33	167	--	7333	2.23	7500	10	10	8psi to start , 10psi @ end

Summary of Reagent Injection Parameters, Injection Well IW-13, 25 Melville Park Road, Melville, New York.

Injection Start Date	Injection No.	Raw Molasses Volume (gallons)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
3/27/2007	34	167	--	7333	2.23	7500	7	~20	0psi @ start, 20psi @ end
6/14/2007	35	163	--	7237	2.23	7400	12	5	
9/15/2007	36	177.5	--	7323	2.23	7500	20.8	1	
12/14/2007	37	167	--	7333	2.23	7500	16	4	
3/18/2008	38	167	--	7333	2.23	7500	15	0	
6/17/2008	39	166	--	7334	2.22	7500	16	0	
9/16/2008	40	166	--	7334	2.22	7500	15	0	
12/23/2008	41	166	--	7334	2.22	7500	15	0	Vacuum on well head after injection
3/24/2009	42	166	--	7334	2.22	7500	10.3	~10	15 psi @ start 20 gpm, after 10 minutes 10 psi @ 10 gpm
6/23/2009	43	166	--	7334	2.22	7500	16	7	
9/16/2009	44	166.5	--	7334	2.22	7500	20	5	
1/5/2010	45	166.5	--	7334	2.22	7500	18	0	
5/5/2010	46	142	--	9384	1.49	9526	13	0	
9/16/2010	47	167	--	7334	2.22	7500	12	0	6.5 psi @ start then vacuum
2/9/2011	48	170	--	8130	2.04	8300	9	0	Raw molasses volumes estimated due to molasses flow meter failure
7/19/2011	49	167	--	7334	2.22	7500	15	0	
11/2/2011	50	167	--	7334	2.22	7500	10	0	
5/23/2017	51	136	--	6664	2.0	6800	23.5	0	
6/4/2018	52	--	178	10596	1.65	10774	20	-10	

Summary of Reagent Injection Parameters, Injection Well IW-14, 25 Melville Park Road, Melville, New York.

Injection Start Date	Injection No.	Raw Molasses Volume (gallons)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
8/14/2003	1	26.4	--	237.8	10.0	264	50	0	Vacuum on well head after injection
8/28/2003	2	26.4	--	237.8	10.0	264	66	14	Vacuum on well head after injection
9/11/2003	3	26.4	--	237.8	10.0	264	44	30	Vacuum on well head after injection
9/29/2003	4	40	--	224	15.2	264	66	10	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/13/2003	5	52.8	--	211.2	20.0	264	44	27	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/27/2003	6	40	--	224	15.2	264	44	34	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
11/17/2003	7	35	--	229	13.3	264	44	29	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/8/2003	8	35	--	229	13.3	264	44	28	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/29/2003	9	35	--	229	13.3	264	53	28	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
1/21/2004	10	35	--	229	13.3	264	53	32	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
2/10/2004	11	35	--	229	13.3	264	38	32.5	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
3/8/2004	12	35	--	229	13.3	264	44	35	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
4/5/2004	13	35	--	229	13.3	264	38	38	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
5/3/2004	14	35	--	229	13.3	264	44	34	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/1/2004	15	35	--	229	13.3	264	66	24.5	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/21/2004	15a	0	--	264	0.0	264	66	0	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
6/28/2004	16	35	--	229	13.3	264	53	23	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
7/26/2004	17	35	--	229	13.3	264	24	30	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
8/30/2004	18	35	--	229	13.3	264	53	6	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
10/1/2004	19	35	--	229	13.3	264	53	27	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
11/8/2004	20	35	--	229	13.3	264	53	36	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/15/2004	21	40	--	1360	2.9	1400	56	28	Vacuum on well head after injection, 10 lbs of sodium bicarbonate added
1/28/2005	22	40	--	1360	2.9	1400	78	14.8	Vacuum on well head after injection
3/9/2005	23a	8.8	--	167.2	5.0	176	35	0	Vacuum on well head after injection
3/10/2005	23b	60	--	620	8.8	680	68	10	
5/4/2005	24	98	--	4302	2.23	4400	24	0	Vacuum on well head after injection
5/12/2005	24a	3.3	--	163.7	2.0	167	8	5	
6/20/2005	25	113	--	4710	2.3	4823	14	5	Vacuum on well head after injection
8/15/2005	26	111	--	4889	2.22	5000	16.3	0	Vacuum on well head after injection
10/18/2005	27	62	--	4938	1.24	5000	11.4	0	Vacuum on well head after injection
12/21/2005	28	79	--	6271	1.24	6350	25	0	0psi @ start, 10psi @ end
2/15/2006	29	62	--	4938	1.23	5000	22	0	0psi @ start, 10psi @ end
4/19/2006	30	62	--	4938	1.23	5000	25	0	
7/3/2006	31	111	--	4939	2.23	5000	20	0	
11/14/2006	32	111	--	4889	2.22	5000	28	0	0psi @ start, 10psi @ end

Summary of Reagent Injection Parameters, Injection Well IW-14, 25 Melville Park Road, Melville, New York.

Injection Start Date	Injection No.	Raw Molasses Volume (gallons)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
1/23/2007	33	111	--	4889	2.22	5000	22	8	8psi @ start , 10psi @end
3/27/2007	34	111	--	4889	2.22	5000	24	~5	0psi @ start, 10psi @ end
6/13/2007	35	111	--	4889	2.22	5000	15	4	
9/18/2007	36	111	--	4889	2.22	5000	18	0	
12/14/2007	37	111	--	4889	2.22	5000	25	4	
3/18/2008	38	111	--	4889	2.22	5000	20-25	0	
6/18/2008	39	133	--	5866	2.22	6000	18	0	
9/16/2008	40	111	--	4889	2.22	5000	12	0	
12/24/2008 (1)	41	111	--	4889	2.22	5000	21	0	Vacuum on well head after injection
3/25/2009	42	111	--	4889	2.22	5000	24	0	
6/25/2009	43	111	--	4889	2.22	5000	20	10	
9/17/2009	44	111	--	4889	2.22	5000	21	0	
1/7/2010	45	111	--	4889	2.22	5000	22	0	
5/6/2010	46	111	--	4889	2.22	5000	22	0	
9/16/2010	47	111	--	4889	2.22	5000	18	0	
2/9/2011	48	139	--	6461	2.10	6600	12	0	
7/20/2011	49	164	--	7236	2.22	7400	20	0	10 psi @ start then drop to 0 psi
11/3/2011	50	153	--	6747	2.22	6900	20	0	
6/11/2018	51	--	150	7350	2.0	7500	25	0	

Notes:

1. Approximately 2,450 gallons of dilute molasses rinse water injected into well following primary injection.

ARCADIS Design & Consultancy for natural and built assets

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
8/14/2003	1	26.4	--	237.8	10.0	264	45	11	Vacuum on well head after injection
8/28/2003	2	26.4	--	237.8	10.0	264	53	30	Vacuum on well head after injection
9/11/2003	3	26.4	--	237.8	10.0	264	38	37	Vacuum on well head after injection
9/29/2003	4	40	--	224	15.2	264	26	35	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/13/2003	5	52.8	--	211.2	20.0	264	26	30	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
10/27/2003	6	40	--	224	15.2	264	26	32	Vacuum on well head after injection, 25 lbs of sodium bicarbonate added
11/17/2003	7	35	--	229	13.3	264	38	28	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/8/2003	8	35	--	229	13.3	264	26	--	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/29/2003	9	35	--	229	13.3	264	24	39	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
1/21/2004	10	35	--	229	13.3	264	29	40	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
2/10/2004	11	35	--	229	13.3	264	16	38	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
3/8/2004	12	35	--	229	13.3	264	17	40	Vacuum on well head after injection, 13 lbs of sodium bicarbonate added
4/5/2004	13	35	--	229	13.3	264	33	38	Low vacuum on well head after injection, 13 lbs of sodium bicarbonate added
5/3/2004	14	35	--	229	13.3	264	16	40	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/1/2004	15	35	--	229	13.3	264	53	18	Vacuum on well head after injection, 6 lbs of sodium bicarbonate added
6/21/2004	15a	0	--	264	0.0	264	26	18	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
6/28/2004	16	35	--	229	13.3	264	66	20.5	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
7/26/2004	17	35	--	229	13.3	264	44	24.5	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
8/30/2004	18	35	--	229	13.3	264	53	21	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
10/1/2004	19	35	--	229	13.3	264	53	22	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
11/8/2004	20	35	--	229	13.3	264	53	27.5	Vacuum on well head after injection, 26 lbs of sodium bicarbonate added
12/14/2004	21	40	--	1360	2.9	1400	47	30	Vacuum on well head after injection, 10 lbs of sodium bicarbonate added
1/26/2005	22	40	--	1360	2.9	1400	67	12.2	Vacuum on well head after injection
3/9/2005	23a	8.9	--	170.1	5.0	179	36	0	Vacuum on well head after injection
3/10/2005	23b	50	--	630	7.4	680	59	7	
5/3/2005	24	111	--	4899	2.22	5000	22	0	Vacuum on well head after injection
5/12/2005	24a	3.3	--	163.7	2.0	167	11	0	
6/20/2005	25	113	--	4658	2.4	4770	14	0	Vacuum on well head after injection
8/15/2005	26	111	--	4889	2.22	5000	16.3	0	Vacuum on well head after injection
10/18/2005	27	62	--	4938	1.24	5000	11.4	0	Vacuum on well head after injection
12/21/2005	28	79	--	6271	1.24	6350	25	8	
2/14/2006	29	62	--	4938	1.23	5000	34	0	Vacuum on well head after injection
4/21/2006	30	62	--	4938	1.23	5000	25	0	
6/30/2006	31	111	--	4889	2.22	5000	28	0	Vacuum on well head after injection
11/14/2006	32	111	--	4889	2.22	5000	24	0	Vacuum on well head after injection
1/23/2007	33	111	--	4889	2.22	5000	24	0	Vacuum on well head after injection
3/27/2007	34	111	--	4889	2.22	5000	19	0	Vacuum on well head after injection
6/14/2007	35	112	--	4988	2.22	5100	21	0	
9/19/2007	36	111	--	4889	2.22	5000	27	0	
12/14/2007	37	111	--	4889	2.22	5000	23	0	
3/18/2008	38	111	--	4889	2.22	5000	20-15	0	
6/17/2008	39	133	--	5867	2.22	6000	15	0	
9/16/2008	40	111	--	4889	2.22	5000	15	0	
12/19/2008	41	111	--	4889	2.22	5000	18	0	Vacuum on well head after injection

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)	EVO/Sulfate Solution Volume (gallons)	Water Volume (gallons)	Solution Strength (%)	Volume Injected (gallons)	Injection Flowrate (gpm)	Injection Pressure (psi)	Notes and Observations
3/25/2009	42	111	--	4889	2.22	5000	17-18	5	
6/25/2009	43	111	--	4889	2.22	5000	20	10	
9/17/2009	44	111	--	4889	2.22	5000	21	0	
1/7/2010	45	111	--	4889	2.22	5000	24	10	
5/6/2010	46	111	--	4889	2.22	5000	24	0	
9/17/2010	47	111	--	4889	2.22	5000	19	0	
2/9/2011	48	168	--	7532	2.18	7700	15	0	
7/20/2011	49	160	--	7040	2.22	7200	23	0	10 psi @ start then drop to 0 psi
11/3/2011	50	147	--	6453	2.22	6600	19	0	
4/17/2012	51	142	--	6258	2.22	6400	16	0	
8/2/2012	52	153	--	6747	2.22	6900	11	0	
12/13/2012	53	111	--	4889	2.22	5000	20	0	
5/2/2013	54	100	--	4900	2.0	5000	13	0	
10/10/2013	55	100	--	4900	2.0	5000	9	NM	
3/19/2014	56	100	--	4900	2.0	5000	10	0	
7/16/2014	57	110	--	5390	2.0	5500	9	0	
11/25/2014	58	100	--	4900	2.0	5000	16	0	
8/6/2015	59	--	235	7865	2.9	8100	17	4	Pressure range 0 to 8 psi; average 4 psi; end in vacuum last 2 of 16 measurements
5/24/2017	60	136	--	6664	2.0	6800	25	0	
6/11/2018	61	--	150	7350	2.0	7500	25	0	

NM Not measured.

APPENDIX D

IRZ Performance Data Trend Plots

Figure D-1. Degradation Trends for Shallow Zone Monitoring Well MW-28M

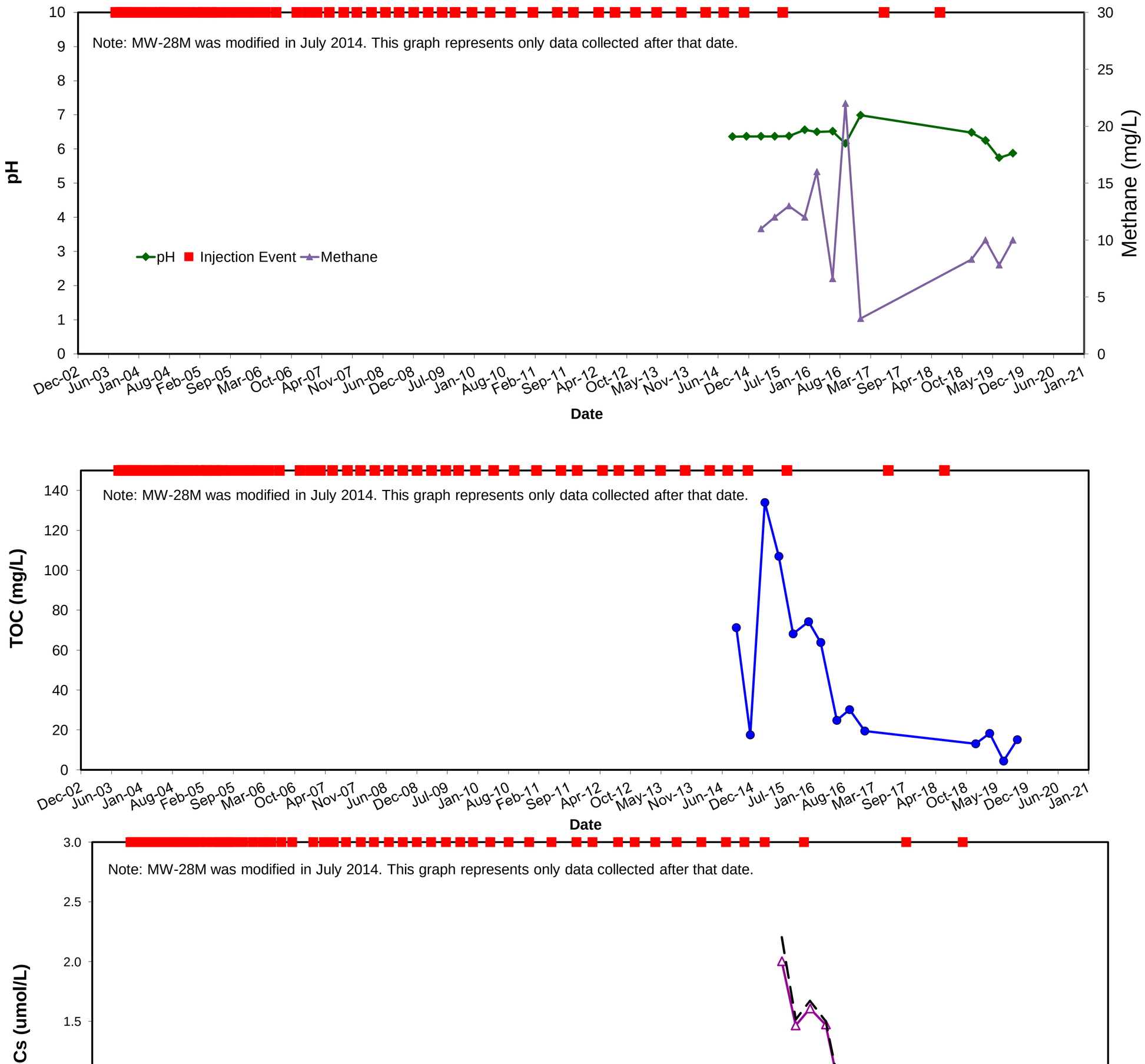


Figure D-2. Degradation Trends for Shallow Zone Downgradient Compliance Monitoring Well MW-31

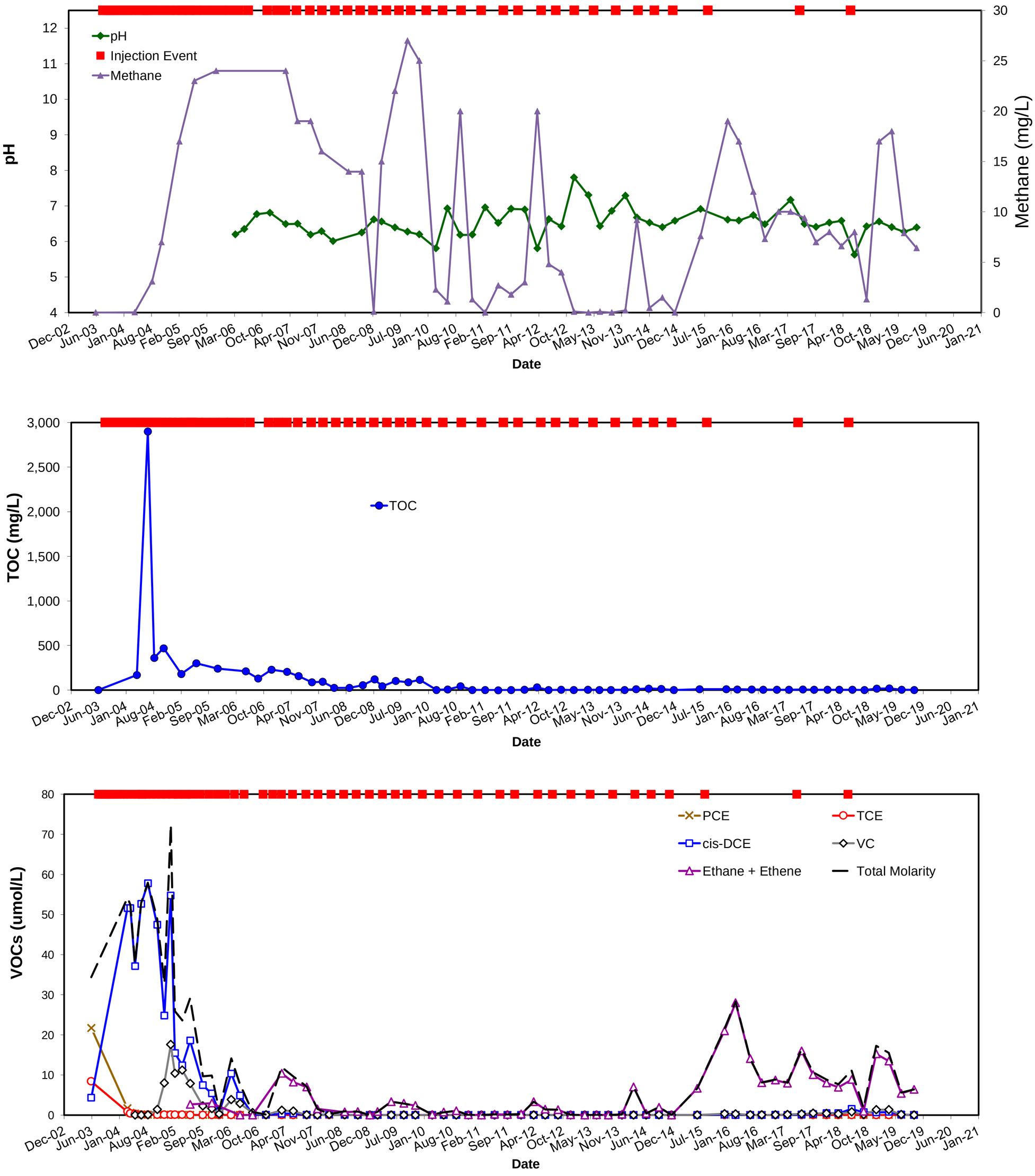


Figure D-3. Degradation Trends for Intermediate Zone Monitoring Well IW-18

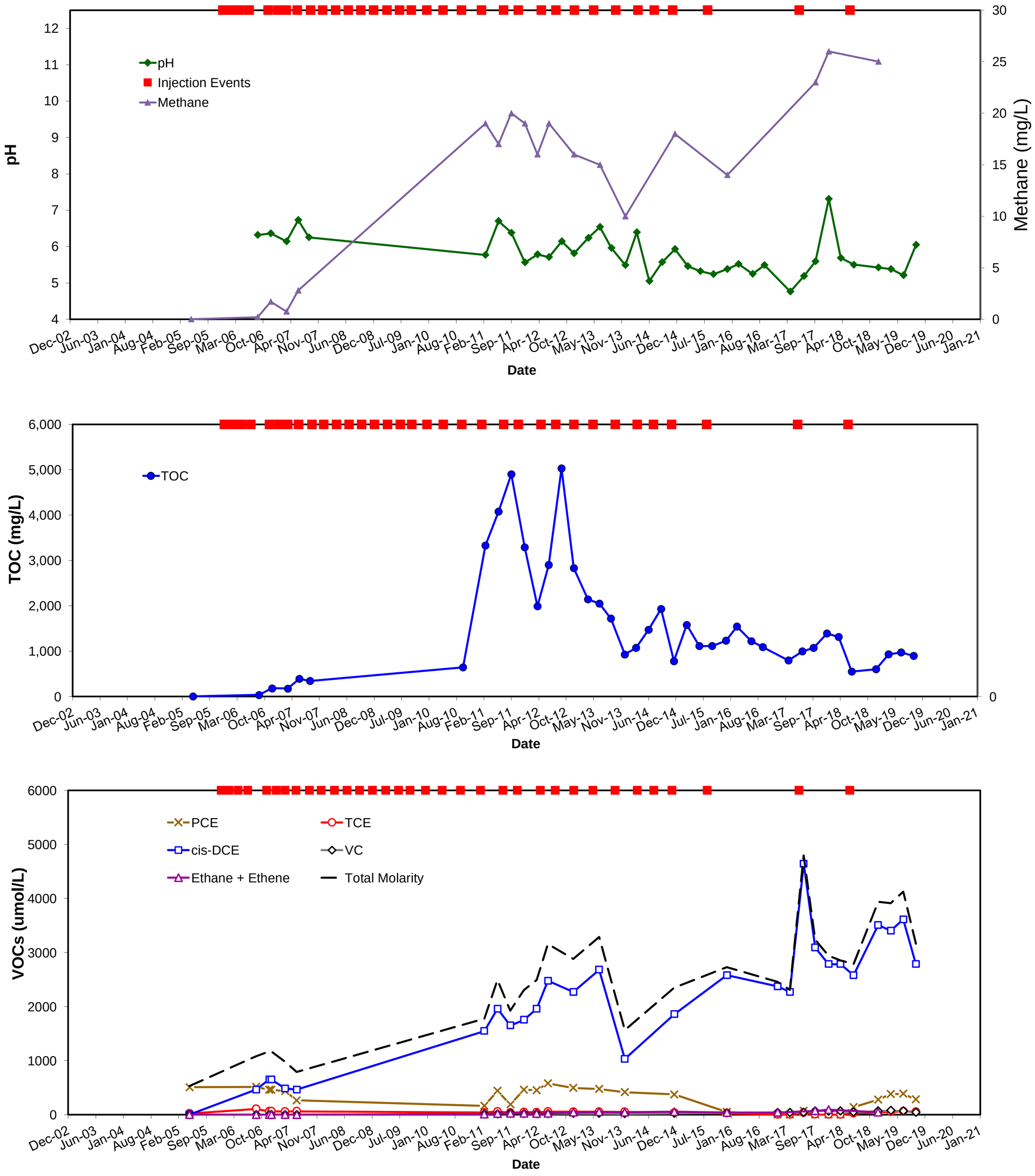


Figure D-4. Degradation Trends for Intermediate Zone Monitoring Well MW-23

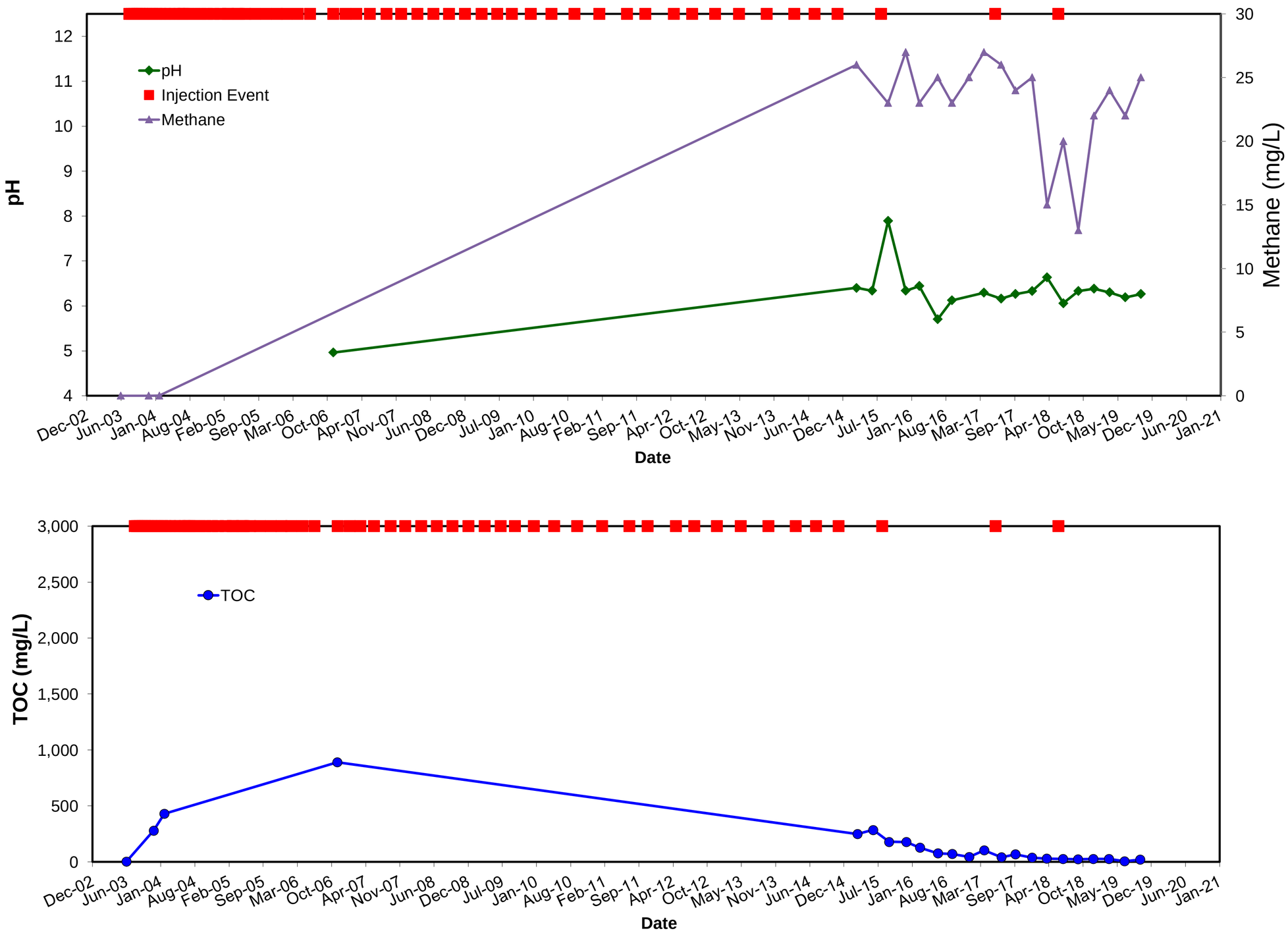


Figure D-5. Degradation Trends for Intermediate Zone Downgradient Compliance Monitoring Well MW-34

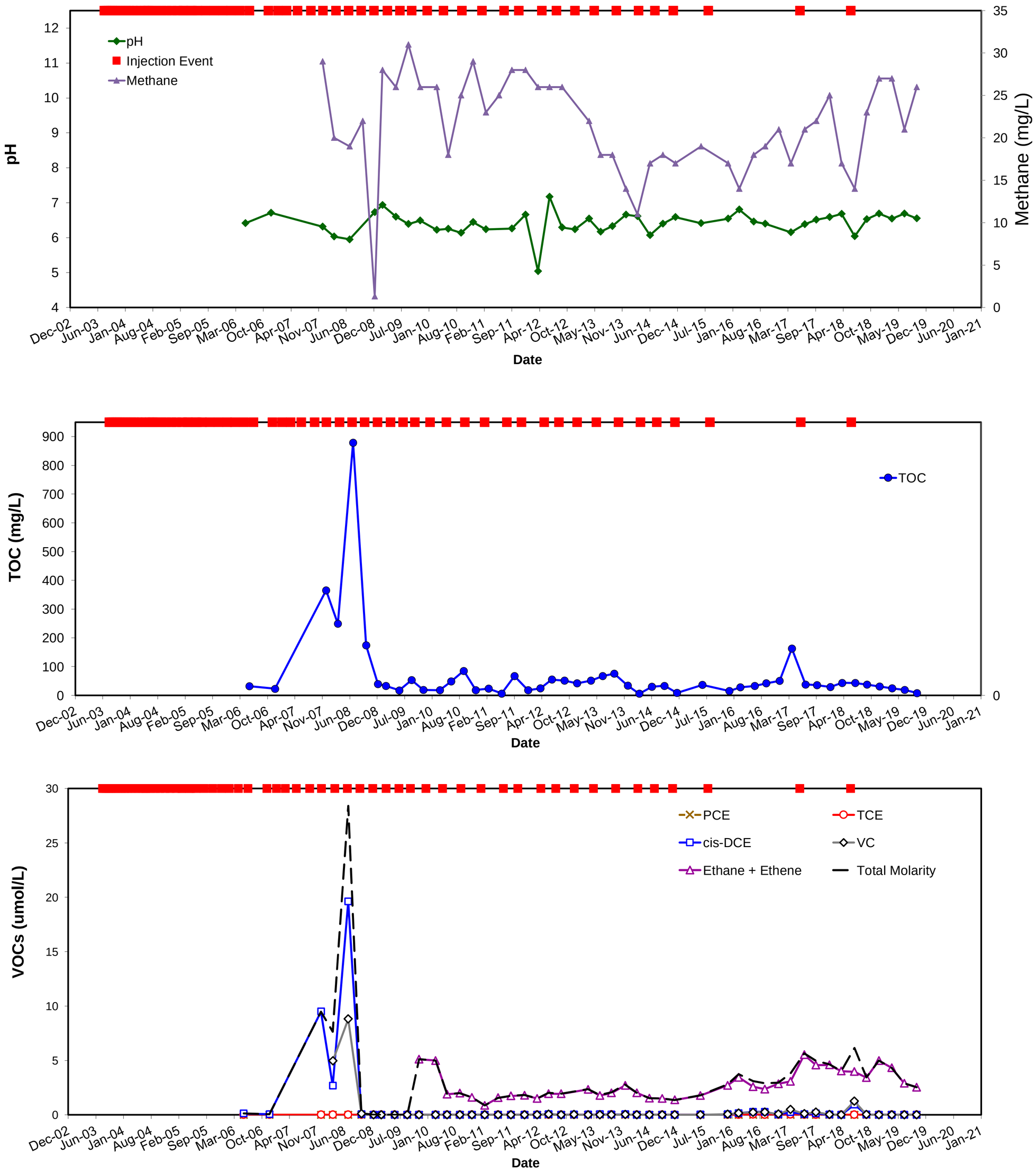


Figure D-6. Degradation Trends for Intermediate Zone Downgradient Compliance Monitoring Well MW-35

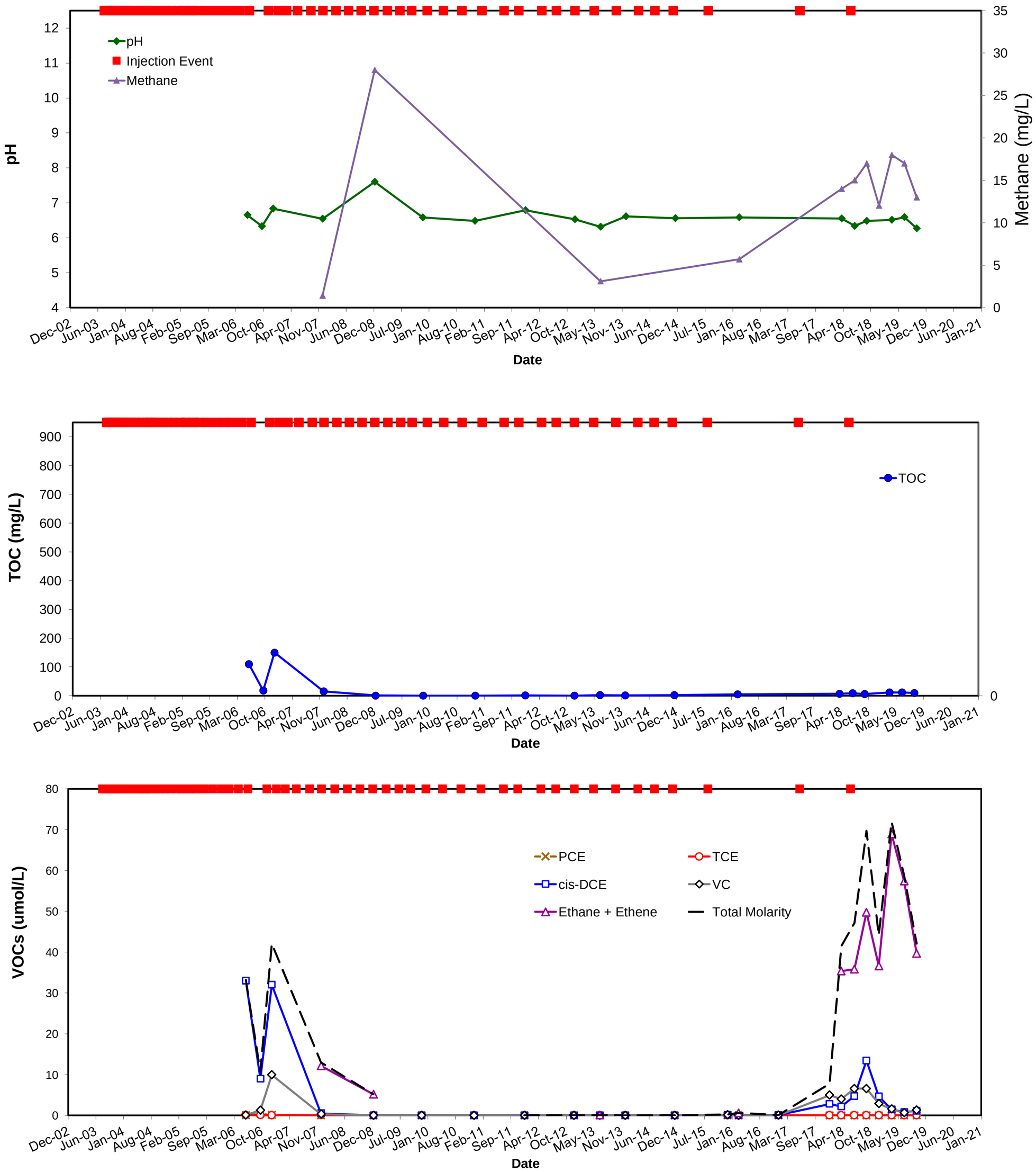
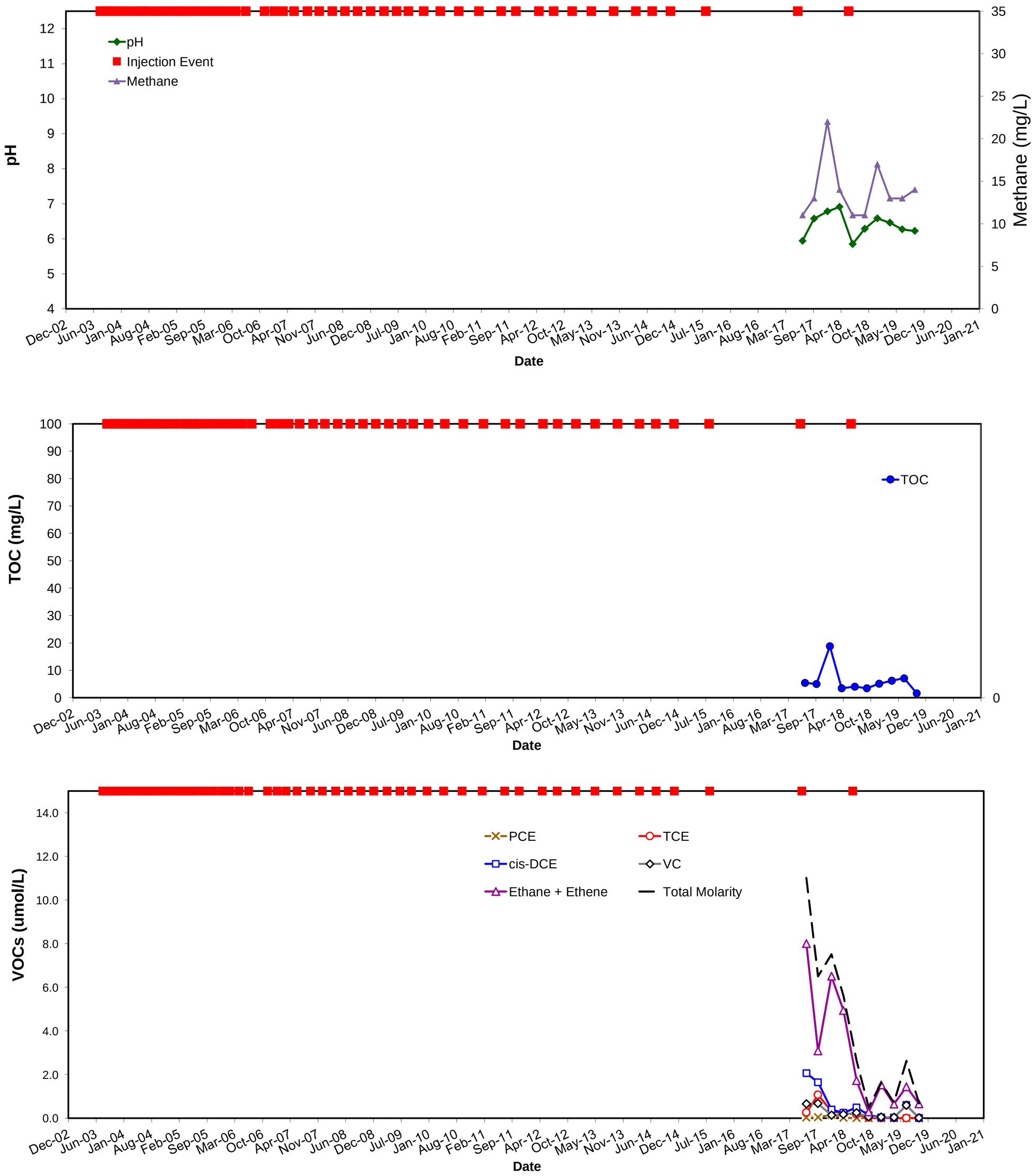


Figure D-7. Degradation Trends for Intermediate Zone Downgradient Compliance Monitoring Well MW-37



Arcadis of New York, Inc.

Two Huntington Quadrangle

Suite 1S10

Melville, New York 11747

Tel 631 249 7600

Fax 631 249 7610

www.arcadis.com