June 2024 Semi-Annual Groundwater Monitoring Report Patchogue Former MGP Site NYSDEC Site No. 1-52-182 Village of Patchogue, Suffolk County, New York

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List of Abbreviations

BC	Brown and Caldwell Associates
BTEX	Benzene, Toluene, Ethylbenzene, and Isomers of Xylene
DUSR	Data Usability Summary Report
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Approval Program
EPA	U.S. Environmental Protection Agency
EQuIS	Environmental Quality Information System
FER	Final Engineering Report
ISS	In Situ Solidification
Lancaster	Eurofins Lancaster Laboratories Environmental
MGP	Manufactured Gas Plant
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquid
NYCRR	New York State Code of Rules and Regulations
NYSDEC	New York Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polycyclic Aromatic Hydrocarbon
QA/QC	Quality Assurance/Quality Control
RDR	Remedial Design Report
SIM	Selective Ion Monitoring
Site	Patchogue Former MGP Site
SMP	Site Management Plan
TOGS	Technical and Operational Guidance Series
µg/L	micrograms per liter

Section 1

Introduction

This Groundwater Monitoring Report documents the implementation and summarizes the results of the groundwater monitoring activities conducted during the June 2024 semi-annual sampling event at the Patchogue Former Manufactured Gas Plant (MGP) Site (hereinafter referred to as the "Site"). The Site remedy was completed in December 2019, which included in situ solidification (ISS) of MGP-related source materials and associated soils. The June 2024 groundwater monitoring activities included the performance of water level measurements, non-aqueous phase liquid (NAPL) gauging, and groundwater sampling activities.

The groundwater monitoring event and the preparation of this report are part of the long-term groundwater monitoring program being conducted at the Site in accordance with the Site Management Plan (SMP) prepared by Brown and Caldwell Associates (BC) and dated August 2023. The SMP was approved by the New York State Department of Environmental Conservation (NYSDEC) via letter dated January 8, 2024. This SMP includes the following:

- Description of the scope of the field activities, methods, and procedures
- Table summarizing the results of the water level measurements and the gauging for the presence of NAPL in the monitoring wells (Table 1)
- Table summarizing the analytical results for the groundwater samples obtained during the June 2024 semi-annual groundwater monitoring event including a comparison to the applicable groundwater quality criteria (Table 2)
- Comparison of data from this monitoring period to data from historical monitoring events (Tables 3 and 4)
- Discussion of the results and findings from the groundwater monitoring data
- A water table elevation contour map depicting the generalized direction of groundwater flow based on groundwater elevation data obtained from monitoring wells (Figure 1)
- Groundwater quality trend plots for select constituents (Figures 2 through7)
- Field Sampling Data Sheets (Appendix A)
- Laboratory Data Reports (Appendix B)
- Data Validator Qualifications (Appendix C)
- Data Usability Summary Report (DUSR) (Appendix D)
- Evaluation of Potential Impact to River from Site Constituents in Groundwater (Appendix E)
- Evaluation of Potential Impact to River from Increased pH Levels in Groundwater (Appendix F)

1.1 Background

This report presents the results and findings associated with the June 2024 semi-annual groundwater monitoring event. Groundwater conditions prior to remedy implementation are documented and discussed in previous groundwater monitoring reports dating back to 2009 and in the "Final Remedial Investigation Report for the Patchogue Former MGP Site" (Tetra Tech EC, Inc.,

December 2009). At the end of 2018, groundwater monitoring was suspended to allow for remedial construction activities. Remedial construction activities, which included the use of ISS of MGP-related source materials and associated soils, were performed during the period from June through December 2019. Final Site restoration efforts were completed in July of 2020. Several monitoring wells and piezometers were decommissioned prior to remedial construction activities to facilitate remedy implementation. These wells included MW-5, MW-6, MW-9S, MW-9D, and PZ-1A through PZ-4A. Each well/piezometer was decommissioned in accordance with NYSDEC's guidance document "CP-43: Groundwater Monitoring Well Decommissioning Policy". A description of the decommissioning activities, as well as field inspection logs and well decommissioning records were provided under separate cover in the "Final Engineering Report" (FER, BC, February 2022).

Prior to resumption of groundwater monitoring following remedial construction activities, five monitoring well couplets (MW-10S/D through MW-14S/D) were installed in January 2020 to facilitate performance of a long-term groundwater monitoring program at the Site. These additions to the well network were installed in accordance with the "100% Remedial Design Report" (RDR, BC, May 2019) as modified by subsequent email correspondence (during the period from January 7 to January 16, 2020) between National Grid and the NYSDEC. These wells are supplemental to previously installed wells (MW-1 and MW-3) and well couplets (MW-4S/D, MW-7S/D, and MW-8S/D), which serve as Site perimeter monitoring locations. The well couplets installed in January 2020 were selected to provide additional well coverage for post-remediation groundwater quality monitoring at locations positioned around the ISS mass, and at locations between the ISS mass and the adjacent Patchogue River. The screens of the monitoring wells provide coverage across the vertical extent of the ISS mass. Monitoring well construction logs for the well couplets installed in January 2020 were provided in Appendix C of the SMP (BC, February 2023).

Groundwater monitoring prior to remedy implementation was conducted on a semi-annual basis; however, the sampling frequency was temporarily increased to quarterly directly after remedy implementation to evaluate the effectiveness of the remedy for Calendar Years 2020 and 2021. Following completion of eight quarters of post-remediation monitoring and evaluation of the data, National Grid proposed several modifications to the long-term post-remedial groundwater monitoring program for the Site for review and approval by the NYSDEC. Specifically, based on the results of the 2020 and 2021 quarterly monitoring activities, the following modifications were proposed in the Fourth Quarter 2021 Groundwater Monitoring Report (BC, March 2022):

- **Elimination of deeper monitoring wells from groundwater monitoring program:** Monitoring of the deep groundwater (8 well locations) is no longer warranted. Eight quarters of groundwater sampling have been conducted since completion of remedy implementation. MGP-related constituents were not detected or detected at very low levels (below New York State Class GA groundwater quality criteria) in the deep groundwater wells during these eight sampling events.
- **Removal of methyl tertiary-butyl ether from analyte list:** This non-MGP-related constituent was detected several times dating back to 2011 at very low concentrations below its Class GA criterion at a single location (MW-8S) and thus, removal of this constituent from the analyte list was recommended.
- **Changing the frequency of groundwater monitoring from quarterly to semi-annually:** Tables 3 and 4 of the Fourth Quarter 2021 Groundwater Monitoring Report (BC, March 2022) provide historical total benzene, toluene, ethylbenzene, and isomers of xylene (BTEX) compounds and total polycyclic aromatic hydrocarbon (PAH) concentration data, respectively. Based on a review of the 2020 and 2021 data in these tables, it is evident that the concentrations of more mobile constituents (i.e., BTEX compounds) increased shortly after completion of the remedy followed by increases in concentrations of less mobile PAH compounds in wells downgradient of the ISS mass. The BTEX concentrations decreased throughout Calendar Years 2020 and 2021, while

the PAH concentrations appeared to have plateaued and are anticipated to decrease following this plateau. Sampling on a semi-annual basis is adequate for assessing groundwater quality conditions at the Site.

The NYSDEC approved the above-recommended modifications in an email dated April 13, 2022, with the exception of allowing the removal of deep monitoring well locations MW-12D and MW-13D from the monitoring program. Monitoring of both shallow and deep groundwater downgradient of the ISS mass at these two monitoring well locations will continue as part of the semi-annual groundwater monitoring events.

Section 2

Scope of Work

Field activities for the June 2024 semi-annual groundwater monitoring were conducted by BC during the period from June 18 to 20, 2024. The activities conducted during this monitoring event are described below. Locations of the monitoring wells and staff gauges referenced below are depicted on Figure 1.

Prior to groundwater sampling, water level measurements and NAPL gauging were performed in the monitoring wells associated with the Site. The level of the Patchogue River was measured from surface water elevation control points at staff gauges SG-1 and SG-2. Water level measurements and NAPL gauging were conducted using an electronic oil/water interface probe and measured to the nearest 0.01 foot.

Groundwater sampling was conducted at 12 monitoring wells (MW-1, MW-3, MW-4S, MW-7S, MW-8S, MW-10S, MW-11S, MW-14S; and well couplets MW-12S/D and MW-13S/D) following the water level and NAPL gauging activities using low-flow purging and sampling techniques in accordance with the U.S. Environmental Protection Agency (EPA) protocol (EPA, July 1996, Revised September 2017). Samples were submitted to Eurofins Lancaster Laboratories Environmental (Lancaster) located in Lancaster, Pennsylvania. Lancaster is certified (Certification No. 10670) through the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP).

The groundwater samples were analyzed for BTEX compounds using EPA SW-846 Method 8260C, and PAHs using EPA SW-846 Method 8270D. The selective ion monitoring (SIM) component of the 8270 analysis was also performed on the samples to obtain lower detection limits for certain PAH compounds. The groundwater samples were also analyzed in the field for pH, specific conductivity, temperature, turbidity, oxidation-reduction potential, and dissolved oxygen (see Appendix A for field sampling data sheets).

The laboratory report from Lancaster is provided in Appendix B. Laboratory analytical data were provided to BC in electronic form by Lancaster and have been incorporated into the environmental database maintained by BC for the Site.

In addition to the samples described above, quality assurance/quality control (QA/QC) samples were also collected. The QA/QC samples included: trip blanks (one per cooler containing samples for BTEX analysis), a field duplicate, and an equipment blank. Also, extra sample volume was collected from one location to provide for matrix spike/matrix spike duplicate (MS/MSD) analysis. The trip blank sample was analyzed for BTEX only. The other QA/QC samples were analyzed for BTEX and PAHs.

The groundwater analytical data packages were validated by Jeff Davin of BC. Mr. Davin's qualifications and experience as a data validator are included in Appendix C. A DUSR was prepared for the groundwater data packages (see Appendix D). Overall, the data was deemed to be acceptable for the intended purposes. No analytical issues were found.

Following receipt of the validated data from the June 2024 groundwater monitoring activities, the validated data was incorporated into a comprehensive analytical database maintained by BC for the Site. These data were then formatted to the NYSDEC's environmental data submission requirements

that are detailed on the NYSDEC's website (http://www.dec.ny.gov/chemical/62440.html). This included: 1) populating the NYSDEC Electronic Data Deliverable (EDD) with the analytical data; 2) validating the EDD using the database software application Environmental Quality Information System (EQuIS™) from EarthSoft®, Inc.; and 3) submitting the validated EDD to the NYSDEC.

Section 3

Results and Findings

3.1 Water Level Data

Table 1 provides the water level data and calculated water elevations from the June 18, 2024 measurements. Figure 1 illustrates the elevation contours of the water table based on these data. The contours were developed using water level elevation data from the shallow monitoring wells considered representative of the water table (i.e., those with screens that straddle, or are just below, the water table), and the staff gauges in the Patchogue River. The groundwater elevation (hydraulic head) values for the wells screened in deeper intervals are also posted for reference on Figure 1. The water table is relatively shallow and is typically positioned in the fill that overlies the native alluvial deposits and outwash deposits and that overlies the ISS mass. The fill includes the gravel that was placed over the ISS mass. The water table contours indicate that lateral groundwater flow is from the northwest to the south and southeast across the Site toward the Patchogue River.

3.2 NAPL Gauging

Table 1 presents the results of the NAPL gauging conducted in the monitoring wells associated with the Site during the June 2024 groundwater monitoring event. NAPL was not identified in any of the Site monitoring wells during the June 18, 2024 gauging activities.

3.3 Groundwater Quality Data

Table 2 provides the results of the laboratory analyses of the groundwater samples collected during the June 2024 semi-annual monitoring event and a comparison of the data to the New York State Class GA groundwater quality criteria (i.e., New York State Codes, Rules and Regulations [NYCRR] Part 703 groundwater standards for Class GA water [groundwater] or, for constituents with no standard, the corresponding guidance value from Division of Water Technical and Operational Guidance Series [TOGS] 1.1.1). Comparisons of total BTEX and total PAH concentrations from this sampling event to previous sampling events are provided as Tables 3 and 4, respectively. Figures 2 through 4 present constituent concentration trend plots for acenaphthene, benzene, and naphthalene, respectively; one or more of these constituents have been detected at concentrations above the Class GA groundwater quality criteria at well locations MW-3, MW-4S, MW-11S, and MW-13S during the post-remediation monitoring period, which was initiated in March 2020.

Groundwater samples were collected from the 12 monitoring wells listed in Table 2 from June 18 to 20, 2024 and submitted to the laboratory for analysis of BTEX and PAHs. Samples obtained during the June 2024 sampling detected acenaphthene and naphthalene above Class GA groundwater quality criteria at well MW-3. These constituents are considered Site related and potentially mobile in groundwater. The presence of these constituents in groundwater at this location is an expected result of the disturbance of the subsurface during implementation of the ISS; the elevated concentrations are expected to decrease with time. As shown on Figures 3 and 4, the constituents that have exceeded Class GA criteria during the post-remediation monitoring conducted to-date show an overall decrease in concentration from the highest concentrations detected following remediation. Additionally, PAH compounds benzo(a)anthracene and chrysene were also

detected at concentrations above Class GA groundwater quality criteria in MW-3. As discussed further below in this section, these PAHs have very low aqueous solubilities, and their detection may not represent constituents that are mobile in groundwater.

Prior to remediation in the area downgradient of the MGP-related source materials, acenaphthene and naphthalene were either not detected or detected at concentrations below Class GA groundwater quality criteria in the wells that were in place prior to remedy implementation. Overall, the concentrations have decreased somewhat from the higher concentrations measured earlier in the post-remediation monitoring period, which was initiated in March 2020 (see constituent concentration trend plots presented as Figures 2 through 4). These concentrations are anticipated to further decrease with time, similar to the decrease in benzene (see Figure 3) and will be evaluated during subsequent monitoring events. Additionally, acenaphthene concentrations have decreased since post-remedy peak concentrations (see Figure 2). As shown on Figure 4, naphthalene concentrations have also decreased substantially since post-remedy peak concentrations at locations where it has exceeded Class GA criteria (i.e., MW-3 and MW-13S). Further, naphthalene has not been detected in MW-13S since the June 2022 monitoring event.

In addition to the above-described detections at MW-3, one or more of the following six PAH compounds were detected above the Class GA groundwater quality criteria in wells MW-4S, MW-11S, MW-12S, MW-13S, and MW-14S during the June 2024 semi-annual monitoring event: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-c,d)pyrene. These PAH compounds have very low aqueous solubilities, are not readily mobile in groundwater, and are unlikely to have migrated from the on-Site source area. The criteria that were exceeded for five of these six PAHs are unpromulgated guidance values rather than 6 NYCRR Part 703 standards. The criteria for the sixth PAH, benzo(a)pyrene, is a Part 703 standard. The standard for benzo(a)pyrene is “non-detect” and the guidance value for the other five PAHs, 0.002 micrograms per liter (µg/L), is approximately an order of magnitude below the method detection limit. Therefore, any detection of these compounds in groundwater will result in an exceedance. The detection of these constituents in the monitoring locations is likely related to the disturbance of fine or colloid sized particles during purging or sampling activities. These particles are derived from within the well or the soil adjacent to the well that become suspended into the water column of the well as a result of disturbance during purging and sampling activities.

As described above in Section 3.1, groundwater flow is from the northwest to the south and southeast across the Site toward the Patchogue River. The concentrations of some of the constituents that were detected and potentially mobile in the dissolved phase (benzene and ethylbenzene) continue to be below applicable surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact surface water quality in the Patchogue River.

The concentration of one or more of the following seven constituents were detected above their respective applicable surface water quality criteria in downgradient monitoring wells proximal to the river (MW-3 and MW-4S): acenaphthene, benzo(a)anthracene, benzo(a)pyrene, fluorene, naphthalene, phenanthrene, and pyrene. Although not anticipated to impact surface water quality if they discharged to the river, especially since some of these compounds have very low aqueous solubilities and thus low potential for migration (i.e., benzo(a)anthracene and benzo(a)pyrene – see discussion at end of this section), a mass flux analysis was previously conducted (provided in Appendix E) to assess the potential for discharge of Site-related constituents in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of Site-related constituents dissolved in groundwater may be contributing to the

surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). Based on the analysis, it was determined that the estimated concentrations of acenaphthene, benzo(a)anthracene, benzo(a)pyrene, fluorene, naphthalene, phenanthrene, and pyrene in the river water resulting from the discharge of groundwater from the Site were below applicable surface water quality criteria. The details of these constituent mass flux analyses are presented in Appendix E; the results are summarized below.

The concentrations of acenaphthene, benzo(a)anthracene, benzo(a)pyrene, fluorene, naphthalene, phenanthrene, and pyrene in the June 2024 samples were similar (within the same order of magnitude) to those in the 2020 samples (i.e., the initial post-remediation samples), yet the concentrations of acenaphthene, naphthalene, fluorene, and pyrene appear to be either stabilizing or trending downwards (see groundwater quality trend plots for these constituents presented as Figure 2, and Figures 4 through 6, respectively). Since the estimated concentrations of these seven constituents in surface water, as derived from the previous mass flux analyses using data from 2020, were below applicable surface water criteria (see Appendix E), an additional estimation of concentrations of these constituents in the river is not necessary. Based on the evaluation conducted, Site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

As discussed in previous monitoring reports, following implementation of the remedy, pH levels in two wells downgradient of and proximal to the ISS mass were found to have pH levels above the Class GA criteria range of 6.5 to 8.5. Specifically, after remedy implementation, monitoring data has shown that the pH level in MW-3 began to increase above levels measured prior to remedy implementation (typically ±6.9), up to levels greater than 11. Also, samples from well MW-13S, installed at the end of remedy implementation, showed an increase in pH levels to as high as 9.88. The increased pH levels are considered an effect from implementation of ISS and are anticipated to decrease to pre-remedy levels with time. Due to the low permeability of the ISS mass, the flux of groundwater in the area immediately downgradient of the ISS mass (proximal to well locations MW-3 and MW-13S) is greatly reduced. This is consistent with the findings from the groundwater flow model developed during the remedial design. Therefore, the rate at which the groundwater with an elevated pH (i.e., elevated hydroxide ion concentration) is flushed from this area is expected to be very low. The presence of new asphalt pavement over this area likely further contributes to the reduction in flushing due to decreased infiltration of precipitation. This, coupled with the uncertainty regarding the timeframe over which the Portland-cement-based ISS material can generate elevated pH levels in close proximity to the ISS mass, makes predicting the timeframe for pH levels to return to pre-remediation levels difficult. As shown on Figure 7, the pH levels at MW-13S are, in general, declining and have been below 8.5 (upper level of Class GA criterion range) in three of the last four monitoring events, including this event. However, the pH levels at MW-3 show an overall increasing trend since remedy implementation that may have reached a plateau, with a maximum level of 11.31 recorded during the December 2023 sampling. A pH level of 11.05 was recorded during the June 2024 sampling event, which is a slight decrease from the previous event (December 2023). Although the increased pH levels in groundwater are not anticipated to impact surface water quality in the Patchogue River, similar to the above-described evaluation, an analysis was previously conducted to evaluate the potential for the increased pH levels to effect surface water quality in the river. The details of this pH mass flux analysis are presented in Appendix F. Since the pH levels measured in MW-3 and MW-13S in June 2024 are within an order of magnitude or less to the levels measured in December 2020 and the estimated pH level in surface water (based on the December 2020 field measurements) was below applicable surface water criteria, an additional estimation of the pH level in the river is not necessary. Based on the evaluation conducted, the increased pH levels in shallow groundwater do not impact surface water quality in the Patchogue River.

Section 4

Summary and Conclusions

The following is a summary of the findings and conclusions associated with the June 2024 groundwater monitoring event.

- NAPL was not identified in any of the Site monitoring wells during the June 2024 gauging activities.
- Consistent with previous monitoring events conducted after remedy implementation, acenaphthene and naphthalene were detected above Class GA groundwater quality criteria at well MW-3. The presence of these Site-related constituents is an expected result of the disturbance of the subsurface during implementation of the ISS. Overall, these concentrations have decreased since their post-remediation peak and are anticipated to further decrease with time and will be evaluated during subsequent monitoring events.
- The concentrations of Site-related constituents detected in groundwater at the Site are not impacting surface water quality in the Patchogue River based on an evaluation of the mass flux of constituents in groundwater to the river.
- Increased pH levels in groundwater at two locations (MW-3 and MW-13S) immediately downgradient of the ISS mass are considered an effect from implementation of ISS in the area. The pH levels are anticipated to decrease to pre-remedy levels with time. The increased pH levels measured in groundwater at the Site are not impacting surface water quality in the Patchogue River based on the mass flux analysis conducted. pH levels in samples from MW-13 have been within the Class GA criterion range (6.5 to 8.5) for three of the last four monitoring events, including the June 2024 event.

Section 5

References

Brown and Caldwell Associates, August 2023, Site Management Plan, Patchogue Former MGP Site, Village of Patchogue, Suffolk County, New York, Site ID No. 1-52-182.

Brown and Caldwell Associates, February 2023, Final Engineering Report, Patchogue Former MGP Site, Village of Patchogue, Suffolk County, New York, Site ID No. 1-52-182.

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Brown and Caldwell Associates, December 2012, Construction Completion Report Utility Corridor Work Plan Implementation, Patchogue Former MGP Site, Village of Patchogue, Suffolk County, New York, Site ID No. 1-52-182.

EPA, July 1996; Revised September 2017. Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells.

NYSDEC, CP-43: Groundwater Monitoring Well Decommissioning Policy, November 2009).

Tetra Tech EC, Inc, December 2009. Final Remedial Investigation Report for the Patchogue Former MGP Site, Patchogue, Suffolk County, New York.

Tables

TABLE 1
WATER ELEVATIONS AND NAPL MONITORING DATA
JUNE 2024 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

		6/18/2024			
Location ID	Top of Casing Elevation (ft., NAVD)	Depth to Water (ft., BTOC)	Water Elevation (ft., NAVD)	Depth to NAPL (ft., BTOC)	Total Depth of Well (ft., BTOC)
MW-1	11.47	5.65	5.82	NI	15.20
MW-3	5.56	1.51	4.05	NI	10.05
MW-4S	7.97	4.50	3.47	NI	12.24
MW-4D	7.79	4.35	3.44	NI	26.66
MW-7S	8.45	4.25	4.20	NI	12.42
MW-7D	8.31	4.09	4.22	NI	28.10
MW-8S	5.01	0.47	4.54	NI	9.84
MW-8D	4.99	0.50	4.49	NI	25.11
MW-10S	5.77	0.90	4.87	NI	15.50
MW-10D	5.73	0.89	4.84	NI	25.33
MW-11S	5.02	0.70	4.32	NI	13.59
MW-11D	5.14	0.81	4.33	NI	23.55
MW-12S	4.99	1.32	3.67	NI	13.92
MW-12D	4.92	1.20	3.72	NI	23.90
MW-13S	4.98	1.25	3.73	NI	13.28
MW-13D	4.96	1.21	3.75	NI	23.93
MW-14S	4.86	0.80	4.06	NI	12.59
MW-14D	4.82	0.80	4.02	NI	22.04
SG-1	5.38	3.75	1.63	NA	NA
SG-2	5.25	3.58	1.67	NA	NA

Notes:
NAVD - North American Vertical Datum 1988
ft. - Feet
BTOC - Below Top of Casing
NA - Not Applicable
NI - NAPL not Indicated by Oil/Water Interface Probe
-- - Not measured
MW - monitoring well
SG - staff gauge

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
JUNE 2024 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Constituent	Class GA Groundwater Criteria TOGS 1.1.1 Guidance	NYS Part 703 Standard	Units	Loc ID / Date	MW-1 6/18/2024	MW-3 6/19/2024	MW-4S 6/20/2024	MW-7S 6/19/2024	MW-8S 6/18/2024	MW-10S 6/19/2024	MW-11S 6/19/2024	MW-12S 6/18/2024	MW-12D 6/18/2024	MW-13S 6/19/2024	MW-13S (Dup) 6/19/2024	MW-13D 6/20/2024	MW-14S 6/20/2024
Volatile Organic Compounds (VOCs)																	
Benzene	NE	1	µg/L		< 0.30 U	0.59 J	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Toluene	NE	5	µg/L		< 0.30 U	0.64 J	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U	< 0.30 U
Ethylbenzene	NE	5	µg/L		< 0.40 U	2.7	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Xylenes, total	NE	5	µg/L		< 0.40 U	4.7	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U	< 0.40 U
Total BTEX[a]	NE	NE	µg/L		ND	8.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (SVOCs)																	
Polycyclic Aromatic Hydrocarbons (PAHs)																	
Acenaphthene	20	NE	µg/L		< 0.010 U	**29**	6.7	0.075	0.16	< 0.010 U	2	0.011 J	< 0.010 U	3.1	3.6	< 0.011 U	0.57
Acenaphthylene	NE	NE	µg/L		< 0.010 U	3.1	0.16	< 0.011 U	< 0.010 U	< 0.010 U	0.061	< 0.010 U	< 0.010 U	0.059 J	0.17 J	< 0.011 U	0.012 J
Anthracene	50	NE	µg/L		< 0.010 U	1.7	0.16	0.011 J	< 0.010 U	< 0.010 U	0.045 J	< 0.010 U	< 0.010 U	0.19 J	0.38 J	< 0.011 U	0.01 J
Benzo(a)anthracene	0.002	NE	µg/L		< 0.010 U	**0.26**	**0.011** J	< 0.011 U	< 0.010 U	< 0.010 U	**0.17**	< 0.010 U	< 0.010 U	**0.17**	**0.15**	< 0.011 U	**0.023** J
Benzo(a)pyrene	NE	0	µg/L		< 0.010 U	< 0.010 U	< 0.010 U	< 0.011 U	< 0.010 U	< 0.010 U	**0.13**	**0.012** J	< 0.010 U	< 0.010 U	< 0.010 U	< 0.011 U	**0.03** J
Benzo(b)fluoranthene	0.002	NE	µg/L		< 0.010 U	< 0.010 U	**0.013** J	< 0.011 U	< 0.010 U	< 0.010 U	**0.31**	< 0.010 U	< 0.010 U	< 0.010 U	< 0.010 U	< 0.011 U	**0.055**
Benzo(g,h,i)perylene	NE	NE	µg/L		< 0.010 U	< 0.010 U	0.023 J	< 0.011 U	< 0.010 U	< 0.010 U	0.18	< 0.010 U	< 0.010 U	< 0.010 U	< 0.010 U	< 0.011 U	0.066
Benzo(k)fluoranthene	0.002	NE	µg/L		< 0.010 U	< 0.010 U	**0.016** J	< 0.011 U	< 0.010 U	< 0.010 U	**0.10**	< 0.010 U	< 0.010 U	< 0.010 U	< 0.010 U	< 0.011 U	**0.079**
Chrysene	0.002	NE	µg/L		< 0.010 U	**0.14** J	**0.018** J	< 0.011 U	< 0.010 U	< 0.010 U	**0.30** J	< 0.010 U	< 0.010 U	**0.11** J	**0.11**	< 0.011 U	**0.068**
Dibenz(a,h)anthracene	NE	NE	µg/L		< 0.021 U	< 0.020 U	0.024 J	< 0.023 U	< 0.020 U	< 0.020 U	0.029 J	< 0.020 U	< 0.020 U	< 0.021 U	< 0.020 U	< 0.022 U	0.083
Fluoranthene	50	NE	µg/L		< 0.010 U	8.2	2.4	< 0.011 U	< 0.010 U	< 0.010 U	0.7	0.01 J	< 0.010 U	1	1.2	0.011 J	0.018 J
Fluorene	50	NE	µg/L		< 0.010 U	5.1	1.7	0.013 J	< 0.010 U	< 0.010 U	0.039 J	< 0.010 U	< 0.010 U	0.46 J	1.2 J	< 0.011 U	0.094
Indeno(1,2,3-c,d)pyrene	0.002	NE	µg/L		< 0.021 U	< 0.020 U	< 0.020 U	< 0.023 U	< 0.020 U	< 0.020 U	**0.14**	< 0.020 U	< 0.020 U	< 0.021 U	< 0.020 U	< 0.022 U	**0.051** J
Naphthalene	10	NE	µg/L		0.083	**55**	< 0.030 U	< 0.034 U	0.094	< 0.030 U	< 0.032 U	< 0.030 U	< 0.031 U	< 0.031 UJ	1 J	< 0.033 U	0.69
Phenanthrene	50	NE	µg/L		< 0.031 U	11	0.04 J	< 0.034 U	< 0.030 U	< 0.030 U	0.3	< 0.030 U	< 0.031 U	< 0.031 UJ	1.3 J	< 0.033 U	< 0.031 U
Pyrene	50	NE	µg/L		< 0.010 U	8.1 J	2	< 0.011 U	0.011 J	< 0.010 U	1 J	0.015 J	< 0.010 U	1.4 J	1.2	< 0.011 U	0.014 J
Total PAHs[b]	NE	NE	µg/L		0.083	122	13	0.10	0.27	ND	5.5	0.048	ND	6.5	10	0.011	1.9

Notes:
BTEX - benzene, toluene, ethylbenzene and isomers of xylene.
TOGS - Technical and Operational Guidance Series
U - The analyte was analyzed for, but was not detected above the sample reporting limit. Value shown is representative of method detection limit for the analyzed constituent.
J - Estimated concentration. The result is below the reporting limit but above the method detection limit.
µg/L - micrograms per liter
ND - Not detected.
NE - Not established.
(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.
(b) - To calculate total PAH concentration, a value of zero is used for non-detect values.

Boxed concentrations in bold font are above New York State Class GA Groundwater Quality Criteria (Standards or Guidance values).

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) [a]													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-08	0	0	0	0	3.4	0	1016	57	NS	NS	NS	NS	NS	NS
Jul-08	NS	0	0	0	0	0	678	0	0	0	0	0	0	0
Mar-09	0	0	0	0	0	0	975	0	0	1	0	0	0	0
Sep-09	0	0	0	0	0	0	1257	1	0	0	0	0	0	0
Mar-10	0	0	0	0	0	0	637	2	0	9	0	0	0	0
Sep-10	0	0	0	0	0	0	NS	0	0	0	0	0	27	0
Jan-11	1.7	0	0	0	0	0	NS	NS	0	0	0	0	1	0
Apr-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Aug-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Nov-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Feb-12	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
May-12	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Nov-12	0	-- [b]	-- [a]	0	12	0	NS	NS	1	0	0	0	NS	NS
Jun-13	0	-- [b]	-- [b]	0	0.8	0	NS	NS	0.7	0	0	0	0	NS
Dec-13	0	-- [b]	-- [b]	NS	0	0	NS	NS	0.8	0	0	0	NS	NS
Jun-14	0	-- [b]	-- [b]	0	0	0	NS	NS	0.8	0	0	0	NS	NS
Dec-14	0	-- [b]	-- [b]	0	0	0	NS	NS	1.3	0	0	0	0	0
Jun-15	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Dec-15	0	-- [b]	-- [b]	0	0	0	NS	NS	0.5	0	0	0	0	0
Jun-16	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Dec-16	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Jun-17	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Dec-17	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Jun-18	0	-- [b]	-- [b]	0	0	0	NS	0	0	0	0	0	0	0
Dec-18	0	-- [b]	-- [b]	0	0	0	NS	NS	0	0	0	0	0	0
Mar-20	0	-- [b]	-- [b]	35	4.3	0	-- [c]	-- [c]	0.4	0	0	0	-- [c]	-- [c]
Jun-20	0	-- [b]	-- [b]	18	2	0	-- [c]	-- [c]	0	0	0	0	-- [c]	-- [c]
Sep-20	0	-- [b]	-- [b]	20	2	0	-- [c]	-- [c]	0.4	0	0	0	-- [c]	-- [c]
Dec-20	0	-- [b]	-- [b]	19	1	0	-- [c]	-- [c]	0	0	0	0	-- [c]	-- [c]

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) [a]													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-21	0	-- [b]	-- [b]	10.2	0.6	0	-- [c]	-- [c]	0.3	0	0	0	-- [c]	-- [c]
Jun-21	0	-- [b]	-- [b]	8.4	0.7	0	-- [c]	-- [c]	0.34	0	0	0	-- [c]	-- [c]
Sep-21	0	-- [b]	-- [b]	8.7	1.0	0	-- [c]	-- [c]	0	0	0	0	-- [c]	-- [c]
Dec-21	0	-- [b]	-- [b]	12	0.3	0	-- [c]	-- [c]	0.31	0	0	0	-- [c]	-- [c]
Jun-22	0	-- [b]	-- [b]	3.9	0	NS[d]	-- [c]	-- [c]	0.31	NS[d]	0	NS[d]	-- [c]	-- [c]
Dec-22	0	-- [b]	-- [b]	4.7	0	NS[d]	-- [c]	-- [c]	0	NS[d]	0	NS[d]	-- [c]	-- [c]
Jun-23	0	-- [b]	-- [b]	3.3	0	NS[d]	-- [c]	-- [c]	0	NS[d]	0	NS[d]	-- [c]	-- [c]
Dec-23	0	-- [b]	-- [b]	5.2	0	NS[d]	-- [c]	-- [c]	0	NS[d]	0	NS[d]	-- [c]	-- [c]
Jun-24	0	-- [b]	-- [b]	8.6	0	NS[d]	-- [c]	-- [c]	0	NS[d]	0	NS[d]	-- [c]	-- [c]
Minimum	0	0	0	0	0	0	637	0	0	0	0	0	0	0
Maximum	1.7	0	0	35	12	0	1257	57	1.3	9.0	0	0	27	0
Mean	0.0	0	0	4.2	0.7	0	913	8.6	0.19	0.3	0	0	1.3	0

Notes:
BTEX - Benzene, toluene, ethylbenzene and isomers of xylene
µg/L - micrograms per liter
NS - Not sampled.
NI - Monitoring well or piezometer not installed at time of sampling.
(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.
(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (BC, December 2012).
(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).
(d) - As approved by NYSDEC in an e-mail dated April 13, 2022, sampling of monitoring well is no longer required.

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) [a]										
	Monitoring Well/Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jul-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jan-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Apr-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Aug-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Feb-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
May-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Dec-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0
Dec-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Mar-20	0	0	4	0	0	0	37	0	0	0	-- [c]
Jun-20	0	0	2.7	0	0	0	25	0	0.73	0	-- [c]
Sep-20	0	0	1.9	0	0	0	26	0	0	0	-- [c]
Dec-20	0	0	0	0	0	0	6.9	0	0	0	-- [c]

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) [a]										
	Monitoring Well/Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-21	0	0	1.3	0	0	0	4	0	0	0	-- [c]
Jun-21	0.22	0	1.6	0	0	0	5.3	0	0	0	-- [c]
Sep-21	0	0	0	0	0	0	3.9	0	0	0	-- [c]
Dec-21	0	0	1.9	0	0	0	0	0	0	0	-- [c]
Jun-22	0	NS[d]	1.8	NS[d]	0	0	3.7	0	0	NS[d]	-- [c]
Dec-22	0	NS[d]	2.1	NS[d]	0	0	0.96	0	0	NS[d]	-- [c]
Jun-23	0	NS[d]	1.4	NS[d]	0	0	2.7	0	0	NS[d]	-- [c]
Dec-23	0	NS[d]	0.72	NS[d]	0	0	0.49	0	0	NS[d]	-- [c]
Jun-24	0	NS[d]	0.00	NS[d]	0	0	0	0	0	NS[d]	-- [c]
Minimum	0	0	0	0	0	0	0	0	0	0	0
Maximum	0.22	0	4.0	0	0	0	37	0	0.73	0	0
Mean	0.02	0	1.5	0	0	0	9	0	0.1	0	0

Notes:
BTEX - Benzene, toluene, ethylbenzene and isomers of xylene
µg/L - micrograms per liter
NS - Not sampled.
NI - Monitoring well or piezometer not installed at time of sampling.
(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.
(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (BC, December 2012).
(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).
(d) - As approved by NYSDEC in an e-mail dated April 13, 2022, sampling of monitoring well is no longer required.

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) [a]													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-08	0	0	0	0.76	0.6	4.3	1774	214	NS	NS	NS	NS	NS	NS
Jul-08	NS	0.7	0	0	8	0	1799	154	0	0.47	0	0	12	0
Mar-09	0	0	0	0	0	0	2730	0	0	0	0	0	0	0
Sep-09	0	0	0	0	0	0	3373	1	0	0	0	0	0	0
Mar-10	0	0	0	0	0	39	2390	17	0	0	22	0	2	0
Sep-10	0	0	0	128	0	6	NS	14	0	0	11	0	396	0
Jan-11	22	0	0	17	0	12	NS	NS	0	0	6	0	42	5
Apr-11	0	0	0	6	0	20	NS	NS	0	0	0	0	9	0
Aug-11	0	0	0.1	14	0.1	0	NS	NS	0	0	0.4	0	16	1.2
Nov-11	0	0	0.2	10	0.4	0	NS	NS	0	0	0.8	0.2	8	3.4
Feb-12	0.2	0	0	6	0.6	4	NS	NS	0.1	0	0.6	0	5	2.9
May-12	0.4	0.1	0.6	5	0	5.8	NS	NS	0.1	0.3	1	0	6	2.8
Nov-12	0.1	-- [b]	-- [b]	5.6	0.4	11.7	NS	NS	2.5	2.6	0.8	1.2	NS	NS
Jun-13	0.8	-- [b]	-- [b]	NS	0.3	3.7	NS	NS	1.3	0.4	0.4	0.6	2	NS
Dec-13	0	-- [b]	-- [b]	NS	0	2.5	NS	NS	0.8	0.4	0.3	0	NS	NS
Jun-14	0	-- [b]	-- [b]	2.2	0.9	0	NS	NS	0.8	0.3	0.2	0	NS	NS
Dec-14	0.1	-- [b]	-- [b]	1.2	0.4	0	NS	NS	3	0	0.1	0	21	0.3
Jun-15	0	-- [b]	-- [b]	1.1	0.9	0	NS	NS	0.9	0	0.3	0	10	0.3
Dec-15	0	-- [b]	-- [b]	0	0	0	NS	NS	0.9	0	0	0	3.9	0
Jun-16	0	-- [b]	-- [b]	1.9	0.8	0	NS	NS	2.5	0	0	0	5.9	0
Dec-16	0	-- [b]	-- [b]	0.02	0	0.1	NS	NS	0	0	0	0	5.5	0.07
Jun-17	0	-- [b]	-- [b]	2.0	0.5	0	NS	NS	1	0	0	0	3.2	0
Dec-17	0	-- [b]	-- [b]	0.53	0	0.031	NS	NS	0	0.11	0	0.017	6.0	0.14
Jun-18	0	-- [b]	-- [b]	3.1	1.1	0.010	NS	53	0.02	0.01	0.08	0.09	7.4	0.55
Dec-18	0.31	-- [b]	-- [b]	1.5	1.2	0.080	NS	NS	0.08	0.05	0.10	0.13	7.9	1.0
Mar-20	0	-- [b]	-- [b]	20	17	0.21	-- [c]	-- [c]	0.32	0	0.09	0	-- [c]	-- [c]
Jun-20	0	-- [b]	-- [b]	179	37	0	-- [c]	-- [c]	0.14	0	0.11	0	-- [c]	-- [c]
Sep-20	0	-- [b]	-- [b]	336	41	0	-- [c]	-- [c]	0	0	0.21	0	-- [c]	-- [c]
Dec-20	0	-- [b]	-- [b]	333	33	0	-- [c]	-- [c]	0	0	0.14	0	-- [c]	-- [c]

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) [a]													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-21	0	-- [b]	-- [b]	172	24	0	-- [c]	-- [c]	0.26	0	0.11	0.043	-- [c]	-- [c]
Jun-21	0	-- [b]	-- [b]	177	68	0	-- [c]	-- [c]	0.18	0	0.20	0	-- [c]	-- [c]
Sep-21	0.1	-- [b]	-- [b]	223	16	0	-- [c]	-- [c]	0.07	0	0.18	0.111	-- [c]	-- [c]
Dec-21	0.011	-- [b]	-- [b]	234	40	0.011	-- [c]	-- [c]	0.140	0.039	0.512	0.219	-- [c]	-- [c]
Jun-22	0.011	-- [b]	-- [b]	177	49	NS [d]	-- [c]	-- [c]	1.3	NS [d]	0.61	NS [d]	-- [c]	-- [c]
Dec-22	0	-- [b]	-- [b]	148	39	NS [d]	-- [c]	-- [c]	0.15	NS [d]	0.36	NS [d]	-- [c]	-- [c]
Jun-23	0.104	-- [b]	-- [b]	143	4	NS [d]	-- [c]	-- [c]	0.23	NS [d]	0.23	NS [d]	-- [c]	-- [c]
Dec-23	0.086	-- [b]	-- [b]	130	29	NS [d]	-- [c]	-- [c]	0.05	NS [d]	0.23	NS [d]	-- [c]	-- [c]
Jun-24	0.083	-- [b]	-- [b]	122	13	NS [d]	-- [c]	-- [c]	0.10	NS [d]	0.27	NS [d]	-- [c]	-- [c]
Min	0	0	0	0	0	0	1774	0	0	0	0	0	0	0
Max	22	0.7	0.6	336	68	39	3373	214	3.0	2.6	22	1.2	396	5
Mean	0.7	0.067	0.1	71	11	3.3	2413	65	0.46	0.15	1.3	0.082	27	0.88

Notes:
PAH - Polycyclic aromatic hydrocarbons
µg/L - micrograms per liter
NS - Not sampled.
NI - Monitoring Well or piezometer not installed at time of sampling.
(a) - To calculate total PAH concentration, a value of zero is used for non-detect values.
(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (Brown and Caldwell, December 2012).
(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).
(d) - As approved by NYSDEC in an e-mail dated April 13, 2022, sampling of monitoring well is no longer required.

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) [a]										
	Monitoring Well/Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jul-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jan-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Apr-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Aug-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Feb-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
May-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Dec-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0.3
Dec-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Mar-20	0.3	0.3	96	1.5	14	0	188	0.1	0.5	0.04	-- [c]
Jun-20	0	0	63	0	0	0	394	0.11	1.8	0	-- [c]
Sep-20	0	0	127	0	0	0	467	0	0.12	0	-- [c]
Dec-20	0	0	6.8	0	0.17	0	182	0	1.7	0	-- [c]

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) [a]										
	Monitoring Well/Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-21	0	0	78	0	0.012	0	187	0.037	1.0	0	-- [c]
Jun-21	0.016	0.036	79	0.15	0	0	284	0.042	0.055	0.047	-- [c]
Sep-21	0.122	0.052	2	0	0	0	140	0.046	0.277	0	-- [c]
Dec-21	0.127	0	63	0.033	0.010	0.011	37	0.046	0.244	0.297	-- [c]
Jun-22	0.010	NS[d]	87	NS[d]	0.185	0.281	68	0.024	1.29	NS[d]	-- [c]
Dec-22	0	NS[d]	108	NS[d]	0.014	0	10	0.304	0.15	NS[d]	-- [c]
Jun-23	0	NS[d]	34	NS[d]	0.42	0.072	1.9	0.071	0.77	NS[d]	-- [c]
Dec-23	0	NS[d]	68	NS[d]	0.02	0	13.1	0	0.65	NS[d]	-- [c]
Jun-24	0	NS[d]	5.5	NS[d]	0.048	0	10	0.011	1.9	NS[d]	-- [c]
Min	0	0	2.0	0	0	0	1.9	0	0.055	0	0.3
Max	0.3	0.3	127	1.5	14	0.281	467	0.30	1.9	0.297	0.3
Mean	0.051	0.049	63	0.21	1.1	0.028	153	0.061	0.73	0.048	0.3

Notes:
PAH - Polycyclic aromatic hydrocarbons
µg/L - micrograms per liter
NS - Not sampled.
NI - Monitoring well or piezometer not installed at time of sampling.
(a) - To calculate total PAH concentration, a value of zero is used for non-detect values.
(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (Brown and Caldwell, December 2012).
(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).
(d) - As approved by NYSDEC in an e-mail dated April 13, 2022, sampling of monitoring well is no longer required.

Figures

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAUGE LOCATION
- 5 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (5.66) — GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE) OR RIVER LEVEL FROM STAFF GAUGE (FT., NAVD).
- (4.73) — GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

NORTHERN AREA

IN-SITU SOLIDIFICATION MASS (SEE NOTE 2)

NOTES:

1. BASE MAP DEVELOPED BASED ON DRAWING PREPARED BY MJ ENGINEERING AND LAND SURVEYING, P.C. DATED NOVEMBER 30, 2017.
2. TOP OF ISS MASS IS POSITIONED APPROXIMATELY 4 FEET BELOW GRADE.

Brown AND Caldwell

SCALE: 1" = 60'

196466

DATE: September 11, 2024

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

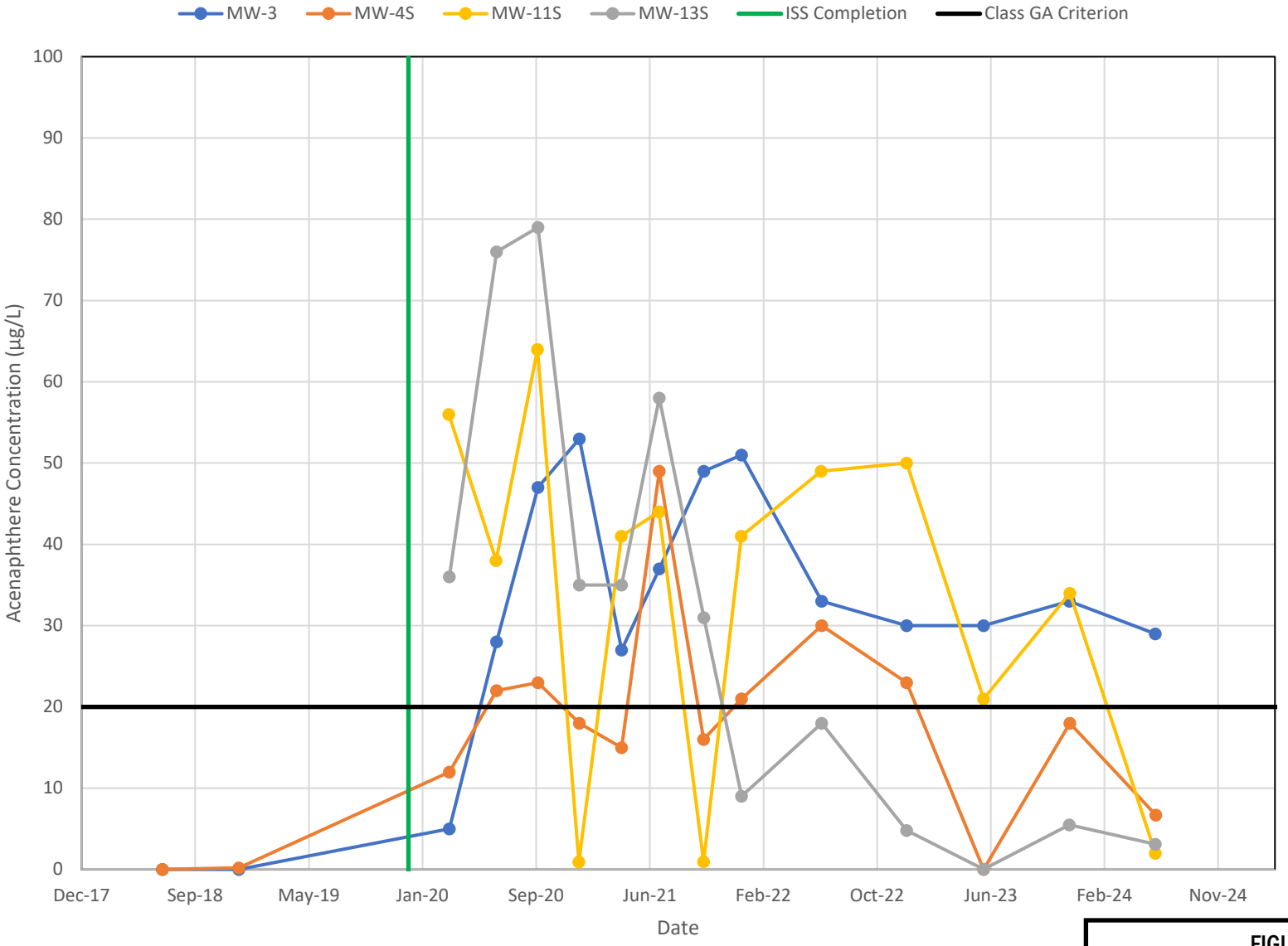
WATER TABLE ELEVATION CONTOUR MAP
JUNE 18, 2024

FIGURE

1

Path: C:\bcpw\d3858116 File Name: 153021 Water Table June 2024 Plot Date: September 11, 2024 9:30 AM Cadd User: Alan Santiago

196466



Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 20 µg/L

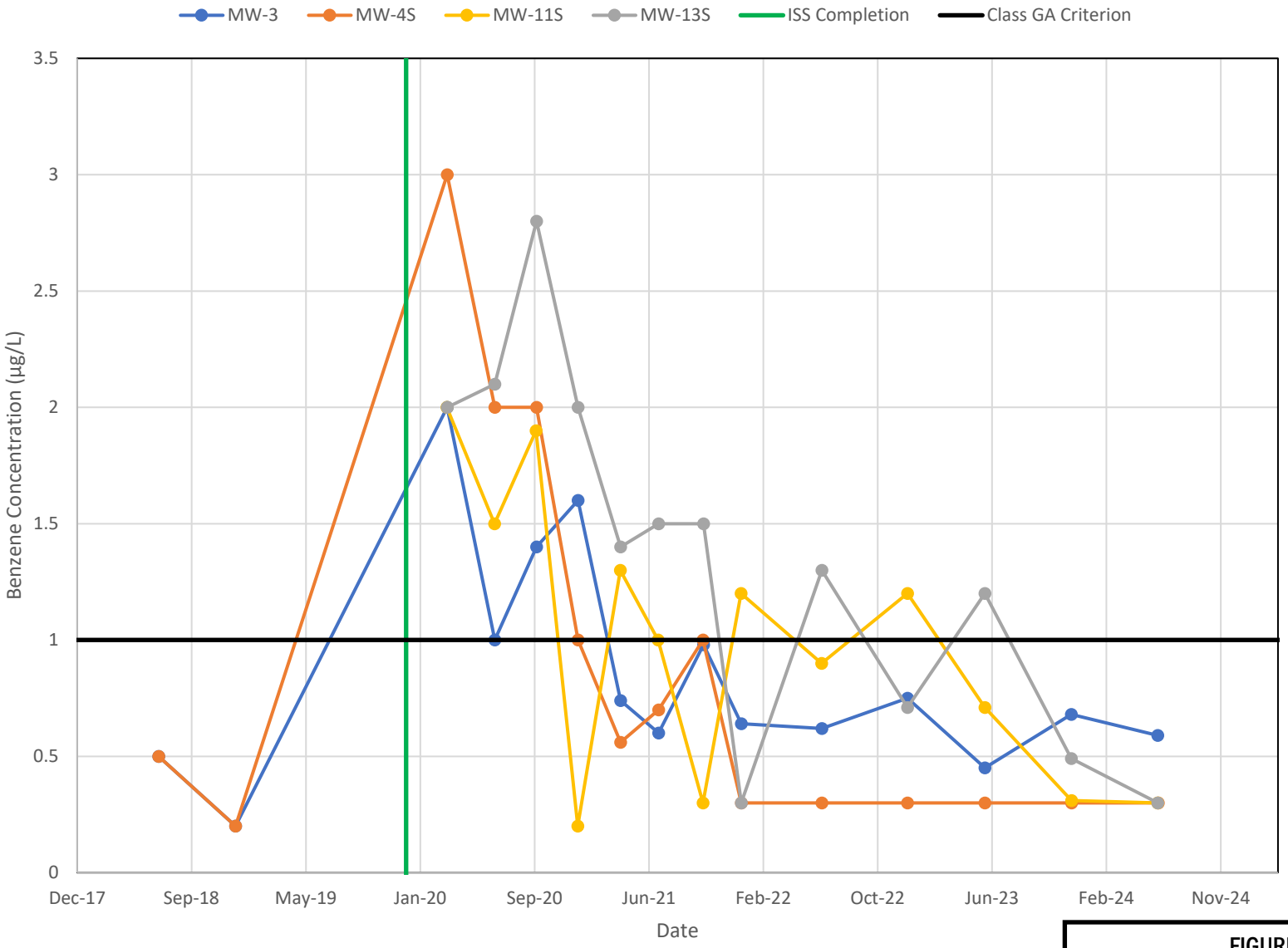
FIGURE 2

GROUNDWATER QUALITY TREND PLOT - ACENAPHTHENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

196466



Notes:
ISS = In-Situ Solidification
NYS Part 703 Class GA Standard = 1 µg/L

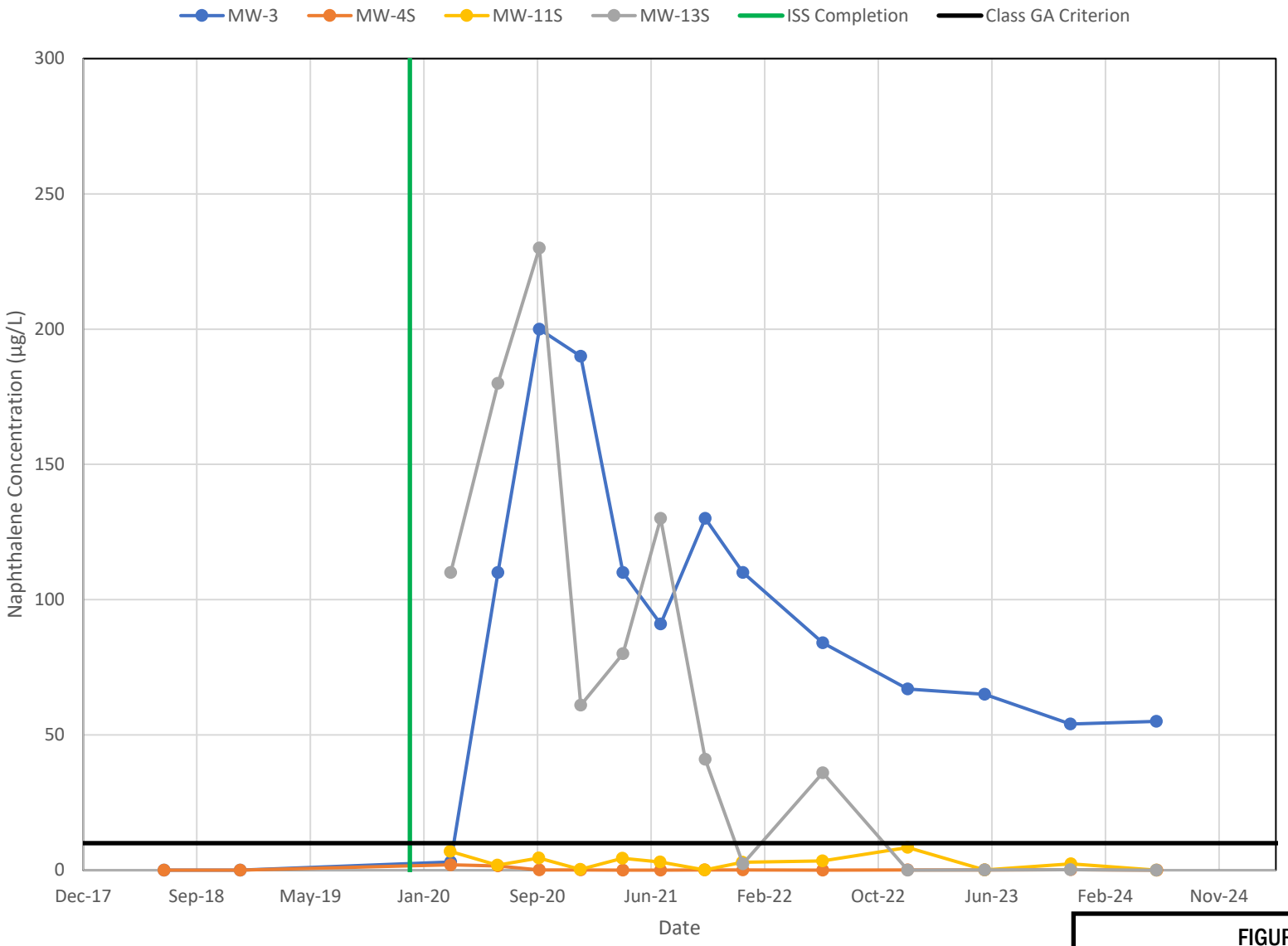
FIGURE 3

GROUNDWATER QUALITY TREND PLOT - BENZENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

196466



Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 10 µg/L

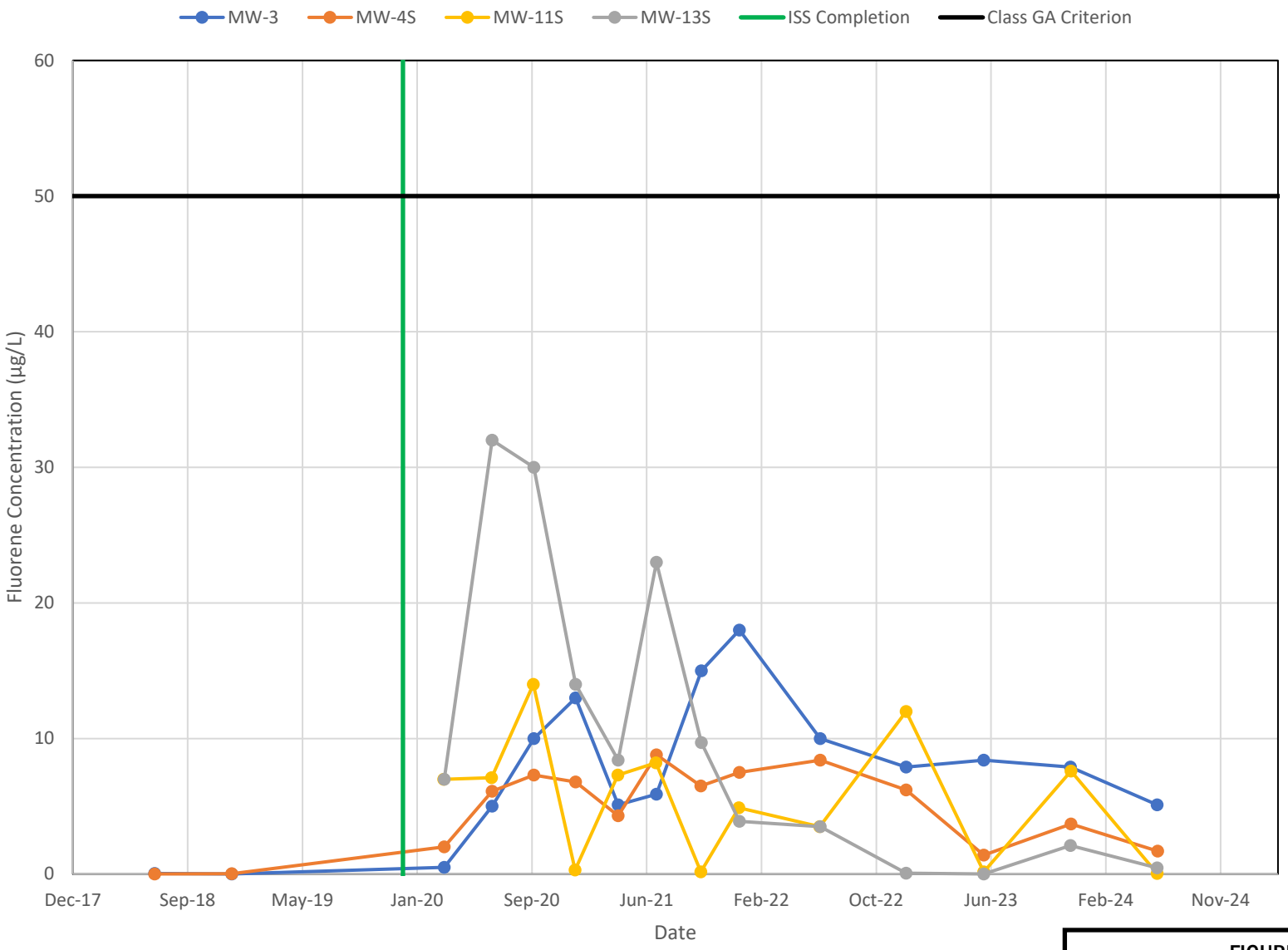
FIGURE 4

GROUNDWATER QUALITY TREND PLOT – NAPHTHALENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

196466



Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 50 µg/L

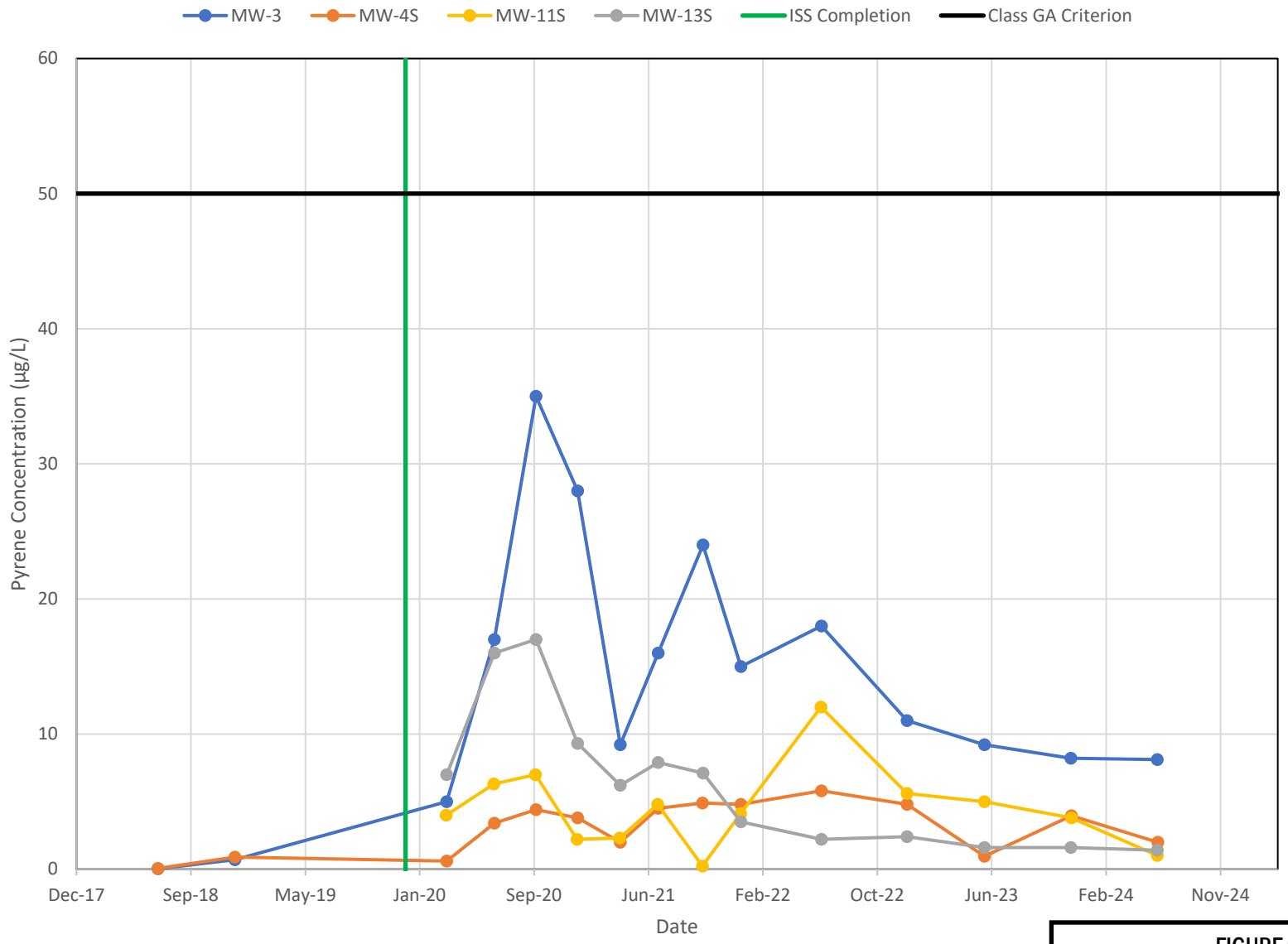
FIGURE 5

GROUNDWATER QUALITY TREND PLOT – FLUORENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

196466



Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 50 µg/L

FIGURE 6

GROUNDWATER QUALITY TREND PLOT – PYRENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

196466

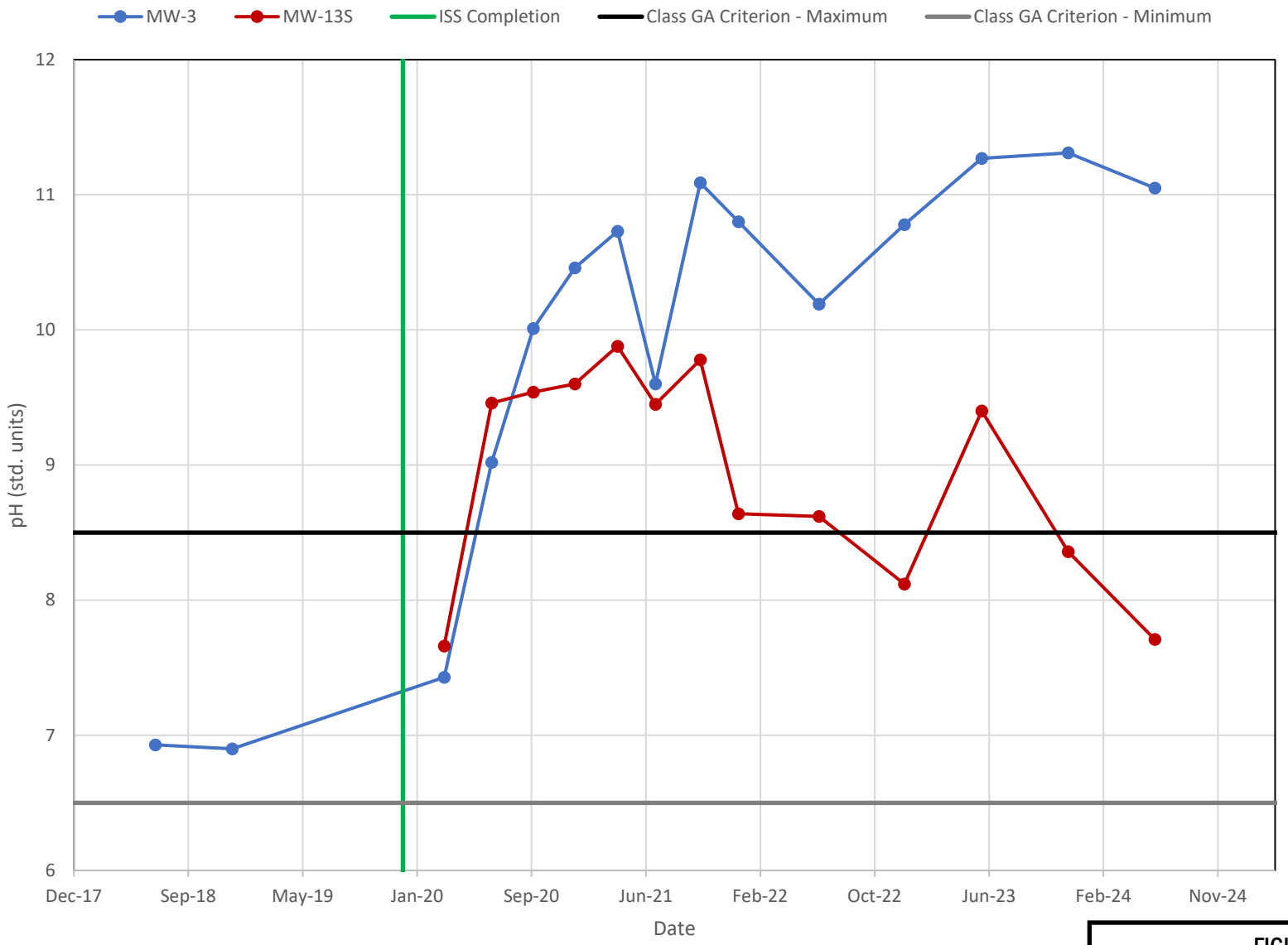


FIGURE 7

GROUNDWATER QUALITY TREND PLOT – pH

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

Notes:
ISS = In-Situ Solidification
NYS Part 703 Class GA Standard (Minimum) = 6.5
NYS Part 703 Class GA Standard (Maximum) = 8.5

Appendix A: Field Sampling Data Sheets

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-2
Sample I.D.: MW-2-20240718

Project: Paterson
Personnel: MHM JDW

Date: MW-2 Time: 11:35
Weather: Sunny Air Temp.: 76

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☑ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 5.65 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☑ Yes ☐ No ☐ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: _____

Pumping Rate: 400/200 Elapsed Time: 30 min Volume Pumped: 2.25 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☑ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☑ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: _____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: _____
MS/MSD : ☑ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 07/18/24

Brown AND Caldwell
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue	Project Number:	196466
Client:	BC	Date:	07/18
Personnel:	MLM / DRW	Well ID:	MW-1
Purge/Sample Depth:	12.7'	Sample ID:	MW-1-20240718

Actual Time	Certified Parameters					ORP	DTW	Pumping Rate	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)	(mV)	(ft)	(mL/min)	
11:35	5.74	21.02	1.98	1.34	32.5	16	5.85	400	
11:38	6.16	17.76	2.24	0.51	23.5	-24	5.72	↓	
11:41	6.24	17.43	2.29	0.29	11.4	-36	5.72		
11:44	6.24	17.18	2.32	0.13	4.7	-42	5.66	200	
11:47	6.28	17.79	2.35	0.10	0.3	-44	5.66		
11:50	6.28	18.00	2.34	0.14	7.2	-47	5.65		
11:53	6.30	18.00	2.33	0.13	16.1	-49	5.65		
11:56	6.31	18.00	2.31	0.10	25.0	-51	5.68		
11:59	6.31	18.01	2.31	0.08	21.3	-53	5.72		
12:02	6.31	17.96	2.31	0.08	16.0	-52	5.75		
12:05	6.32	17.91	2.30 DRW	0.07	13.7	-54			
12:08	Collect	MW-1	~~22.00~~ DRW	202407	18				

DRW 06/19

Certified Sample Information: DRW
Time of Sample: ~~[illegible]~~
Analyst Signature: [signature]

Instrument Data:
Manufacturer/Model: Horiba - U52
Serial No. Unit: 20UGYU5K
Serial No. Handheld: NUN 7T5
Calibration Date/Time: 07/18/24 11:19

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-B5
Sample I.D.: MW-B5-20240618

Project: Paterson
Personnel: MM / DRW

Date: 06/18 Time: 13:28
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: ____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 1.32 ft Bottom of Well: 7 ft
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☑ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ____

Pumping Rate: 225 Elapsed Time: 30 min Volume Pumped: 1.8 gal
Was well Evacuated? ☐ Yes ☐ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ☐ Dedicated ☑ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☑ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: ____
MS/MSD : ☑ No ☐ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/18/2024

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

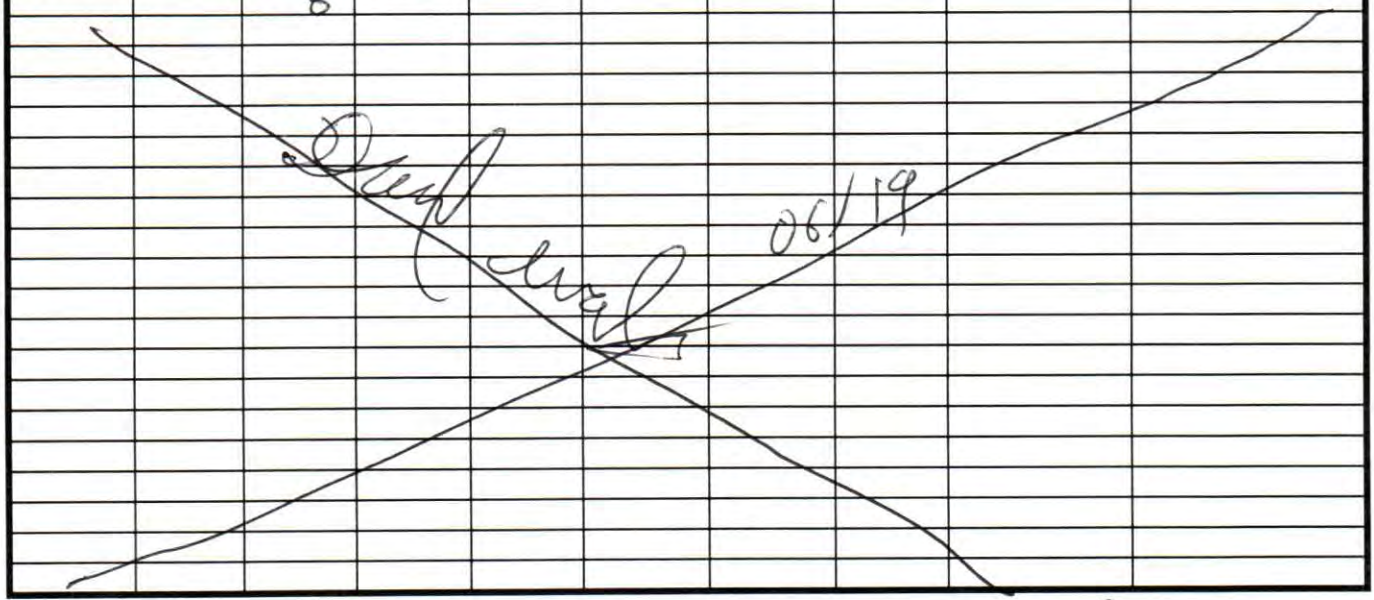
NJ FIELD LAB ID# 02023

LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MAM / DRW
Purge/Sample Depth: 4.5'

Project Number: 196466
Date: 06/18/24
Well ID: MW-~~12~~5
Sample ID: MW-~~12~~5-20240618 B

Actual Time	Certified Parameters: pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
13:26	6.05	19.26	0.311	1.84	54.8	1	0.74	225	
13:31	6.08	18.51	0.295	0.57	86.7	-3	0.70		
13:34	6.11	18.17	0.288	0.32	84.2	-5	0.65		
13:37	6.09	18.09	0.283	0.25	62.4	-7	0.60		
13:40	6.11	17.98	0.280	0.24	51.9	-7	0.62		
13:43	6.06	17.89	0.279	0.21	41.2	-8	0.64		
13:46	6.06	17.84	0.279	0.19	38.4	-6	0.65		
13:49	6.06	17.81	0.279	0.16	32.4	-8	0.63		
13:52	6.08	17.81	0.279	0.16	30.1	-8	0.61		
13:55	6.08	17.79	0.279	0.15	23.3	-10	0.60		
13:58	6.06	17.80	0.279	0.15	19.7	-9			
14:01	Collect	MW-~~12~~5-20240618 B							



Certified Sample Information:
Time of Sample: 14:01
Analyst Signature: David Mak

Instrument Data:
Manufacturer/Model: Horiba-452
Serial No. Unit: 20U6YU5K
Serial No. Handheld: NUN7T5
Calibration Date/Time: 06/18/24 11:19

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number:
Sample I.D.: MW25-20240618

Project: Patchogue
Personnel: MHM / DRW

Date: 06/18 Time: 14:31
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ☑ Stainless Steel ☐ Steel ☐ PVC ☐ Teflon® ☐ Other: ____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 1.32 ft Bottom of Well: 13.92 ft
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☑ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☐ Other: ____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ____

Pumping Rate: 375 Elapsed Time: 57 min Volume Pumped: 5 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☐ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: ____
MS/MSD : ☑ No ☐ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/18/2024

Brown AND Caldwell

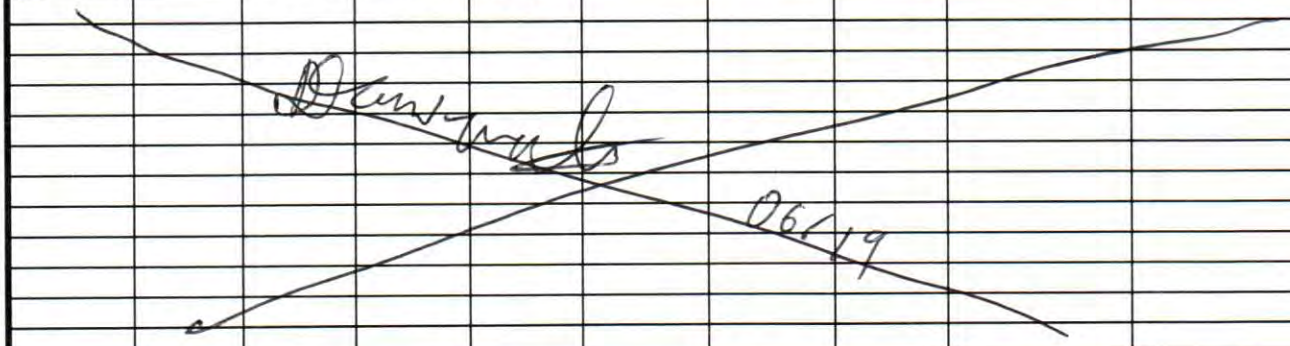
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Parkchester
Client: BC
Personnel: MHM / PRW
Purge/Sample Depth: 11.00

Project Number: 196466
Date: 06/18/24
Well ID: MW-12S
Sample ID: MW-12S-20240618

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
14:31	6.26	20.96	0.220	2.17	998	45	1.41	200	
14:34	6.32	19.70	0.214	3.66	"20"	70	1.42	↓	
14:37	6.27	18.75	0.218	2.93	"0.0"	91	1.43	350	
14:40	6.17	17.25	0.222	1.89	670	100	1.44		
14:43	6.16	17.00	0.224	1.53	341	107	1.44		
14:46	6.17	16.85	0.226	1.13	212	108	1.45		
14:49	6.14	16.76	0.228	0.80	164	107	1.45		
14:52	6.14	16.78	0.230	0.51	117	105	1.43		
14:55	6.17	16.71	0.232	0.32	104	99	1.40		
14:58	6.16	16.70	0.232	0.22	82.1	95	1.38		
15:01	6.16	16.62	0.234	0.14	67.8	93	1.41		
15:04	6.17	16.59	0.235	0.13	54.4	87	1.43		
15:07	6.16	16.58	0.236	0.09	48.2	81	1.45		
15:10	6.17	16.62	0.237	0.04	47.9	80	1.43		
15:13	6.17	16.52	0.238	0.04	41.3	76	1.41		
15:16	6.15	16.54	0.238	0.03	31.8	74	1.39		
15:19	6.18	16.52	0.239	0.00	28.2	70	1.42		
15:22	6.17	16.48	0.240	0.00	30.5	67	1.45		
15:25	6.18	16.49	0.241	0.00	29.0	64	1.48		
15:28	Collect	MW-12S-20240618							



Certified Sample Information:
Time of Sample: 15:28
Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba -452
Serial No. Unit: 20064VSK
Serial No. Handheld: NUN 7TJ
Calibration Date/Time: 07/16/24 11:14

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-12D
Sample I.D.: MW-12D-20240618

Project: Patchogue
Personnel: MHM / DRV

Date: 06/18 Time: _____
Weather: Sunny Air Temp.: _____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 1.2 ft Bottom of Well: 23.1 ft
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☑ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: _____

Pumping Rate: 200 Elapsed Time: 30 min Volume Pumped: 1.6 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: _____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: _____
MS/MSD : ☑ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 06/18/2024

Brown AND Caldwell

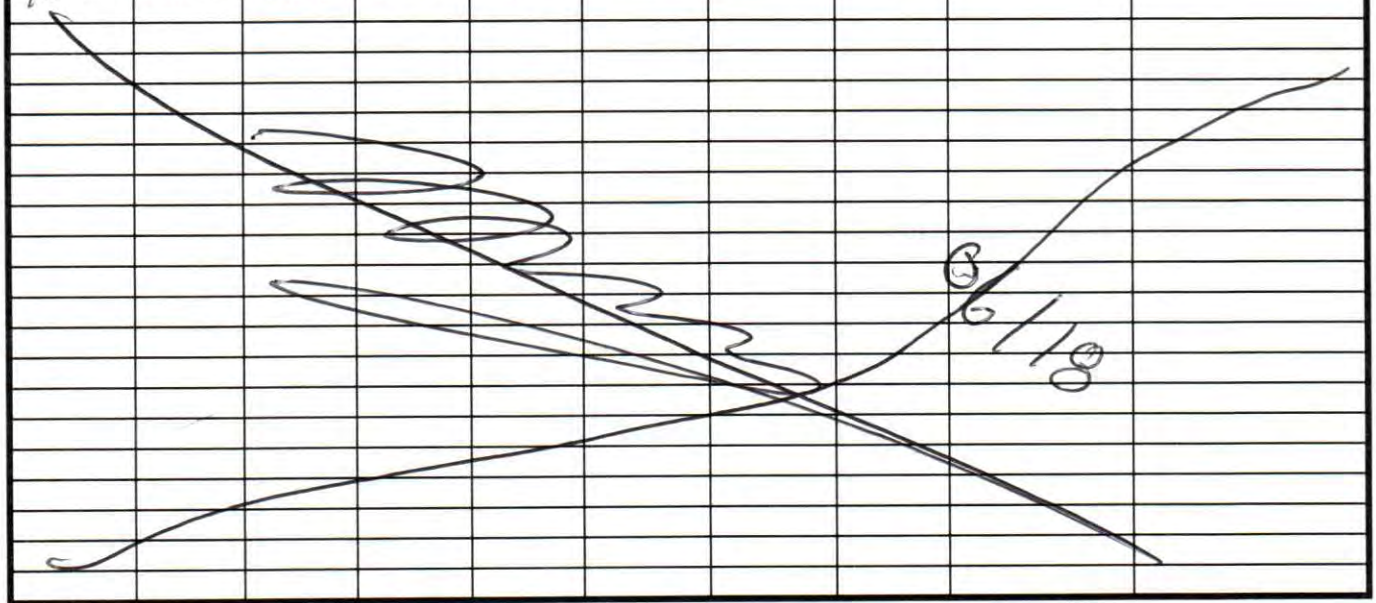
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MH MDRW
Purge/Sample Depth: ~~DRY 23.9~~ 21.5

Project Number: 196466
Date: 06/18/24
Well ID: MW-12D
Sample ID: MW-12D-20240618

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
15:41	5.28	18.99	0.293	0.94	54.5	153	1.22	200	
15:44	5.01	16.05	0.302	0.37	46.9	171	1.21		
15:47	4.91	17.82	0.302	0.17	34.1	184	1.21		
15:50	4.88	17.59	0.304	0.05	19.7	193	1.20		
15:53	4.84	17.52	0.305	0.01	19.3	202	1.20		
15:56	4.83	17.46	0.305	0.00	8.5	208	1.20		
15:59	4.82	17.48	0.305	0.00	6.2	214	1.20		
16:02	4.82	17.46	0.306	0.04	4.7	219	1.22		
16:05	4.80	17.43	0.306	0.06	3.8	226	1.24		
16:08	4.80	17.42	0.306	0.05	2.9	230	1.25		
16:11	4.79	17.41	0.306	0.02	3.1	233			
16:14	Collect MW-12D-20240618								



Certified Sample Information:
Time of Sample: ~~24~~ 16:14
Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba -452
Serial No. Unit: 20U64U5K
Serial No. Handheld: NUN TTJ
Calibration Date/Time: 07/18/24 11:19

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-115
Sample I.D.: MW-115 - 20240619

Project: Patchogue
Personnel: MHM | DRW

Date: 06/19/24 Time: 8:39
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: ____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 0.7 ft Bottom of Well: 13 ft
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☑ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ____

Pumping Rate: 250 Elapsed Time: 40 min Volume Pumped: 36 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: ____
MS/MSD : ☑ No ☐ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19/2024

Brown AND Caldwell

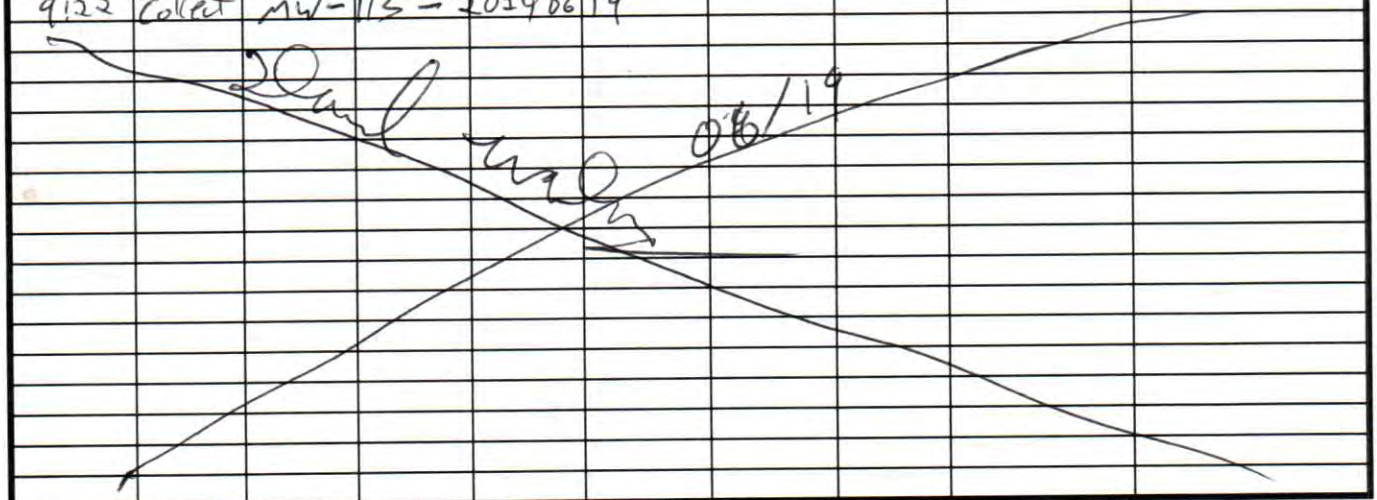
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MHM / DRW
Purge/Sample Depth: 11

Project Number: 196466
Date: 06/19/24
Well ID: MW-11S
Sample ID: MW-11S-20240619

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
8:39	6.16	19.06	0.466	0.34	168	6	1.81	250	
8:42	6.31	18.58	0.448	0.29	141	-29	1.80		
8:45	6.38	18.14	0.427	0.23	78.3	-44	1.80		
8:48	6.36	18.02	0.417	0.28	61.8	-54	1.79		
8:51	6.39	17.95	0.410	0.31	59.0	-60	1.77		
8:54	6.39	17.91	0.404	0.28	67.1	-64	1.75		
8:57	6.40	17.85	0.401	0.24	60.5	-66	1.72		
9:00	Purge for Employee Safety Meeting						1.75		
9:01	6.41	18.35	0.397	0.26	49.7	-69	1.78		
9:04	6.42	17.98	0.397	0.28	54.1	-72	1.83		
9:07	6.43	17.87	0.394	0.22	45.1	-74	1.81		
9:10	6.44	17.82	0.392	0.21	38.2	-75	1.81		
9:13	6.45	17.74	0.390	0.20	34.9	-75	1.81		
9:16	6.44	17.74	0.390	0.20	30.6	-78			
9:19	6.43	17.72	0.388	0.19	27.8	-78			
9:22	Collect MW-11S-20240619								



Certified Sample Information:
Time of Sample: 9:22
Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba - U52
Serial No. Unit: 20U6YU3K
Serial No. Handheld: NUN7T5
Calibration Date/Time: 06/19 08:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-3
Sample I.D.: MW-3-20240619

Project: Patchogue
Personnel: MHM/DRW

Date: 06/19/2024 Time: 9:42
Weather: Sunny Air Temp.: ______

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: ______
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 1.81 ft Bottom of Well: ~~13~~ ft 12.05
DATUM: ~~☑~~ Top of Protective Casing ☑ Top of Well Casing ☐ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☐ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: ―― To be purged: ――

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ______

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ______

Pumping Rate: 200 Elapsed Time: 30 min Volume Pumped: 1.6 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: ――
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ______

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel Tubing/Rope: ☐ Teflon® ☑ Polyethylene
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: ______
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ______ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☑ No ☐ Yes Name: ______
MS/MSD: ☑ No ☐ Yes Name: ______

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19/2024

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue	Project Number:	0196466
Client:	BC	Date:	06/19/24
Personnel:	MHM / PRW	Well ID:	MW-3
Purge/Sample Depth:	Hydrasleeve 7'	Sample ID:	MW-3-20240619

Actual Time	Certified Parameters: pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
9:40	8.91	17.41	0.690	0.54	2.6	-133	1.72	200	
9:43	9.96	16.51	0.711	0.41	0.0	-188	1.70		
9:48	10.52	16.25	0.729	0.09	0.0	-203	1.68		
9:51	10.78	16.43	0.738	0.07	0.0	-207	1.66		
9:54	10.91	16.44	0.755	0.00	0.0	-204	1.66		
9:57	10.91	16.42	0.747	0.00	0.0	-203	1.66		
10:00	10.98	16.34	0.755	0.00	0.0	-202	1.66		
10:03	11.00	16.40	0.758	0.00	0.0	-199	1.66		
10:06	11.00	16.36	0.763	0.00	0.0	-199	1.66		
10:09	11.02	16.32	0.763	0.00	0.0	-198	1.66		
10:12	11.05	16.35	0.766	0.00	0.0	-200			
10:15	Collect MW-3-20240609								

[signature] 06/19

Certified Sample Information:
Time of Sample: 10:15 Analyst Signature: [signature]

Instrument Data:
Manufacturer/Model: Horiba-452
Serial No. Unit: 2048YUSK Serial No. Handheld: NUN 7TJ
Calibration Date/Time: 6/19 08:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ **No (not required for CERCLA sites or sites outside of NJ)**

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-135
Sample I.D.: MW-135-20240619

Project: Petrocoyle
Personnel: MFM/DRW

Date: 06/19 Time: 1121
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ❑ Stainless Steel ☑ Steel ❑ PVC ❑ Teflon® ❑ Other: ____
Intake Diameter: 2" ❑ Stainless Steel ❑ Galv. Steel ☑ PVC ❑ Teflon® ❑ Open rock
DEPTH TO : Static Water Level: 1.25 ft Bottom of Well: 13.08 ft
DATUM: ❑ Top of Protective Casing ☑ Top of Well Casing ❑ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ❑ No Is well clean to bottom? ☑ Yes ❑ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ❑ No
Does Weep Hole adequately drain well head? ☑ Yes ❑ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ❑ No
Is Padlock Functional? ❑ Yes ❑ No ☑ NA Is Inner Casing Intact? ☑ Yes ❑ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ❑ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Centrifugal Pump ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel ❑ PVC ❑ Other: ____
Tubing/Rope: ❑ Teflon® ☑ Polyethylene ❑ Polypropylene ❑ Other: ____

Pumping Rate: 350 Elapsed Time: 50 min Volume Pumped: 4.7 gal
Was well Evacuated? ❑ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Syringe Sampler ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel
Tubing/Rope: ❑ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ❑ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ❑ Turbid ❑ Color: ____ ❑ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ~~☑~~ DRW No ☑ Yes Name: DUP-20240619
MS/MSD : ~~☑~~ DRW No ☑ DRW Yes Name: ~~DUP-20240619~~ DRW

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19

Brown AND Caldwell

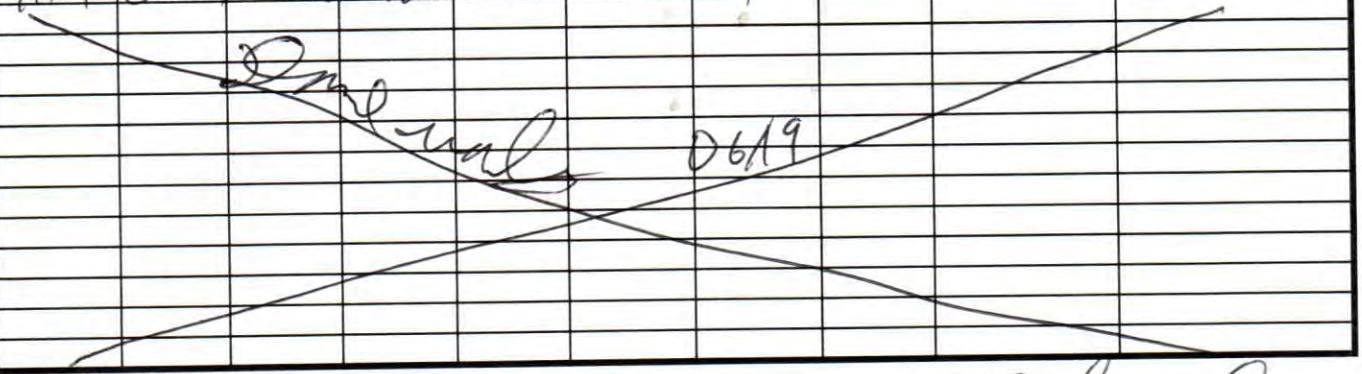
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MHM / DRW
Purge/Sample Depth: 11'

Project Number: ~~0196466~~ 196466
Date: 06/19/24
Well ID: MW-133
Sample ID: MW-133-20240619

Actual Time	Certified Parameters: pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
10:28	9.35	19.08	0.522	0.78	122	-211	1.27	350	
10:31	7.79	17.85	0.523	1.02	69.4	-200	1.28		
10:34	7.60	17.39	0.521	1.18	43.8	-201	1.28		
10:37	7.53	17.24	0.517	1.21	39.1	-203	1.29		
10:40	7.49	17.13	0.513	1.25	37.1	-208	1.29		
10:43	7.49	17.02	0.512	1.27	54.1	-214	1.26		
10:46	7.52	16.99	0.508	1.31	110	-219	1.26		
10:49	Purge to clean unit								
~~10:50~~	~~7.36~~	~~17.91~~	~~0.490~~	DRY					
10:55	7.09	17.05	0.500	1.48	136	-227	1.30		
10:58	7.31	16.58	0.499	0.90	111	-199	1.30		
11:01	7.46	16.50	0.496	1.00	93.4	-222	1.24		
11:00	7.53	16.51	0.494	1.11	71.4	-234	1.29		
11:03	7.58	16.49	0.490	1.20	59.2	-247	1.24		
11:06	7.61	16.48	0.490	1.25	55.5	-253	1.29		
11:09	7.65	16.49	0.486	1.31	47.3	-260	1.29		
11:12	7.70	16.48	0.485	1.34	45.2	-260	1.28		
11:15	7.68	16.50	0.484	1.33	41.0	-264	1.26		
11:18	7.71	16.46	0.483	1.37	36.6	-265	1.27		
11:21	Collect + DUP MW-133-20240619								



Certified Sample Information:
Time of Sample: 11:21
Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba 452
Serial No. Unit: 20067035K
Serial No. Handheld: NUN 7TJ
Calibration Date/Time: 6/19 08:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-13D
Sample I.D.: MW-13D-20240619

Project: Patchogue
Personnel: MH/MJ/DRW

Date: 06/19 Time: 11:37
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ❑ Stainless Steel ☑ Steel ❑ PVC ❑ Teflon® ❑ Other: ____

Intake Diameter: 2" ❑ Stainless Steel ❑ Galv. Steel ☑ PVC ❑ Teflon® ❑ Open rock

DEPTH TO: Static Water Level: 1.21 ft Bottom of Well: 23.93 ft

DATUM: ❑ Top of Protective Casing ☑ Top of Well Casing ❑ Other:

CONDITION: Is Well clearly labeled? ☑ Yes ❑ No Is well clean to bottom? ☑ Yes ❑ No

Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ❑ No

Does Weep Hole adequately drain well head? ☑ Yes ❑ No

Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ❑ No

Is Padlock Functional? ❑ Yes ❑ No ☑ NA Is Inner Casing Intact? ☑ Yes ❑ No

Is Inner Casing Properly Capped and Vented? ☑ Yes ❑ No

VOLUME OF WATER: Standing in well: — To be purged: —

PURGE DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump ❑ Centrifugal Pump ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel ❑ PVC ❑ Other: ____

Tubing/Rope: ❑ Teflon® ☑ Polyethylene ❑ Polypropylene ❑ Other: ____

Pumping Rate: 325 Elapsed Time: 50 min Volume Pumped: 4.28 gal

Was well Evacuated? ❑ Yes ☑ No Number of Well Volumes Removed: —

PURGING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump ❑ Syringe Sampler ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel Tubing/Rope: ❑ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ❑ Dedicated ☑ Prepared Off-Site ☑ Field Cleaned

Metals samples field filtered? ❑ Yes ☑ No Method: ____

APPEARANCE: ☑ Clear ❑ Turbid ❑ Color: ____ ❑ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☑ No ❑ Yes Name: ____
MS/MSD: ☑ No ❑ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19/2024

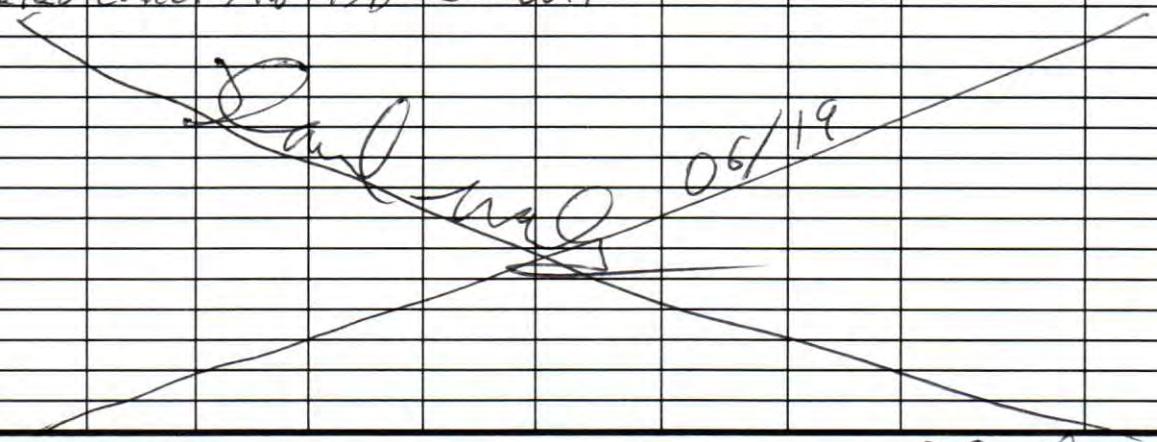
Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Ratchogue	Project Number:	196466
Client:	BC	Date:	06/19/24
Personnel:	MH, MI, DRW	Well ID:	MW-13D
Purge/Sample Depth:	21'	Sample ID:	MW-13D-20240619

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
11:37	5.89	19.35	0.281	2.61	39.7	7	1.23	325	
11:40	6.11	17.23	0.279	1.06	37.9	85	1.24		
11:43	5.64	16.61	0.271	0.29	30.0	118	1.24		
11:46	5.44	16.43	0.268	0.23	93.5	134	1.23		
11:49	5.41	16.35	0.266	0.08	120.0	148	1.25		
11:52	5.31	16.33	0.268	0.05	116	158	1.25		
11:55	5.27	16.15	0.266	0.02	106	165	1.25		
11:58	5.26	16.00	0.266	0.00	80.0	172	1.26		
12:01	5.25	16.00	0.266	0.00	70.9	178	1.27		
12:04	5.22	16.00	0.266	0.00	55.3	181	1.28		
12:07	5.21	15.97	0.265	0.00	44.9	184	1.27		
12:10	5.21	15.94	0.265	0.00	35.3	190	1.26		
12:13	5.23	15.89	0.265	0.00	31.2	191	1.25		
12:16	5.20	15.90	0.265	0.00	24.5	193	1.25		
12:19	5.22	15.84	0.265	0.00	19.0	197	1.25		
12:22	5.18	15.87	0.265	0.00	16.0	201	1.25		
12:25	5.21	15.89	0.265	0.00	11.8	203			
12:28	Collect MW-13D-20240619								



Certified Sample Information:
Time of Sample: 12:28 Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba U52
Serial No. Unit: 20UBFJSK Serial No. Handheld: NW 775
Calibration Date/Time: 06/19 08:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-7S
Sample I.D.: MW-7S-20240619

Project: Paterson
Personnel: MHM, DRW

Date: 06/19 Time: 1340
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: ____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 4.25 ft Bottom of Well: 12.47 ft
DATUM: ☑ Top of Protective Casing ☑ Top of Well Casing ☐ Other: DRW
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☑ Yes ☐ No ☐ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ____
Tubing/Rope: DRW ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ____

Pumping Rate: 200 Elapsed Time: 1 hour Volume Pumped: 4 gal
Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ☐ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ☐ Yes Name: ____
MS/MSD : ☑ No ☐ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19/24

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023

LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue	Project Number:	196466
Client:	BC	Date:	06/19/24
Personnel:	MHM / DRW	Well ID:	MW-75
Purge/Sample Depth:	10'	Sample ID:	MW-75-20240619

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
13:40	6.18	15.69	0.400	4.19	339	-7	4.45	200	
13:43	6.42	17.02	0.417	1.03	334	-63	4.45		
13:46	6.56	16.47	0.428	0.39	326	-85	4.45		
13:49	6.61	16.25	0.429	0.44	225	-97	4.45		
13:52	6.65	16.09	0.431	0.42	192	-102	4.45		
13:55	6.66	16.00	0.432	0.45	145	-106	4.45		
13:58	6.69	15.90	0.432	0.46	121	-108	4.45		
14:01	6.69	15.90	0.432	0.47	105	-110	4.44		
14:04	6.69	15.82	0.432	0.49	110	-112	4.44		
14:07	6.71	15.84	0.431	0.50	92.4	-114	4.44		
14:10	6.74	15.85	0.430	0.51	72.2	-116	4.46		
14:13	6.74	15.85	0.429	0.52	71.0	-116	4.47		
14:16	6.73	15.86	0.428	0.52	68.2	-117	4.48		
14:19	6.72	15.83	0.425	0.52	53.4	-118	4.48		
14:22	6.77	15.78	0.425	0.52	55.6	-119	4.47		
14:25	6.74	15.77	0.424	0.53	36.2	-119	4.47		
14:28	6.80	15.86	0.422	0.52	44.3	-121	4.47		
14:31	6.77	15.86	0.421	0.52	37.5	-120	4.46		
14:34	6.76	15.83	0.421	0.51	25.7	-119	4.46		
14:37	6.77	15.84	0.421	0.51	20.6	-120			
14:40	6.77	15.82	0.419	0.50	25.6	-120			
14:43	Collect MW-75-20240619								

06/19

Certified Sample Information:

Time of Sample: 14:43

Analyst Signature:

Instrument Data:

Manufacturer/Model: Horiba U52

Serial No. Unit: 20U6YUSK

Serial No. Handheld: NUN TTS

Calibration Date/Time: 6/19 8:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-10S
Sample I.D.: MW-10S-20240619

Project: Patchogue
Personnel: MH/DRW

Date: 06/19/24 Time: 15:02
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ❑ Stainless Steel ❑ Steel ❑ PVC ❑ Teflon® ❑ Other: ____
Intake Diameter: 2" ❑ Stainless Steel ❑ Galv. Steel ❑ PVC ❑ Teflon® ❑ Open rock
DEPTH TO : Static Water Level: 0.90 ft Bottom of Well: 15.5 ft
DATUM: ❑ Top of Protective Casing ☑ Top of Well Casing ❑ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ❑ No Is well clean to bottom? ☑ Yes ❑ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ❑ No
Does Weep Hole adequately drain well head? ☑ Yes ❑ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ❑ No
Is Padlock Functional? ☑ Yes ❑ No ❑ NA Is Inner Casing Intact? ☑ Yes ❑ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ❑ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Centrifugal Pump ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel ❑ PVC ❑ Other: ____
Tubing/Rope: ❑ Teflon® ☑ Polyethylene ❑ Polypropylene ❑ Other: ____

Pumping Rate: 250 Elapsed Time: 69 min Volume Pumped: 4.5 gal
Was well Evacuated? ❑ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Syringe Sampler ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel
Tubing/Rope: ❑ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ❑ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ❑ Turbid ❑ Color: ____ ❑ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ❑ Yes Name: ____
MS/MSD : ❑ No ☑ Yes Name: MS/MSD-20240619

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/19/24

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: PBC
Personnel: MHM / DRW
Purge/Sample Depth: 13'

Project Number: 196466
Date: 06/19/24
Well ID: MW-105
Sample ID: MW-105-20240619

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
15:02	7.15	19.76	0.367	90.6	112	-57	0.90	250	
15:05	6.67	17.47	0.408	1.39	131	-43	0.91		
15:08	6.66	16.71	0.408	0.49	130	-58	0.90		
15:11	6.68	16.07	0.408	0.38	132	-61	0.90		
15:14	6.63	15.17	0.408	0.21	143	-63	0.90		
15:17	6.63	14.94	0.408	0.21	142	-63	0.90		
15:20	6.63	14.82	0.409	0.18	134	-64	0.90		
15:23	6.61	14.73	0.409	0.17	127	-66	0.90		
15:26	6.62	14.65	0.410	0.17	117	-66	0.90		
15:29	6.59	14.66	0.409	0.17	106	-67	0.90		
15:32	6.61	14.60	0.410	0.19	100	-68	0.90		
15:35	6.60	14.57	0.409	0.19	96.7	-68	0.90		
15:38	6.58	14.58	0.409	0.20	81.2	-68	0.90		
15:41	6.59	14.54	0.410	0.21	71.0	-69	0.91		
15:44	6.59	14.50	0.411	0.22	62.1	-70	0.91		
15:47	6.56	14.51	0.411	0.23	58.8	-70	0.92		
15:50	6.58	14.50	0.412	0.23	51.8	-69	0.92		
15:53	6.56	14.48	0.413	0.24	49.5	-71	0.92		
15:56	6.55	14.46	0.414	0.23	42.4	-69	0.93		
15:59	6.56	14.44	0.414	0.24	39.1	-70	0.92		
16:02	6.58	14.42	0.415	0.25	30.5	-70	0.91		
16:05	6.59	14.41	0.414	0.25	27.7	-71	0.90		
16:08	6.57	14.42	0.414	0.26	25.1	-72			
16:11	Collect 2 MS/MSD MW-105-20240619								
		Dup				06/19			

Certified Sample Information:
Time of Sample: 16:11
Analyst Signature: Dup

Instrument Data:
Manufacturer/Model: Horiba U52
Serial No. Unit: 20UGYUS1C
Serial No. Handheld: NUN TT3
Calibration Date/Time: 6/19 8:20

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-145
Sample I.D.: MW-145-20240620

Project: Patterson
Personnel: MHM / DRV

Date: 06/20/24 Time: 8:30
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ❑ Stainless Steel ☑ Steel ❑ PVC ❑ Teflon® ❑ Other: ____
Intake Diameter: 2" ❑ Stainless Steel ❑ Galv. Steel ☑ PVC ❑ Teflon® ❑ Open rock
DEPTH TO : Static Water Level: 0.80 ft Bottom of Well: 12.59 ft
DATUM: ❑ Top of Protective Casing ☑ Top of Well Casing ❑ Other:
CONDITION: Is Well clearly labeled? ☑ Yes ❑ No Is well clean to bottom? ☑ Yes ❑ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ❑ No
Does Weep Hole adequately drain well head? ☑ Yes ❑ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ❑ No
Is Padlock Functional? ❑ Yes ❑ No ☑ NA Is Inner Casing Intact? ☑ Yes ❑ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ❑ No
VOLUME OF WATER: Standing in well: ____ To be purged: ____

PURGE DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Centrifugal Pump ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel ❑ PVC ❑ Other: ____
Tubing/Rope: ❑ Teflon® ☑ Polyethylene ❑ Polypropylene ❑ Other: ____

Pumping Rate: 300 Elapsed Time: 30 min Volume Pumped: 2.5 gal
Was well Evacuated? ❑ Yes ☑ No Number of Well Volumes Removed: ____
PURGING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ❑ Bailer, Size: ____ ☑ Bladder Pump ❑ 2" Submersible Pump ❑ 4" Submersible Pump
❑ Syringe Sampler ❑ Peristaltic Pump ❑ Inertial Lift Pump ❑ Other: ____

MATERIALS: Pump/Bailer: ❑ Teflon® ☑ Stainless Steel
Tubing/Rope: ❑ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ❑ Dedicated ❑ Prepared Off-Site ☑ Field Cleaned
Metals samples field filtered? ❑ Yes ☑ No Method: ____
APPEARANCE: ☑ Clear ❑ Turbid ❑ Color: ____ ❑ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP : ☑ No ❑ Yes Name: ____
MS/MSD : ☑ No ❑ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 06/20/24

Brown AND Caldwell

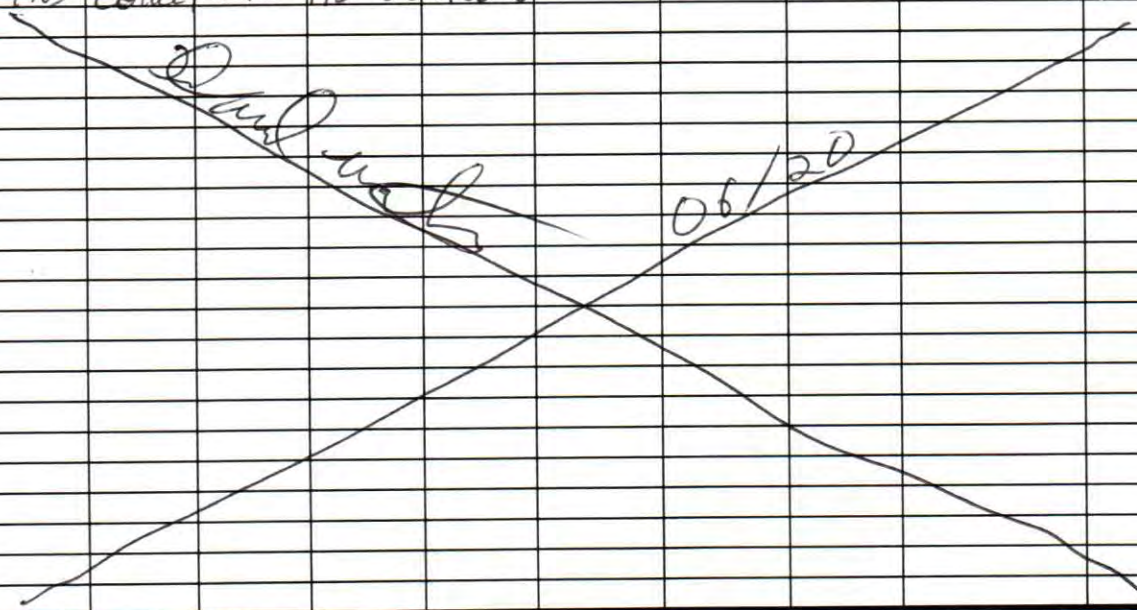
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MTM / DRW
Purge/Sample Depth: 10'

Project Number: 196466
Date: 06/20/24
Well ID: MW-145
Sample ID: MW-145-20240620

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
8:30	6.66	18.7	0.360	3.27	37.5	202	0.92	300	
8:33	6.00	17.64	0.330	1.31	14.1	188	0.93		
8:36	6.11	17.39	0.323	0.44	10.0	190	0.93		
8:39	6.12	17.36	0.328	0.29	4.9	172	0.94		
8:42	6.13	17.36	0.339	0.24	1.7	170	0.96		
8:45	6.14	17.39	0.341	0.24	0.5	168	0.98		
8:48	6.09	17.39	0.345	0.27	0.0	167	0.99		
8:51	6.08	17.39	0.350	0.30	0.0	168	0.97		
8:54	6.07	17.38	0.354	0.29	0.0	164	0.95		
8:57	6.08	17.37	0.357	0.30	0.0	164	0.94		
9:00	6.07	17.38	0.359	0.30	0.0	166			
9:03	Collect MW-145-20240620								



Certified Sample Information:
Time of Sample: 9:03
Analyst Signature: Dan Walter

Instrument Data:
Manufacturer/Model: Horiba 452
Serial No. Unit: 20UGYU5K
Serial No. Handheld: NUN 7TJ
Calibration Date/Time: 06/20 8:35

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Brown AND Caldwell

Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-45
Sample I.D.: MW-45-20240620

Project: Patchogue
Personnel: MHM / BDRW

Date: 06/20/24 Time: 9:21
Weather: Sunny Air Temp.: ____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☑ Steel ☐ PVC ☐ Teflon® ☐ Other: ____

Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☑ PVC ☐ Teflon® ☐ Open rock

DEPTH TO: Static Water Level: 4.3 ft Bottom of Well: 12.34 ft

DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other:

CONDITION: Is Well clearly labeled? ☑ Yes ☐ No Is well clean to bottom? ☑ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Does Weep Hole adequately drain well head? ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☑ Yes ☐ No ☐ NA Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No

VOLUME OF WATER: Standing in well: — To be purged: —

PURGE DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ____
Tubing/Rope: ☐ Teflon® ☑ Polyethylene ☐ Polypropylene ☐ Other: ____

Pumping Rate: 300 Elapsed Time: 40 min Volume Pumped: 4 gal

Was well Evacuated? ☐ Yes ☑ No Number of Well Volumes Removed: —

PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: ____ ☑ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: ____

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel
Tubing/Rope: ☐ Teflon® ☑ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☑ Field Cleaned

Metals samples field filtered? ☐ Yes ☑ No Method: ____

APPEARANCE: ☑ Clear ☐ Turbid ☐ Color: ____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☑ No ☐ Yes Name: ____
MS/MSD: ☑ No ☐ Yes Name: ____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [signature] Date: 6/20/24

Brown AND Caldwell

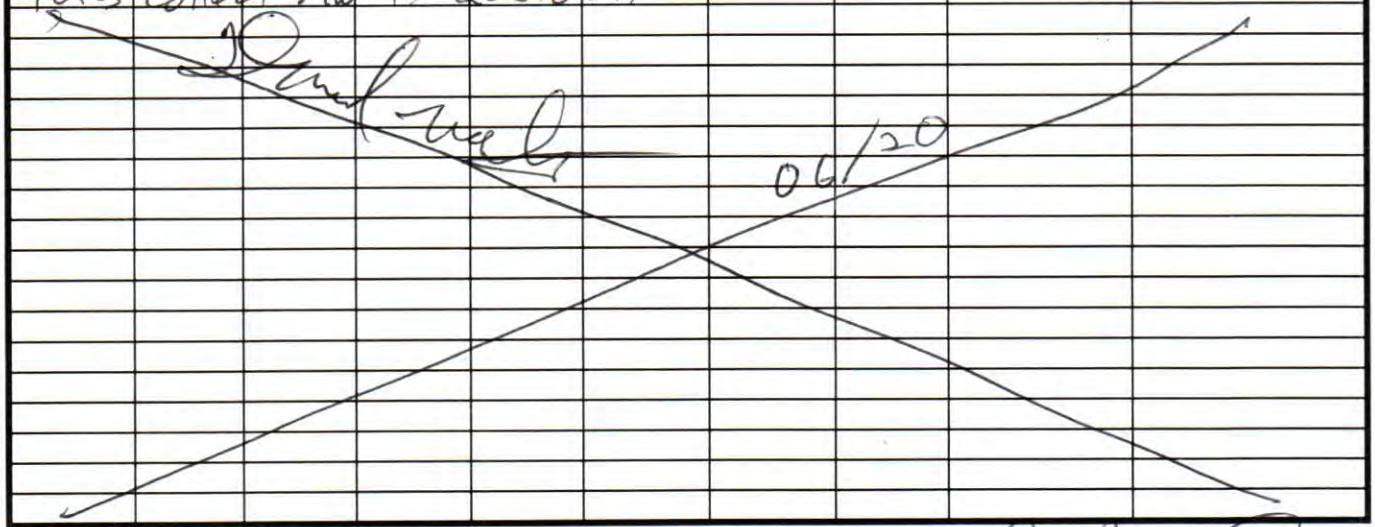
2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue
Client: BC
Personnel: MHM / PDW
Purge/Sample Depth: 10'

Project Number: 196466
Date: 06/20/24
Well ID: MW-45
Sample ID: MW-45-20240619

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
9:28	6.26	18.6	0.338	2.55	144	164	4.31	300	
9:31	6.09	17.26	0.335	1.17	441	165	4.75		
9:34	6.07	16.35	0.335	0.33	775	136	5.00		
9:36	6.12	16.83	0.339	0.14	540	72	5.14		
9:39	6.18	15.67	0.344	0.01	290	25	5.12		
9:42	6.27	15.48	0.347	0.00	171	-2	5.06		
9:44	6.31	15.44	0.350	0.05	125	-20	5.01		
9:47	6.35	15.36	0.350	0.07	106	-28	5.05		
9:49	6.36	15.26	0.351	0.09	83.6	-34	5.09		
9:52	6.40	15.27	0.351	0.11	58.0	-41	5.13		
9:55	6.39	15.28	0.351	0.14	33.1	-45	5.13		
9:58	6.42	15.28	0.351	0.16	15.1	-50	5.13		
10:01	6.40	15.29	0.351	0.17	13.9	-50	5.12		
10:04	6.45	15.23	0.351	0.19	15.7	-55			
10:07	Collect MW-45-20240619								



Certified Sample Information:
Time of Sample: 10:07

Analyst Signature:

Instrument Data:
Manufacturer/Model: Horiba U52
Serial No. Unit: 20V6YUSK
Serial No. Handheld: NUNJTJ
Calibration Date/Time: 06/20 8:25

Are low-flow parameters subject to field lab certification? ☐ Yes ☑ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

Appendix B: Laboratory Data Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. James L Marolda
Brown and Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey, New Jersey 07446

Generated 7/5/2024 5:23:56 PM

JOB DESCRIPTION

Patchogue, NY

JOB NUMBER

410-176867-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Barb Weyandt

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7/5/2024 5:23:56 PM

Authorized for release by
Barbara Weyandt, Project Manager
Barbara.Weyandt@et.eurofinsus.com
(717)556-7264

Eurofins Lancaster Laboratories Environment Testing, LLC

Compliance Statement

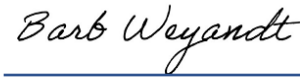
Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
cn	Refer to Case Narrative for further detail
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
410-176867-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/20/2024 4:36 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.8°C and 5.5°C.

Receipt Exceptions
The Field Sampler was not listed on the Chain of Custody.

The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB_20240620 (410-176867-14).
The laboratory received 4 total containers, while the COC lists 2 total containers.

The COC is marked for 8260 and 8270. The lab only received containers for 8260. 8270 not entered.

TB_20240620 (410-176867-14)

GC/MS VOA
Method 8260D: The following sample(s) was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed outside the 7-day holding time specified for unpreserved samples but within the 14-day holding time specified for preserved samples: MW-8S_20240618 (410-176867-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_SIM: The continuing calibration verification (CCV) associated with batch 410-522108 recovered above the upper control limit for Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are: MW-75_20240619 (410-176867-8), MW-105_20240619 (410-176867-9), DUP_20240619 (410-176867-10), FB_20240620 (410-176867-13) and MW-13D_20240620 (410-176867-15).

Method 8270E_SIM: Internal standard (ISTD) response for the MB was outside of upper acceptance limits: MW-1_20240618 (410-176867-1), MW-8S_20240618 (410-176867-2), MW-12S_20240618 (410-176867-3) and MW-12D_20240618 (410-176867-4). Samples are within compliance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-1_20240618 — Lab Sample ID: 410-176867-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.083	cn	0.073	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-8S_20240618 — Lab Sample ID: 410-176867-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.16	cn	0.051	0.010	ug/L	1		8270E SIM	Total/NA
Naphthalene	0.094	cn	0.071	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	0.011	J cn	0.051	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-12S_20240618 — Lab Sample ID: 410-176867-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.011	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.012	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.010	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	0.015	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-12D_20240618 — Lab Sample ID: 410-176867-4

No Detections.

Client Sample ID: MW-11S_20240619 — Lab Sample ID: 410-176867-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	2.0		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.061		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Anthracene	0.045	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.17		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.13		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.31		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.18		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.10		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Chrysene	0.30		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.029	J	0.054	0.021	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.70		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Fluorene	0.039	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.14		0.054	0.021	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.30		0.075	0.032	ug/L	1		8270E SIM	Total/NA
Pyrene	1.0		0.054	0.011	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-3_20240619 — Lab Sample ID: 410-176867-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.59	J	1.0	0.30	ug/L	1		8260D	Total/NA
Ethylbenzene	2.7		1.0	0.40	ug/L	1		8260D	Total/NA
Toluene	0.64	J	1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	4.7		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthylene	3.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	1.7		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.26		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.14		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	8.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	5.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	8.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-3_20240619 (Continued) — Lab Sample ID: 410-176867-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene - DL	29		0.51	0.10	ug/L	10		8270E SIM	Total/NA
Naphthalene - DL	55		0.71	0.31	ug/L	10		8270E SIM	Total/NA
Phenanthrene - DL	11		0.71	0.31	ug/L	10		8270E SIM	Total/NA

Client Sample ID: MW-13S_20240619 — Lab Sample ID: 410-176867-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.1		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.059		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.19		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.17		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.11		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.0		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	0.46		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	1.4		0.052	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-75_20240619 — Lab Sample ID: 410-176867-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.075		0.056	0.011	ug/L	1		8270E SIM	Total/NA
Anthracene	0.011	J	0.056	0.011	ug/L	1		8270E SIM	Total/NA
Fluorene	0.013	J	0.056	0.011	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-105_20240619 — Lab Sample ID: 410-176867-9

No Detections.

Client Sample ID: DUP_20240619 — Lab Sample ID: 410-176867-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.6		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.17		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.38		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.15		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.11		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Naphthalene	1.0		0.071	0.031	ug/L	1		8270E SIM	Total/NA
Phenanthrene	1.3		0.071	0.031	ug/L	1		8270E SIM	Total/NA
Pyrene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-14S_20240620 — Lab Sample ID: 410-176867-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.57		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.012	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.010	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.023	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.030	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.055		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.066		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.079		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.068		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.083		0.052	0.021	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-14S_20240620 (Continued) — Lab Sample ID: 410-176867-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.018	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	0.094		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.051	J	0.052	0.021	ug/L	1		8270E SIM	Total/NA
Naphthalene	0.69		0.072	0.031	ug/L	1		8270E SIM	Total/NA
Pyrene	0.014	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-45_20240620 — Lab Sample ID: 410-176867-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	6.7		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.16		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.16		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.011	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.013	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.023	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.016	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.018	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.024	J	0.050	0.020	ug/L	1		8270E SIM	Total/NA
Fluoranthene	2.4		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	1.7		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.040	J	0.070	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	2.0		0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: FB_20240620 — Lab Sample ID: 410-176867-13

No Detections.

Client Sample ID: TB_20240620 — Lab Sample ID: 410-176867-14

No Detections.

Client Sample ID: MW-13D_20240620 — Lab Sample ID: 410-176867-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.011	J	0.055	0.011	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1_20240618

Lab Sample ID: 410-176867-1

Date Collected: 06/18/24 12:08

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 12:15	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 12:15	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 12:15	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 12:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*06/30/24 12:15*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/30/24 12:15*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 12:15*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 12:15*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Acenaphthylene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Anthracene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[g,h,i]perylene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Chrysene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		06/24/24 08:37	07/05/24 14:45	1
Fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Fluorene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		06/24/24 08:37	07/05/24 14:45	1
Naphthalene	**0.083**	**cn**	0.073	0.031	ug/L		06/24/24 08:37	07/05/24 14:45	1
Phenanthrene	ND	cn	0.073	0.031	ug/L		06/24/24 08:37	07/05/24 14:45	1
Pyrene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*66*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 14:45*	*1*
1-Methylnaphthalene-d10 (Surr)	*74*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 14:45*	*1*
Fluoranthene-d10 (Surr)	*68*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 14:45*	*1*

Client Sample ID: MW-8S_20240618

Lab Sample ID: 410-176867-2

Date Collected: 06/18/24 14:01

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			06/30/24 12:37	1
Ethylbenzene	ND	cn	1.0	0.40	ug/L			06/30/24 12:37	1
Toluene	ND	cn	1.0	0.30	ug/L			06/30/24 12:37	1
Xylenes, Total	ND	cn	1.0	0.40	ug/L			06/30/24 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
4-Bromofluorobenzene (Surr)	*98*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
Dibromofluoromethane (Surr)	*110*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
Toluene-d8 (Surr)	*102*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*

Client Sample ID: MW-8S_20240618

Lab Sample ID: 410-176867-2

Date Collected: 06/18/24 14:01

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.16**	**cn**	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Acenaphthylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[g,h,i]perylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Chrysene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:08	1
Fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Fluorene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:08	1
Naphthalene	**0.094**	**cn**	0.071	0.030	ug/L		06/24/24 08:37	07/05/24 15:08	1
Phenanthrene	ND	cn	0.071	0.030	ug/L		06/24/24 08:37	07/05/24 15:08	1
Pyrene	**0.011**	**J cn**	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*81*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:08*	*1*
1-Methylnaphthalene-d10 (Surr)	*77*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:08*	*1*
Fluoranthene-d10 (Surr)	*93*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:08*	*1*

Client Sample ID: MW-12S_20240618

Lab Sample ID: 410-176867-3

Date Collected: 06/18/24 15:28

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 12:59	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 12:59	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 12:59	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 12:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*06/30/24 12:59*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*06/30/24 12:59*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 12:59*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 12:59*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.011**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Acenaphthylene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Anthracene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[a]anthracene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[a]pyrene	**0.012**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[b]fluoranthene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[g,h,i]perylene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[k]fluoranthene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Chrysene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Dibenz(a,h)anthracene	ND	cn	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 15:31	1

Client Sample ID: MW-12S_20240618

Lab Sample ID: 410-176867-3

Date Collected: 06/18/24 15:28

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	**0.010**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Fluorene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 15:31	1
Naphthalene	ND	cn	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 15:31	1
Phenanthrene	ND	cn	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 15:31	1
Pyrene	**0.015**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*50*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:31*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:31*	*1*
Fluoranthene-d10 (Surr)	*91*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:31*	*1*

Client Sample ID: MW-12D_20240618

Lab Sample ID: 410-176867-4

Date Collected: 06/18/24 16:14

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 13:22	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 13:22	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 13:22	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*06/30/24 13:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*06/30/24 13:22*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 13:22*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/30/24 13:22*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Acenaphthylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[g,h,i]perylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Chrysene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:55	1
Fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Fluorene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:55	1
Naphthalene	ND	cn	0.071	0.031	ug/L		06/24/24 08:37	07/05/24 15:55	1
Phenanthrene	ND	cn	0.071	0.031	ug/L		06/24/24 08:37	07/05/24 15:55	1
Pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*53*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:55*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:55*	*1*

Client Sample ID: MW-12D_20240618

Lab Sample ID: 410-176867-4

Date Collected: 06/18/24 16:14

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluoranthene-d10 (Surr)	*93*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:55*	*1*

Client Sample ID: MW-11S_20240619

Lab Sample ID: 410-176867-5

Date Collected: 06/19/24 09:22

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 16:47	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 16:47	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 16:47	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 16:47*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*06/30/24 16:47*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 16:47*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/30/24 16:47*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**2.0**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Acenaphthylene	**0.061**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Anthracene	**0.045**	**J**	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[a]anthracene	**0.17**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[a]pyrene	**0.13**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[b]fluoranthene	**0.31**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[g,h,i]perylene	**0.18**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[k]fluoranthene	**0.10**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Chrysene	**0.30**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Dibenz(a,h)anthracene	**0.029**	**J**	0.054	0.021	ug/L		06/24/24 15:15	06/26/24 21:26	1
Fluoranthene	**0.70**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Fluorene	**0.039**	**J**	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Indeno[1,2,3-cd]pyrene	**0.14**		0.054	0.021	ug/L		06/24/24 15:15	06/26/24 21:26	1
Naphthalene	ND		0.075	0.032	ug/L		06/24/24 15:15	06/26/24 21:26	1
Phenanthrene	**0.30**		0.075	0.032	ug/L		06/24/24 15:15	06/26/24 21:26	1
Pyrene	**1.0**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*61*		*10 - 136*	*06/24/24 15:15*	*06/26/24 21:26*	*1*
1-Methylnaphthalene-d10 (Surr)	*72*		*20 - 144*	*06/24/24 15:15*	*06/26/24 21:26*	*1*
Fluoranthene-d10 (Surr)	*73*		*29 - 153*	*06/24/24 15:15*	*06/26/24 21:26*	*1*

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.59**	**J**	1.0	0.30	ug/L			06/30/24 17:07	1
Ethylbenzene	**2.7**		1.0	0.40	ug/L			06/30/24 17:07	1

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.64	J	1.0	0.30	ug/L			06/30/24 17:07	1
Xylenes, Total	4.7		1.0	0.40	ug/L			06/30/24 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/30/24 17:07*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 17:07*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 17:07*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 17:07*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	3.1		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Anthracene	1.7		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[a]anthracene	0.26		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Chrysene	0.14		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		06/24/24 15:15	06/26/24 21:49	1
Fluoranthene	8.2		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Fluorene	5.1		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		06/24/24 15:15	06/26/24 21:49	1
Pyrene	8.1		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*69*		*10 - 136*	*06/24/24 15:15*	*06/26/24 21:49*	*1*
1-Methylnaphthalene-d10 (Surr)	*63*		*20 - 144*	*06/24/24 15:15*	*06/26/24 21:49*	*1*
Fluoranthene-d10 (Surr)	*94*		*29 - 153*	*06/24/24 15:15*	*06/26/24 21:49*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	29		0.51	0.10	ug/L		06/24/24 15:15	06/27/24 17:21	10
Naphthalene	55		0.71	0.31	ug/L		06/24/24 15:15	06/27/24 17:21	10
Phenanthrene	11		0.71	0.31	ug/L		06/24/24 15:15	06/27/24 17:21	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*	*06/24/24 15:15*	*06/27/24 17:21*	*10*
1-Methylnaphthalene-d10 (Surr)	*69*		*20 - 144*	*06/24/24 15:15*	*06/27/24 17:21*	*10*
Fluoranthene-d10 (Surr)	*71*		*29 - 153*	*06/24/24 15:15*	*06/27/24 17:21*	*10*

Client Sample ID: MW-13S_20240619

Lab Sample ID: 410-176867-7

Date Collected: 06/19/24 11:21

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 17:26	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 17:26	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 17:26	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 17:26	1

Client Sample ID: MW-13S_20240619

Lab Sample ID: 410-176867-7

Date Collected: 06/19/24 11:21

Matrix: Water

Date Received: 06/20/24 16:36

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		06/30/24 17:26	1
4-Bromofluorobenzene (Surr)	104		80 - 120		06/30/24 17:26	1
Dibromofluoromethane (Surr)	108		80 - 120		06/30/24 17:26	1
Toluene-d8 (Surr)	103		80 - 120		06/30/24 17:26	1

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**3.1**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Acenaphthylene	**0.059**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Anthracene	**0.19**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[a]anthracene	**0.17**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[g,h,i]perylene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Chrysene	**0.11**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/24/24 15:15	06/27/24 17:44	1
Fluoranthene	**1.0**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Fluorene	**0.46**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/24/24 15:15	06/27/24 17:44	1
Naphthalene	ND		0.072	0.031	ug/L		06/24/24 15:15	06/27/24 17:44	1
Phenanthrene	ND		0.072	0.031	ug/L		06/24/24 15:15	06/27/24 17:44	1
Pyrene	**1.4**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 136	06/24/24 15:15	06/27/24 17:44	1
1-Methylnaphthalene-d10 (Surr)	69		20 - 144	06/24/24 15:15	06/27/24 17:44	1
Fluoranthene-d10 (Surr)	72		29 - 153	06/24/24 15:15	06/27/24 17:44	1

Client Sample ID: MW-75_20240619

Lab Sample ID: 410-176867-8

Date Collected: 06/19/24 14:43

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 17:46	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 17:46	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 17:46	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		06/30/24 17:46	1
4-Bromofluorobenzene (Surr)	103		80 - 120		06/30/24 17:46	1
Dibromofluoromethane (Surr)	109		80 - 120		06/30/24 17:46	1
Toluene-d8 (Surr)	102		80 - 120		06/30/24 17:46	1

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.075**		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Acenaphthylene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Anthracene	**0.011**	**J**	0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1

Client Sample ID: MW-75_20240619

Lab Sample ID: 410-176867-8

Date Collected: 06/19/24 14:43

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[g,h,i]perylene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Chrysene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Dibenz(a,h)anthracene	ND	cn	0.056	0.023	ug/L		06/26/24 16:23	06/27/24 12:44	1
Fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Fluorene	**0.013**	**J**	0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.056	0.023	ug/L		06/26/24 16:23	06/27/24 12:44	1
Naphthalene	ND		0.079	0.034	ug/L		06/26/24 16:23	06/27/24 12:44	1
Phenanthrene	ND		0.079	0.034	ug/L		06/26/24 16:23	06/27/24 12:44	1
Pyrene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*	*06/26/24 16:23*	*06/27/24 12:44*	*1*
1-Methylnaphthalene-d10 (Surr)	*86*		*20 - 144*	*06/26/24 16:23*	*06/27/24 12:44*	*1*
Fluoranthene-d10 (Surr)	*94*		*29 - 153*	*06/26/24 16:23*	*06/27/24 12:44*	*1*

Client Sample ID: MW-105_20240619

Lab Sample ID: 410-176867-9

Date Collected: 06/19/24 16:11

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 15:48	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 15:48	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 15:48	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 15:48*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 15:48*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 15:48*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 15:48*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Chrysene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Dibenz(a,h)anthracene	ND	cn	0.050	0.020	ug/L		06/26/24 16:23	06/27/24 13:07	1
Fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Fluorene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.050	0.020	ug/L		06/26/24 16:23	06/27/24 13:07	1

Client Sample ID: MW-105_20240619

Lab Sample ID: 410-176867-9

Date Collected: 06/19/24 16:11

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND	F2	0.070	0.030	ug/L		06/26/24 16:23	06/27/24 13:07	1
Phenanthrene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 13:07	1
Pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*74*		*10 - 136*	*06/26/24 16:23*	*06/27/24 13:07*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*		*20 - 144*	*06/26/24 16:23*	*06/27/24 13:07*	*1*
Fluoranthene-d10 (Surr)	*98*		*29 - 153*	*06/26/24 16:23*	*06/27/24 13:07*	*1*

Client Sample ID: DUP_20240619

Lab Sample ID: 410-176867-10

Date Collected: 06/19/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:05	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:05	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:05	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:05*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 18:05*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 18:05*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 18:05*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**3.6**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Acenaphthylene	**0.17**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Anthracene	**0.38**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[a]anthracene	**0.15**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Chrysene	**0.11**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/26/24 16:23	06/27/24 14:17	1
Fluoranthene	**1.2**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Fluorene	**1.2**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/26/24 16:23	06/27/24 14:17	1
Naphthalene	**1.0**		0.071	0.031	ug/L		06/26/24 16:23	06/27/24 14:17	1
Phenanthrene	**1.3**		0.071	0.031	ug/L		06/26/24 16:23	06/27/24 14:17	1
Pyrene	**1.2**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*40*		*10 - 136*	*06/26/24 16:23*	*06/27/24 14:17*	*1*
1-Methylnaphthalene-d10 (Surr)	*57*		*20 - 144*	*06/26/24 16:23*	*06/27/24 14:17*	*1*
Fluoranthene-d10 (Surr)	*72*		*29 - 153*	*06/26/24 16:23*	*06/27/24 14:17*	*1*

Client Sample ID: MW-14S_20240620

Lab Sample ID: 410-176867-11

Date Collected: 06/20/24 09:03

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:25	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:25	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:25	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:25*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/30/24 18:25*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*06/30/24 18:25*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 18:25*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.57**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Acenaphthylene	**0.012**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Anthracene	**0.010**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[a]anthracene	**0.023**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[a]pyrene	**0.030**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[b]fluoranthene	**0.055**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[g,h,i]perylene	**0.066**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[k]fluoranthene	**0.079**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Chrysene	**0.068**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Dibenz(a,h)anthracene	**0.083**		0.052	0.021	ug/L		06/26/24 16:23	06/28/24 20:55	1
Fluoranthene	**0.018**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Fluorene	**0.094**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Indeno[1,2,3-cd]pyrene	**0.051**	**J**	0.052	0.021	ug/L		06/26/24 16:23	06/28/24 20:55	1
Naphthalene	**0.69**		0.072	0.031	ug/L		06/26/24 16:23	06/27/24 14:40	1
Phenanthrene	ND		0.072	0.031	ug/L		06/26/24 16:23	06/27/24 14:40	1
Pyrene	**0.014**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*50*		*10 - 136*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
Benzo(a)pyrene-d12 (Surr)	*50*		*10 - 136*	*06/26/24 16:23*	*06/28/24 20:55*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*		*20 - 144*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
1-Methylnaphthalene-d10 (Surr)	*84*		*20 - 144*	*06/26/24 16:23*	*06/28/24 20:55*	*1*
Fluoranthene-d10 (Surr)	*92*		*29 - 153*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
Fluoranthene-d10 (Surr)	*90*		*29 - 153*	*06/26/24 16:23*	*06/28/24 20:55*	*1*

Client Sample ID: MW-45_20240620

Lab Sample ID: 410-176867-12

Date Collected: 06/20/24 10:03

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:45	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:45	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:45	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:45*	*1*

Client Sample ID: MW-45_20240620

Lab Sample ID: 410-176867-12

Date Collected: 06/20/24 10:03

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*06/30/24 18:45*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 18:45*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 18:45*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**6.7**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Acenaphthylene	**0.16**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Anthracene	**0.16**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[a]anthracene	**0.011**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[b]fluoranthene	**0.013**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[g,h,i]perylene	**0.023**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[k]fluoranthene	**0.016**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Chrysene	**0.018**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Dibenz(a,h)anthracene	**0.024**	**J**	0.050	0.020	ug/L		06/26/24 16:23	06/28/24 21:18	1
Fluoranthene	**2.4**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Fluorene	**1.7**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/28/24 21:18	1
Naphthalene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 15:03	1
Phenanthrene	**0.040**	**J**	0.070	0.030	ug/L		06/26/24 16:23	06/27/24 15:03	1
Pyrene	**2.0**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	*51*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
Benzo(a)pyrene-d12 (Surr)	*52*		*10 - 136*	*06/26/24 16:23*	*06/28/24 21:18*	*1*
1-Methylnaphthalene-d10 (Surr)	*79*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*		*20 - 144*	*06/26/24 16:23*	*06/28/24 21:18*	*1*
Fluoranthene-d10 (Surr)	*82*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
Fluoranthene-d10 (Surr)	*87*		*29 - 153*	*06/26/24 16:23*	*06/28/24 21:18*	*1*

Client Sample ID: FB_20240620

Lab Sample ID: 410-176867-13

Date Collected: 06/20/24 08:52

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 14:49	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 14:49	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 14:49	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*06/30/24 14:49*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/30/24 14:49*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 14:49*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 14:49*	*1*

Client Sample ID: FB_20240620

Lab Sample ID: 410-176867-13

Date Collected: 06/20/24 08:52

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Acenaphthylene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Anthracene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[g,h,i]perylene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Chrysene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Dibenz(a,h)anthracene	ND	cn	0.053	0.021	ug/L		06/26/24 16:23	06/27/24 15:26	1
Fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Fluorene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.053	0.021	ug/L		06/26/24 16:23	06/27/24 15:26	1
Naphthalene	ND		0.074	0.032	ug/L		06/26/24 16:23	06/27/24 15:26	1
Phenanthrene	ND		0.074	0.032	ug/L		06/26/24 16:23	06/27/24 15:26	1
Pyrene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*79*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:26*	*1*
1-Methylnaphthalene-d10 (Surr)	*67*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:26*	*1*
Fluoranthene-d10 (Surr)	*84*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:26*	*1*

Client Sample ID: TB_20240620

Lab Sample ID: 410-176867-14

Date Collected: 06/20/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 15:09	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 15:09	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 15:09	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 15:09*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/30/24 15:09*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/30/24 15:09*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 15:09*	*1*

Client Sample ID: MW-13D_20240620

Lab Sample ID: 410-176867-15

Date Collected: 06/20/24 12:28

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 19:04	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 19:04	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 19:04	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 19:04	1

Client Sample ID: MW-13D_20240620
Date Collected: 06/20/24 12:28
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-15
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*06/30/24 19:04*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*06/30/24 19:04*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 19:04*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 19:04*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Acenaphthylene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Anthracene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[a]anthracene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[g,h,i]perylene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Chrysene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Dibenz(a,h)anthracene	ND	cn	0.055	0.022	ug/L		06/26/24 16:23	06/27/24 15:50	1
Fluoranthene	**0.011**	**J**	0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Fluorene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.055	0.022	ug/L		06/26/24 16:23	06/27/24 15:50	1
Naphthalene	ND		0.076	0.033	ug/L		06/26/24 16:23	06/27/24 15:50	1
Phenanthrene	ND		0.076	0.033	ug/L		06/26/24 16:23	06/27/24 15:50	1
Pyrene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*42*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:50*	*1*
1-Methylnaphthalene-d10 (Surr)	*79*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:50*	*1*
Fluoranthene-d10 (Surr)	*81*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:50*	*1*

Surrogate Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

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

Matrix: Water | **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
410-176867-1	MW-1_20240618	102	96	104	103
410-176867-2	MW-8S_20240618	108 cn	98 cn	110 cn	102 cn
410-176867-3	MW-12S_20240618	108	97	107	104
410-176867-4	MW-12D_20240618	108	98	108	102
410-176867-5	MW-11S_20240619	101	102	108	102
410-176867-6	MW-3_20240619	104	104	108	103
410-176867-7	MW-13S_20240619	102	104	108	103
410-176867-8	MW-75_20240619	103	103	109	102
410-176867-9	MW-105_20240619	101	104	107	103
410-176867-9 MS	MW-105_20240619	102	99	106	102
410-176867-9 MSD	MW-105_20240619	105	99	104	102
410-176867-10	DUP_20240619	101	104	107	101
410-176867-11	MW-14S_20240620	101	103	106	101
410-176867-12	MW-45_20240620	101	105	108	104
410-176867-13	FB_20240620	99	100	104	103
410-176867-14	TB_20240620	101	103	105	103
410-176867-15	MW-13D_20240620	105	102	108	101
410-177008-B-1 MS	Matrix Spike	103	99	103	107
410-177008-C-1 MSD	Matrix Spike Duplicate	105	100	100	106
LCS 410-523106/4	Lab Control Sample	106	100	102	107
LCS 410-523144/4	Lab Control Sample	101	99	105	104
LCSD 410-523106/5	Lab Control Sample Dup	102	100	99	108
MB 410-523106/7	Method Blank	109	97	106	104
MB 410-523144/6	Method Blank	101	100	104	104

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water | **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12	MNPd10	FLN10
Lab Sample ID	Client Sample ID	(10-136)	(20-144)	(29-153)
410-176867-1	MW-1_20240618	66 cn	74 cn	68 cn
410-176867-2	MW-8S_20240618	81 cn	77 cn	93 cn
410-176867-3	MW-12S_20240618	50 cn	85 cn	91 cn
410-176867-4	MW-12D_20240618	53 cn	80 cn	93 cn
410-176867-5	MW-11S_20240619	61	72	73
410-176867-6	MW-3_20240619	69	63	94
410-176867-6 - DL	MW-3_20240619	67	69	71
410-176867-7	MW-13S_20240619	56	69	72
410-176867-8	MW-75_20240619	67	86	94
410-176867-9	MW-105_20240619	74	85	98
410-176867-9 MS	MW-105_20240619	73	66	87
410-176867-9 MSD	MW-105_20240619	70	45	82
410-176867-10	DUP_20240619	40	57	72

Surrogate Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12	MNPd10	FLN10
Lab Sample ID	Client Sample ID	(10-136)	(20-144)	(29-153)
410-176867-11	MW-14S_20240620	50	80	92
410-176867-11	MW-14S_20240620	50	84	90
410-176867-12	MW-45_20240620	51	79	82
410-176867-12	MW-45_20240620	52	85	87
410-176867-13	FB_20240620	79	67	84
410-176867-15	MW-13D_20240620	42	79	81
LCS 410-520557/2-A	Lab Control Sample	62	61	72
LCS 410-520778/2-A	Lab Control Sample	71	64	70
LCS 410-521874/2-A	Lab Control Sample	65	54	65
LCSD 410-520778/3-A	Lab Control Sample Dup	67	59	64
MB 410-520557/1-A	Method Blank	49 *3	49 *3	54 *3
MB 410-520778/1-A	Method Blank	69	73	69
MB 410-521874/1-A	Method Blank	73	75	76

Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)
MNPd10 = 1-Methylnaphthalene-d10 (Surr)
FLN10 = Fluoranthene-d10 (Surr)

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

Lab Sample ID: MB 410-523106/7
Matrix: Water
Analysis Batch: 523106

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 10:55	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 10:55	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 10:55	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*06/30/24 10:55*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*06/30/24 10:55*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*06/30/24 10:55*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 10:55*	*1*

Lab Sample ID: LCS 410-523106/4
Matrix: Water
Analysis Batch: 523106

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	22.0		ug/L		110	80 - 120		
Ethylbenzene			20.0	20.7		ug/L		104	80 - 120		
Toluene			20.0	21.7		ug/L		109	80 - 120		
Xylenes, Total			60.0	61.2		ug/L		102	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Lab Sample ID: LCSD 410-523106/5
Matrix: Water
Analysis Batch: 523106

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			20.0	21.6		ug/L		108	80 - 120	2	30
Ethylbenzene			20.0	20.8		ug/L		104	80 - 120	1	30
Toluene			20.0	21.9		ug/L		109	80 - 120	0	30
Xylenes, Total			60.0	60.7		ug/L		101	80 - 120	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*108*		*80 - 120*

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

Lab Sample ID: 410-177008-B-1 MS
Matrix: Water
Analysis Batch: 523106

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	26		20.0	45.4		ug/L		98	81 - 120
Ethylbenzene	ND		20.0	19.4		ug/L		97	78 - 120
Toluene	0.72	J	20.0	20.6		ug/L		100	79 - 120
Xylenes, Total	1.9		60.0	57.2		ug/L		92	78 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Lab Sample ID: 410-177008-C-1 MSD
Matrix: Water
Analysis Batch: 523106

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	26		20.0	45.9		ug/L		100	81 - 120	1	30
Ethylbenzene	ND		20.0	19.0		ug/L		95	78 - 120	2	30
Toluene	0.72	J	20.0	19.5		ug/L		94	79 - 120	6	30
Xylenes, Total	1.9		60.0	56.2		ug/L		91	78 - 120	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*106*		*80 - 120*

Lab Sample ID: MB 410-523144/6
Matrix: Water
Analysis Batch: 523144

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 14:16	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 14:16	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 14:16	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 14:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 14:16*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/30/24 14:16*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 14:16*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 14:16*	*1*

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

Lab Sample ID: LCS 410-523144/4
Matrix: Water
Analysis Batch: 523144

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	20.1		ug/L		101	80 - 120		
Ethylbenzene			20.0	21.1		ug/L		105	80 - 120		
Toluene			20.0	20.9		ug/L		105	80 - 120		
Xylenes, Total			60.0	62.7		ug/L		105	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: 410-176867-9 MS
Matrix: Water
Analysis Batch: 523144

Client Sample ID: MW-105_20240619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		20.0	21.0		ug/L		105	81 - 120		
Ethylbenzene	ND		20.0	21.6		ug/L		108	78 - 120		
Toluene	ND		20.0	21.4		ug/L		107	79 - 120		
Xylenes, Total	ND		60.0	63.9		ug/L		107	78 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: 410-176867-9 MSD
Matrix: Water
Analysis Batch: 523144

Client Sample ID: MW-105_20240619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	21.0		ug/L		105	81 - 120	0	30
Ethylbenzene	ND		20.0	21.5		ug/L		107	78 - 120	1	30
Toluene	ND		20.0	21.4		ug/L		107	79 - 120	0	30
Xylenes, Total	ND		60.0	64.1		ug/L		107	78 - 120	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-520557/1-A
Matrix: Water
Analysis Batch: 524997

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 520557

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Acenaphthylene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Anthracene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[a]pyrene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[b]fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[g,h,i]perylene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[k]fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Chrysene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Dibenz(a,h)anthracene	ND	*3	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 13:35	1
Fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Fluorene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Indeno[1,2,3-cd]pyrene	ND	*3	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 13:35	1
Naphthalene	ND	*3	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 13:35	1
Phenanthrene	ND	*3	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 13:35	1
Pyrene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*49*	*3	*10 - 136*	*06/24/24 08:37*	*07/05/24 13:35*	*1*
1-Methylnaphthalene-d10 (Surr)	*49*	*3	*20 - 144*	*06/24/24 08:37*	*07/05/24 13:35*	*1*
Fluoranthene-d10 (Surr)	*54*	*3	*29 - 153*	*06/24/24 08:37*	*07/05/24 13:35*	*1*

Lab Sample ID: LCS 410-520557/2-A
Matrix: Water
Analysis Batch: 524997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 520557

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	50.0	32.3		ug/L		65	37 - 134
Acenaphthylene	50.0	32.9		ug/L		66	42 - 136
Anthracene	50.0	35.9		ug/L		72	49 - 137
Benzo[a]anthracene	50.0	41.1		ug/L		82	47 - 138
Benzo[a]pyrene	50.0	35.2		ug/L		70	51 - 147
Benzo[b]fluoranthene	50.0	36.1		ug/L		72	44 - 144
Benzo[g,h,i]perylene	50.0	27.8		ug/L		56	40 - 146
Benzo[k]fluoranthene	50.0	37.1		ug/L		74	46 - 158
Chrysene	50.0	43.3		ug/L		87	41 - 144
Dibenz(a,h)anthracene	50.0	29.8		ug/L		60	38 - 145
Fluoranthene	50.0	40.6		ug/L		81	44 - 141
Fluorene	50.0	35.2		ug/L		70	42 - 133
Indeno[1,2,3-cd]pyrene	50.0	30.7		ug/L		61	37 - 153
Naphthalene	50.0	29.2		ug/L		58	29 - 129
Phenanthrene	50.0	34.9		ug/L		70	44 - 136
Pyrene	50.0	33.8		ug/L		68	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*62*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*61*		*20 - 144*
Fluoranthene-d10 (Surr)	*72*		*29 - 153*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-520778/1-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 520778

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Anthracene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Chrysene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/24/24 15:15	06/26/24 12:14	1
Fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Fluorene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/24/24 15:15	06/26/24 12:14	1
Naphthalene	ND		0.070	0.030	ug/L		06/24/24 15:15	06/26/24 12:14	1
Phenanthrene	ND		0.070	0.030	ug/L		06/24/24 15:15	06/26/24 12:14	1
Pyrene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*69*		*10 - 136*	*06/24/24 15:15*	*06/26/24 12:14*	*1*
1-Methylnaphthalene-d10 (Surr)	*73*		*20 - 144*	*06/24/24 15:15*	*06/26/24 12:14*	*1*
Fluoranthene-d10 (Surr)	*69*		*29 - 153*	*06/24/24 15:15*	*06/26/24 12:14*	*1*

Lab Sample ID: LCS 410-520778/2-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 520778

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	1.00	0.696		ug/L		70	37 - 134
Acenaphthylene	1.00	0.705		ug/L		70	42 - 136
Anthracene	1.00	0.727		ug/L		73	49 - 137
Benzo[a]anthracene	1.00	0.741		ug/L		74	47 - 138
Benzo[a]pyrene	1.00	0.749		ug/L		75	51 - 147
Benzo[b]fluoranthene	1.00	0.717		ug/L		72	44 - 144
Benzo[g,h,i]perylene	1.00	0.772		ug/L		77	40 - 146
Benzo[k]fluoranthene	1.00	0.813		ug/L		81	46 - 158
Chrysene	1.00	0.734		ug/L		73	41 - 144
Dibenz(a,h)anthracene	1.00	0.750		ug/L		75	38 - 145
Fluoranthene	1.00	0.721		ug/L		72	44 - 141
Fluorene	1.00	0.703		ug/L		70	42 - 133
Indeno[1,2,3-cd]pyrene	1.00	0.737		ug/L		74	37 - 153
Naphthalene	1.00	0.582		ug/L		58	29 - 129
Phenanthrene	1.00	0.715		ug/L		71	44 - 136
Pyrene	1.00	0.741		ug/L		74	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*71*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*64*		*20 - 144*
Fluoranthene-d10 (Surr)	*70*		*29 - 153*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCSD 410-520778/3-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 520778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene			1.00	0.636		ug/L		64	37 - 134	9	33
Acenaphthylene			1.00	0.643		ug/L		64	42 - 136	9	33
Anthracene			1.00	0.677		ug/L		68	49 - 137	7	30
Benzo[a]anthracene			1.00	0.702		ug/L		70	47 - 138	5	27
Benzo[a]pyrene			1.00	0.698		ug/L		70	51 - 147	7	27
Benzo[b]fluoranthene			1.00	0.669		ug/L		67	44 - 144	7	30
Benzo[g,h,i]perylene			1.00	0.731		ug/L		73	40 - 146	5	28
Benzo[k]fluoranthene			1.00	0.760		ug/L		76	46 - 158	7	28
Chrysene			1.00	0.687		ug/L		69	41 - 144	7	27
Dibenz(a,h)anthracene			1.00	0.701		ug/L		70	38 - 145	7	29
Fluoranthene			1.00	0.665		ug/L		66	44 - 141	8	29
Fluorene			1.00	0.651		ug/L		65	42 - 133	8	30
Indeno[1,2,3-cd]pyrene			1.00	0.702		ug/L		70	37 - 153	5	28
Naphthalene			1.00	0.509		ug/L		51	29 - 129	13	36
Phenanthrene			1.00	0.658		ug/L		66	44 - 136	8	29
Pyrene			1.00	0.693		ug/L		69	41 - 134	7	28

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*59*		*20 - 144*
Fluoranthene-d10 (Surr)	*64*		*29 - 153*

Lab Sample ID: MB 410-521874/1-A
Matrix: Water
Analysis Batch: 522105

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 521874

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Chrysene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/27/24 12:24	1
Fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Fluorene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/27/24 12:24	1
Naphthalene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 12:24	1
Phenanthrene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 12:24	1
Pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*73*		*10 - 136*	*06/26/24 16:23*	*06/27/24 12:24*	*1*
1-Methylnaphthalene-d10 (Surr)	*75*		*20 - 144*	*06/26/24 16:23*	*06/27/24 12:24*	*1*
Fluoranthene-d10 (Surr)	*76*		*29 - 153*	*06/26/24 16:23*	*06/27/24 12:24*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCS 410-521874/2-A
Matrix: Water
Analysis Batch: 522105

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	1.00	0.598		ug/L		60	37 - 134
Acenaphthylene	1.00	0.609		ug/L		61	42 - 136
Anthracene	1.00	0.639		ug/L		64	49 - 137
Benzo[a]anthracene	1.00	0.661		ug/L		66	47 - 138
Benzo[a]pyrene	1.00	0.660		ug/L		66	51 - 147
Benzo[b]fluoranthene	1.00	0.651		ug/L		65	44 - 144
Benzo[g,h,i]perylene	1.00	0.580		ug/L		58	40 - 146
Benzo[k]fluoranthene	1.00	0.704		ug/L		70	46 - 158
Chrysene	1.00	0.646		ug/L		65	41 - 144
Dibenz(a,h)anthracene	1.00	0.587		ug/L		59	38 - 145
Fluoranthene	1.00	0.642		ug/L		64	44 - 141
Fluorene	1.00	0.619		ug/L		62	42 - 133
Indeno[1,2,3-cd]pyrene	1.00	0.611		ug/L		61	37 - 153
Naphthalene	1.00	0.472		ug/L		47	29 - 129
Phenanthrene	1.00	0.632		ug/L		63	44 - 136
Pyrene	1.00	0.637		ug/L		64	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*65*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*54*		*20 - 144*
Fluoranthene-d10 (Surr)	*65*		*29 - 153*

Lab Sample ID: 410-176867-9 MS
Matrix: Water
Analysis Batch: 522108

Client Sample ID: MW-105_20240619
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	ND		1.04	0.770		ug/L		74	42 - 120
Acenaphthylene	ND		1.04	0.744		ug/L		71	41 - 120
Anthracene	ND		1.04	0.775		ug/L		74	48 - 124
Benzo[a]anthracene	ND		1.04	0.862		ug/L		83	50 - 129
Benzo[a]pyrene	ND		1.04	0.753		ug/L		72	49 - 120
Benzo[b]fluoranthene	ND		1.04	0.739		ug/L		71	47 - 131
Benzo[g,h,i]perylene	ND		1.04	0.892		ug/L		86	40 - 132
Benzo[k]fluoranthene	ND		1.04	0.760		ug/L		73	50 - 128
Chrysene	ND		1.04	0.792		ug/L		76	47 - 121
Dibenz(a,h)anthracene	ND	cn	1.04	0.898		ug/L		86	38 - 136
Fluoranthene	ND		1.04	0.924		ug/L		89	47 - 129
Fluorene	ND		1.04	0.799		ug/L		77	46 - 120
Indeno[1,2,3-cd]pyrene	ND	cn	1.04	0.987		ug/L		95	35 - 144
Naphthalene	ND	F2	1.04	0.645		ug/L		62	28 - 120
Phenanthrene	ND		1.04	0.819		ug/L		78	48 - 121
Pyrene	ND		1.04	0.791		ug/L		76	46 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*73*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*66*		*20 - 144*
Fluoranthene-d10 (Surr)	*87*		*29 - 153*

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: 410-176867-9 MSD
Matrix: Water
Analysis Batch: 522108

Client Sample ID: MW-105_20240619
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	ND		1.05	0.607		ug/L		58	42 - 120	24	30
Acenaphthylene	ND		1.05	0.591		ug/L		56	41 - 120	23	30
Anthracene	ND		1.05	0.739		ug/L		70	48 - 124	5	30
Benzo[a]anthracene	ND		1.05	0.822		ug/L		78	50 - 129	5	30
Benzo[a]pyrene	ND		1.05	0.740		ug/L		70	49 - 120	2	30
Benzo[b]fluoranthene	ND		1.05	0.724		ug/L		69	47 - 131	2	30
Benzo[g,h,i]perylene	ND		1.05	0.915		ug/L		87	40 - 132	3	30
Benzo[k]fluoranthene	ND		1.05	0.766		ug/L		73	50 - 128	1	30
Chrysene	ND		1.05	0.806		ug/L		76	47 - 121	2	30
Dibenz(a,h)anthracene	ND	cn	1.05	0.931		ug/L		88	38 - 136	4	30
Fluoranthene	ND		1.05	0.894		ug/L		85	47 - 129	3	30
Fluorene	ND		1.05	0.684		ug/L		65	46 - 120	15	30
Indeno[1,2,3-cd]pyrene	ND	cn	1.05	0.995		ug/L		94	35 - 144	1	30
Naphthalene	ND	F2	1.05	0.405	F2	ug/L		38	28 - 120	46	30
Phenanthrene	ND		1.05	0.690		ug/L		65	48 - 121	17	30
Pyrene	ND		1.05	0.773		ug/L		73	46 - 122	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*70*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*45*		*20 - 144*
Fluoranthene-d10 (Surr)	*82*		*29 - 153*

GC/MS VOA

Analysis Batch: 523106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	8260D	
410-176867-2	MW-8S_20240618	Total/NA	Water	8260D	
410-176867-3	MW-12S_20240618	Total/NA	Water	8260D	
410-176867-4	MW-12D_20240618	Total/NA	Water	8260D	
MB 410-523106/7	Method Blank	Total/NA	Water	8260D	
LCS 410-523106/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-523106/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-177008-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
410-177008-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 523144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	8260D	
410-176867-6	MW-3_20240619	Total/NA	Water	8260D	
410-176867-7	MW-13S_20240619	Total/NA	Water	8260D	
410-176867-8	MW-75_20240619	Total/NA	Water	8260D	
410-176867-9	MW-105_20240619	Total/NA	Water	8260D	
410-176867-10	DUP_20240619	Total/NA	Water	8260D	
410-176867-11	MW-14S_20240620	Total/NA	Water	8260D	
410-176867-12	MW-45_20240620	Total/NA	Water	8260D	
410-176867-13	FB_20240620	Total/NA	Water	8260D	
410-176867-14	TB_20240620	Total/NA	Water	8260D	
410-176867-15	MW-13D_20240620	Total/NA	Water	8260D	
MB 410-523144/6	Method Blank	Total/NA	Water	8260D	
LCS 410-523144/4	Lab Control Sample	Total/NA	Water	8260D	
410-176867-9 MS	MW-105_20240619	Total/NA	Water	8260D	
410-176867-9 MSD	MW-105_20240619	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 520557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	3510C	
410-176867-2	MW-8S_20240618	Total/NA	Water	3510C	
410-176867-3	MW-12S_20240618	Total/NA	Water	3510C	
410-176867-4	MW-12D_20240618	Total/NA	Water	3510C	
MB 410-520557/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-520557/2-A	Lab Control Sample	Total/NA	Water	3510C	

Prep Batch: 520778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	3510C	
410-176867-6 - DL	MW-3_20240619	Total/NA	Water	3510C	
410-176867-6	MW-3_20240619	Total/NA	Water	3510C	
410-176867-7	MW-13S_20240619	Total/NA	Water	3510C	
MB 410-520778/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-520778/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-520778/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

GC/MS Semi VOA

Analysis Batch: 521572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	8270E SIM	520778
410-176867-6	MW-3_20240619	Total/NA	Water	8270E SIM	520778
MB 410-520778/1-A	Method Blank	Total/NA	Water	8270E SIM	520778
LCS 410-520778/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	520778
LCSD 410-520778/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	520778

Prep Batch: 521874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-8	MW-75_20240619	Total/NA	Water	3510C	
410-176867-9	MW-105_20240619	Total/NA	Water	3510C	
410-176867-10	DUP_20240619	Total/NA	Water	3510C	
410-176867-11	MW-14S_20240620	Total/NA	Water	3510C	
410-176867-12	MW-45_20240620	Total/NA	Water	3510C	
410-176867-13	FB_20240620	Total/NA	Water	3510C	
410-176867-15	MW-13D_20240620	Total/NA	Water	3510C	
MB 410-521874/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-521874/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-176867-9 MS	MW-105_20240619	Total/NA	Water	3510C	
410-176867-9 MSD	MW-105_20240619	Total/NA	Water	3510C	

Analysis Batch: 522105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-6 - DL	MW-3_20240619	Total/NA	Water	8270E SIM	520778
410-176867-7	MW-13S_20240619	Total/NA	Water	8270E SIM	520778
MB 410-521874/1-A	Method Blank	Total/NA	Water	8270E SIM	521874
LCS 410-521874/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	521874

Analysis Batch: 522108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-8	MW-75_20240619	Total/NA	Water	8270E SIM	521874
410-176867-9	MW-105_20240619	Total/NA	Water	8270E SIM	521874
410-176867-10	DUP_20240619	Total/NA	Water	8270E SIM	521874
410-176867-11	MW-14S_20240620	Total/NA	Water	8270E SIM	521874
410-176867-12	MW-45_20240620	Total/NA	Water	8270E SIM	521874
410-176867-13	FB_20240620	Total/NA	Water	8270E SIM	521874
410-176867-15	MW-13D_20240620	Total/NA	Water	8270E SIM	521874
410-176867-9 MS	MW-105_20240619	Total/NA	Water	8270E SIM	521874
410-176867-9 MSD	MW-105_20240619	Total/NA	Water	8270E SIM	521874

Analysis Batch: 522742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-11	MW-14S_20240620	Total/NA	Water	8270E SIM	521874
410-176867-12	MW-45_20240620	Total/NA	Water	8270E SIM	521874

Analysis Batch: 524997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	8270E SIM	520557
410-176867-2	MW-8S_20240618	Total/NA	Water	8270E SIM	520557
410-176867-3	MW-12S_20240618	Total/NA	Water	8270E SIM	520557
410-176867-4	MW-12D_20240618	Total/NA	Water	8270E SIM	520557
MB 410-520557/1-A	Method Blank	Total/NA	Water	8270E SIM	520557

GC/MS Semi VOA (Continued)

Analysis Batch: 524997 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-520557/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	520557

Client Sample ID: MW-1_20240618

Lab Sample ID: 410-176867-1

Date Collected: 06/18/24 12:08

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:15
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 14:45

Client Sample ID: MW-8S_20240618

Lab Sample ID: 410-176867-2

Date Collected: 06/18/24 14:01

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:37
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:08

Client Sample ID: MW-12S_20240618

Lab Sample ID: 410-176867-3

Date Collected: 06/18/24 15:28

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:59
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:31

Client Sample ID: MW-12D_20240618

Lab Sample ID: 410-176867-4

Date Collected: 06/18/24 16:14

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 13:22
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:55

Client Sample ID: MW-11S_20240619

Lab Sample ID: 410-176867-5

Date Collected: 06/19/24 09:22

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 16:47
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	521572	SJ89	ELLE	06/26/24 21:26

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:07

Lab Chronicle

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	521572	SJ89	ELLE	06/26/24 21:49
Total/NA	Prep	3510C	DL		520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM	DL	10	522105	SJ89	ELLE	06/27/24 17:21

Client Sample ID: MW-13S_20240619

Lab Sample ID: 410-176867-7

Date Collected: 06/19/24 11:21

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:26
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	522105	SJ89	ELLE	06/27/24 17:44

Client Sample ID: MW-75_20240619

Lab Sample ID: 410-176867-8

Date Collected: 06/19/24 14:43

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:46
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 12:44

Client Sample ID: MW-105_20240619

Lab Sample ID: 410-176867-9

Date Collected: 06/19/24 16:11

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 15:48
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 13:07

Client Sample ID: DUP_20240619

Lab Sample ID: 410-176867-10

Date Collected: 06/19/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:05
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 14:17

Lab Chronicle

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-14S_20240620

Lab Sample ID: 410-176867-11

Date Collected: 06/20/24 09:03

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:25
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 14:40
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522742	SJ89	ELLE	06/28/24 20:55

Client Sample ID: MW-45_20240620

Lab Sample ID: 410-176867-12

Date Collected: 06/20/24 10:03

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:45
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:03
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522742	SJ89	ELLE	06/28/24 21:18

Client Sample ID: FB_20240620

Lab Sample ID: 410-176867-13

Date Collected: 06/20/24 08:52

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 14:49
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:26

Client Sample ID: TB_20240620

Lab Sample ID: 410-176867-14

Date Collected: 06/20/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 15:09

Client Sample ID: MW-13D_20240620

Lab Sample ID: 410-176867-15

Date Collected: 06/20/24 12:28

Matrix: Water

Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 19:04
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:50

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-24
California	State	2792	11-30-24
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	01-31-25
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-24
Kentucky (DW)	State	KY90088	12-31-24
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-24
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-24
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-25
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-24
North Carolina (WW/SW)	State	521	12-31-24
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24
Oregon	NELAP	PA200001	09-11-24
Pennsylvania	NELAP	36-00037	01-31-25
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-24
Rhode Island	State	LAO00338	12-30-24
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-24
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-24
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-24 *
West Virginia (DW)	State	9906 C	01-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia DEP	State	055	07-31-24
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	11-30-24

Method Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

Protocol References:

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-176867-1	MW-1_20240618	Water	06/18/24 12:08	06/20/24 16:36
410-176867-2	MW-8S_20240618	Water	06/18/24 14:01	06/20/24 16:36
410-176867-3	MW-12S_20240618	Water	06/18/24 15:28	06/20/24 16:36
410-176867-4	MW-12D_20240618	Water	06/18/24 16:14	06/20/24 16:36
410-176867-5	MW-11S_20240619	Water	06/19/24 09:22	06/20/24 16:36
410-176867-6	MW-3_20240619	Water	06/19/24 10:15	06/20/24 16:36
410-176867-7	MW-13S_20240619	Water	06/19/24 11:21	06/20/24 16:36
410-176867-8	MW-75_20240619	Water	06/19/24 14:43	06/20/24 16:36
410-176867-9	MW-105_20240619	Water	06/19/24 16:11	06/20/24 16:36
410-176867-10	DUP_20240619	Water	06/19/24 00:00	06/20/24 16:36
410-176867-11	MW-14S_20240620	Water	06/20/24 09:03	06/20/24 16:36
410-176867-12	MW-45_20240620	Water	06/20/24 10:03	06/20/24 16:36
410-176867-13	FB_20240620	Water	06/20/24 08:52	06/20/24 16:36
410-176867-14	TB_20240620	Water	06/20/24 00:00	06/20/24 16:36
410-176867-15	MW-13D_20240620	Water	06/20/24 12:28	06/20/24 16:36

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Chain of Custody Record

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410-176867 Chain of Custody

Clie

Client Contact: Mr. James Marolda	Sampler:	Lab PM: Weyandt, Barbara A	Carrier Tracking No(s):	COC No: 410-123766-5955.1
	Phone:	E-Mail: Barbara.Weyandt@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: Brown and Caldwell	PWSID:			Job #:
Address: 500 North Franklin Turnpike Suite 306	Due Date Requested:			
City: Ramsey	TAT Requested (days): Standard			
State, Zip: NJ, 07446	Compliance Project: Δ Yes Δ No			
Phone: 201-574-4713(Tel)	PO #: 153021.805			
Email: jmarolda@brwncald.com	WO #:			
Project Name: Patchogue, NY	Project #: 41002571			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
N - None
A - HCL
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW-1-20240618	06/18	1200	G	GW			X	X	5	
MW-8S-20240618		1401					X	X	5	
MW-12S-20240618		1528					X	X	5	
MW-12D-20240618		1614					X	X	5	
MW-11S-20240619	06/19	0921					X	X	5	
MW-3-20240619		1015					X	X	5	
MW-13S-20240619		1121					X	X	5	
MW-2-20240619		1443					X	X	5	
MW-10S-20240619 (MS/MSD		1611					X	X	5	MS/MSD
DUP-20240619		9999					X	X	5	
MW-14S-20240620	06/20	0903					X	X	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) BC Forms NY State Cat B

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Mason	Date/Time: 06/20/24 1415	Company: BC	Received by:	Date/Time: 06/20/24 1415	Company: ELLE
Relinquished by:	Date/Time: 6/20/24 1636	Company: ELLE	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 6/20/24 1636	Company: ELLE

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: R: 3.9 - 5.6 C: 3.8-5.5

SR

MP

Eurofins Lancaster Laboratories Environme
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

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Client Information	Sampler:	Lab PM: Weyandt, Barbara A	Carrier Tracking No(s):	COC No: 410-123766-5955.2
Client Contact: Mr. James Marolda	Phone:	E-Mail: Barbara.Weyandt@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: Brown and Caldwell	PWSID:			Job #:
Address: 500 North Franklin Turnpike Suite 306	Due Date Requested:			
City: Ramsey	TAT Requested (days): Standard			
State, Zip: NJ, 07446	Compliance Project: Δ Yes Δ No			
Phone: 201-574-4713(Tel)	PO #: 153021.805			
Email: jmarolda@brwncald.com	WO #:			
Project Name: Patchogue, NY	Project #: 41002571			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: N - None; A - HCL

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW-4S-20240620	06/20	1603	G	GW			X	X	5	
FB-20240620	↓	0852	NT	DI			X	X	5	
TB-20240620	↓	LAB	↓	↓			X	X	2	
↓ MW-13D-20240619	06/19	1223		GW			X	X	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) DC Pkg NJ State Cat B

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	6/20/24 1415	BC	[signature]	6/20/24 1415	ELLE
[signature]	6/20/24 1636	ELLE	[signature]		
			[signature]	6/20/24 1636	ELLE

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: R: 3.9-5.6 C: 3.8-5.5

SR

Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-176867-1

Login Number: 176867

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Roth, Stephanie

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

Appendix C: Data Validator Qualifications

Experience Summary

Jeffrey Davin has 30 years of experience in environmental science, and has expertise in data validation, data quality, data management, laboratory analytical methods, and data analysis. Jeffrey is experienced in the validation and management of environmental chemistry data. He has performed as the group leader of a data management team and as senior scientist for investigations of multiple hazardous waste sites, including impacted aquatic systems, industrial facilities, landfills, and wastewater effluent discharges. He serves as the primary data validator and/or the lead data manager for several Tier I clients.

He is responsible for data validation pursuant to U.S. Environmental Protection Agency (USEPA) Functional Guidelines and provides guidance on data usability. Jeffrey performs data validation efforts in accordance with USEPA regional and individual state guidelines. He is proficient in USEPA-CLP, USEPA-Regional, USEPA SW-846, 40 CFR Part 136, New Jersey Department of Environmental Protection (NJDEP), and New York State Department of Environmental Conservation (NYSDEC) ASP procedures. Jeffrey is also proficient with managing data and providing submittals in a variety of database platforms, including EQuIS, EIM and MS Access.

Jeffrey has held the positions of analytical chemist and project manager at an environmental testing laboratory in the Northeast, where his responsibilities included client relations, laboratory coordinator/technical advisor for all phases of project work, providing analytical and technical support to clients. His analytical chemistry specialties include gas chromatography mass spectrometry (GC/MS) analysis, data generation, and mass spectral interpretation.

Assignment

Data Validator

Education

M.S. Information Management, Syracuse University, Syracuse, NY, 2012

B.A. Biology, SUNY Potsdam, Potsdam, NY, 1992

Experience

30 years

Joined Firm

2023

Relevant Expertise

- *Lead scientist/data validator*
- *Data management group lead*
- *Analytical chemist*

Project Experience

Data Validation, Confidential Client, Lansing, Michigan

Senior Data Validator and Database Manager. Jeffery served as the lead validator and lead database manager for a large automotive manufacturing site. He was responsible for validating the data from numerous samples collected each year, reviewing quality assurance project plan (QAPPs), advising the project team on data quality/technical issues, reviewing and importing laboratory electronic data deliverables (EDDs) into the database, writing data validation reports, updating the database, and generating analytical summaries and custom exports from the database.

Data Validation, Confidential Client, Global Industrial Company

Senior Database Manager. Jeffery served as the lead database manager for a large industrial client portfolio with more than 70 project databases. He was responsible for coordinating the receipt and upload of EDDs and field data deliverables, completing report summary tables with exceedances of regulatory criteria, including statistics on historical data sets, generating data boxes for GIS figures, and coordinating data validation. Jeffrey managed data for numerous samples collected annually with multiple different matrices and diverse analytical methodologies. Additionally, he developed custom automated exports from the database, and coordinated historical data migrations.

Data Validation, Confidential Client, Montana

Senior Data Validator. Jeffery served as the lead validator for a large railroad client portfolio that contained more than 20 sites. He was responsible for facilitating the validation of data from numerous samples collected each year, coordinating validation and database efforts for immediate response to spills and derailments, reviewing and updating QAPPs, advising project teams on data quality/technical issues, writing data validation reports in accordance with the USEPA National Functional Guidelines and Montana DEQ specific guidance, and performing senior review of reports.

Appendix D: Data Usability Summary Report

DATA USABILITY SUMMARY REPORT
Patchogue, NY Site

Client: National Grid
SDGs: 410-176867-1
Laboratory: Eurofins Lancaster Laboratories Environment Testing, Inc.
Site: Patchogue, NY
Date: August 7, 2024

Client Sample ID	Laboratory Sample ID	Date Collected	Matrix
MW-1_20240618	410-176867-1	6/18/2024	Water
MW-8S_20240618	410-176867-2	6/18/2024	Water
MW-12S_20240618	410-176867-3	6/18/2024	Water
MW-12D_20240618	410-176867-4	6/18/2024	Water
MW-11S_20240619	410-176867-5	6/19/2024	Water
MW-3_20240619	410-176867-6	6/19/2024	Water
MW-13S_20240619	410-176867-7	6/19/2024	Water
MW-7S_20240619	410-176867-8	6/19/2024	Water
MW-10S_20240619	410-176867-9	6/19/2024	Water
DUP_20240619	410-176867-10	6/19/2024	Water
MW-14S_20240620	410-176867-11	6/20/2024	Water
MW-4S_20240620	410-176867-12	6/20/2024	Water
FB_20240620	410-176867-13	6/20/2024	Water
TB_20240620	410-176867-14	6/20/2024	Water
MW-13D_20240620	410-176867-15	6/20/2024	Water

Data validation was performed on the analytical data for fifteen (15) samples collected June 18 through June 20, 2024, at the Patchogue site in New York. The samples were analyzed under the Environmental Protection Agency (USEPA) "Test Methods for Evaluating Solid Waste Physical/Chemical SW-846 Method" described below.

Specific method references are as follows:

Analysis	Method References
Semivolatile Organic Compounds (SVOCs)	USEPA SW-846 8270E-SIM
Volatile Organic Compounds (VOCs)	USEPA SW-846 8260D

Data were reviewed in accordance with the USEPA National Functional Guidelines (NFGs) listed below and appropriate method specific USEPA Region II Data Validation Standard Operating Procedures (SOPs). The USEPA NFGs were developed for the Contract Laboratory Program (CLP) methods and may not be applicable to the analytical methods and procedures utilized by the laboratory for this data set. Results were also qualified using analytical method criteria and the reviewer's professional judgement where specific guidance was not applicable.

- USEPA. National Functional Guidelines for Superfund Organics Methods Data Review. OLEM 9240.0-51, EPA 540-R-20-005, November 2020
- USEPA. National Functional Guidelines for Superfund Inorganics Methods Data Review. OLEM 9240.0-51, EPA 542-R-20-006, November 2020

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. OSWER 9240.1-05A-A-P EPA540/R-99/008. October 1999
- USEPA Contract Laboratory Program Region II Data Validation SOPs (HW-22, HW-24)

The following items/criteria were reviewed for this report:

- Data Completeness
- Chain of Custody
- Holding times and sample preservation
- Field Duplicate Accuracy
- Internal Standard Area and RT
- Surrogates
- Laboratory Control Sample (LCS) recoveries
- Matrix Spike and Matrix Spike Duplicate Samples
- Method and field blank contamination
- Initial and continuing calibration summaries
- Compound Quantitation
- Reporting Limits
- Sample comments and Quality Control Summaries

Overall Usability Issues:

- Overall, the data is acceptable for the intended purposes. All results are usable an no data was rejected. Additionally, minor analytical issues were found with the following data quality indicators resulting in qualified results: initial calibration verification (ICV) and field duplicates.

Chain of Custody:

- The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB_20240620 (410-176867-14). The laboratory received 4 total containers, while the COC lists 2 total containers.

Volatile Organic Compounds (VOCs)

Holding Times and Preservation

Samples must be extracted and/or analyzed within method-specific holding times and meet the preservation requirements listed in the following table.

Method	Matrix	Holding Time	Preservation
VOCs by SW-846 8260D	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2

- All samples were received properly preserved and holding times were achieved for all analyses.

Blanks

Quality assurance (QA) blanks (i.e., method, trip, field, or rinse blanks) are prepared to identify and measure contamination which may have been introduced into samples during sample preparation or field sampling procedures.

- All QA/QC blanks were free of contamination.

Surrogates

Surrogate compounds are spiked prior to sample preparation and are used to monitor the overall performance of the analytical method. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

- Surrogates exhibited acceptable recoveries.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Samples

The LCS (and LCSD) and is used to assess the accuracy and precision of the analytical method independent of sample matrix. Percent recoveries and relative percent differences (RPDs) must be within laboratory-established acceptance limits.

- LCS and or LCSD analysis exhibited acceptable recoveries and RPDs.

Matric Spike and Matrix Spike Duplicate (MS/MSD) Samples

Matrix spike/matrix spike duplicate analysis is utilized to assess the accuracy and precision of the method by measuring the effects of interferences caused by the sample matrix. The MS/MSD percent recoveries and relative percent differences (RPDs) must be within laboratory-established acceptance limits.

- The MS/MSD analysis performed on sample MW-10S_20240619 exhibited acceptable recoveries.

Field Duplicate Accuracy

The field duplicate analysis is employed to measure precision in both the field and laboratory. The relative percent difference (RPD) is measured between parent and duplicate sample results. When both results are greater than or equal to five time the reporting limit (RL), a control limit of 30% relative percent difference (RPD) is applied for water samples and 50% RPD for soil samples. When parent and/or duplicate sample results are less than five times the RL, the absolute difference

between the two results is compared to two times the RL for water samples and four times the RL for soil samples.

- DUP_20240619 is the sample duplicate for MW-13S_20240619. All RPDs were within control limits.

Internal Standard Areas

Internal standards are used to monitor instrument performance and ensure instrument sensitivity and response are stable during sample analysis. The internal standard area count must within a (50-200%) range of the associated standard. The retention time of the internal standard must not vary by more than ±10 seconds from the associated continuing calibration standard.

- All samples exhibited acceptable internal standard values and retention times.

Initial Calibration

The initial calibration curve is developed by plotting instrument response of analytes versus the known concentrations of analyte standards, and linearity ensures the instrument can produce quantitative data. The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds. A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99. The RRF control limit is (0.05) or (0.01) for poor responding compounds.

- All %RSDs and/or correlation coefficient criteria were met.

Continuing Calibration

The continuing calibration is used to assess calibration drift. A maximum percent difference (%D) of 20% is allowed. The RRF control limit is (0.05) or (0.01) for poor responding compounds.

- ICVs and CCVs were within the specified control limits.

Compound Quantitation and Identification

GC/MS analysis utilizes retention time and mass spectra criteria to identify detected results.

- Identified compounds met the specified criteria.
- All sample detections detected above the MDL and below the RL are appropriately qualified as estimated, J, by the laboratory, reason code T.

System Performance and Overall Assessment

Instrument performance indicators were evaluated, and overall analytical integrity was assessed.

- Mass Spectrometer tuning criteria was within control limits.
- Overall system performance was acceptable.

Semivolatile Organic Compounds (SVOCs)

Holding Times and Preservation

Samples must be extracted and/or analyzed within method-specific holding times and meet the preservation requirements listed in the following table.

Method	Matrix	Holding Time	Preservation
SVOCs by SW-846 8270E	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

- All samples were received properly preserved and holding times were achieved for all analyses.

Blanks

Quality assurance (QA) blanks (i.e., method, trip, field, or rinse blanks) are prepared to identify and measure contamination which may have been introduced into samples during sample preparation or field sampling procedures.

- All QA/QC blanks were free of contamination.

Surrogates

Surrogate compounds are spiked prior to sample preparation and are used to monitor the overall performance of the analytical method. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

- Surrogates exhibited acceptable recoveries for all samples.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Samples

The LCS (and LCSD) and is used to assess the accuracy and precision of the analytical method independent of sample matrix. Percent recoveries and relative percent differences (RPDs) must be within laboratory-established acceptance limits.

- LCS and or LCSD analysis exhibited acceptable recoveries and RPDs.

Matrix Spike and Matrix Spike Duplicate (MS/MSD) Samples

Matrix spike/matrix spike duplicate analysis is utilized to assess the accuracy and precision of the method by measuring the effects of interferences caused by the sample matrix. The MS/MSD percent recoveries and relative percent differences (RPDs) must be within laboratory-established acceptance limits.

- The MS/MSD analysis performed on sample MW-10S_20240619 exhibited acceptable recoveries. The RPD was outside control limits for Naphthalene; however, since associated results were non-detect, no qualification was required.

Field Duplicate Accuracy

The field duplicate analysis is employed to measure precision in both the field and laboratory. The relative percent difference (RPD) is measured between parent and duplicate sample results. When both results are greater than or equal to five time the reporting limit (RL), a control limit of 30% RPD

is applied for water samples and 50% RPD for soil samples. When parent and/or duplicate sample results are less than five times the RL, the absolute difference between the two results is compared to two times the RL for water samples and four times the RL for soil samples.

- DUP_20240619 is the sample duplicate for MW-13S_20240619. All RPDs were within control limits except for acenaphthylene, anthracene, fluorene, naphthalene and phenanthrene. Parent and duplicate concentrations for associated analytes are qualified as estimated, J/UJ, reason code 8.

Internal Standard Areas

Internal standards are used to monitor instrument performance and ensure instrument sensitivity and response are stable during sample analysis. The internal standard area count must within a (50-200%) range of the associated standard. The retention time of the internal standard must not vary by more than ±10 seconds from the associated continuing calibration standard.

- All samples exhibited acceptable internal standard values and retention times.
- Method 8270E_SIM: Internal standard (ISTD) response for the method blank was outside of upper acceptance limits; Since all sample ISTDs are within compliance limits, no qualification was required.

Initial Calibration

The initial calibration curve is developed by plotting instrument response of analytes versus the known concentrations of analyte standards, and linearity ensures the instrument can produce quantitative data. The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds. A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99. The RRF control limit is (0.05) or (0.01) for poor responding compounds.

- All recoveries and/or correlation coefficient criteria were met.

Continuing Calibration

The continuing calibration is used to assess calibration drift. A maximum percent difference (%D) of 20% is allowed. The RRF control limit is (0.05) or (0.01) for poor responding compounds.

- ICVs and CCVs were within the specified control limits except for analytes presented in the following table.

Method	Sample	Analyte(s)	Exceedance	Qualification	Reason Code
8270E-SIM	MW-11S_20240619 MW-3_20240619 MW-13S_20240619	Pyrene Chrysene	ICV %D > 20% (decrease in response)	J (detects) UJ (non-detects)	SL

Reporting Limits and Compound Quantitation

GC/MS analysis utilizes retention time and mass spectra criteria to identify detected results.

- Identified compounds met the specified criteria.
- All sample detections detected above the MDL and below the RL are appropriately qualified as estimated, J, by the laboratory, reason code T.

System Performance and Overall Assessment

Instrument performance indicators were evaluated, and overall analytical integrity was assessed.

- Mass Spectrometer tuning criteria was within control limits.
- Overall system performance was acceptable.

Signed: Dated: August 7, 2024 Peer Review: CJS

Jeffrey L. Davin
Senior Validator
Brown and Caldwell

Data Qualifiers

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

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

U = The analyte was analyzed for but was not detected above the method detection limit.

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

Reason Codes

1	Holding time violation
2	Method blank contamination
3	Surrogate recovery
4	MS/MSD recovery
5	MS/MSD precision outside limits
6	LCS recovery
7	Field blank contamination
8	Field duplicate precision outside limits
9	Other deficiencies (including cooler temperature)
A	Absence of supporting QC
S	ICV, CCV or column performance check problem
Y	Initial and continuing calibration blank problem
M	Interference check samples problem
O	Post digestion spike outside of 85-115%
F	MSA correlation coefficient <0.995, or MSA not done
G	Serial dilution problem
K	DFTPP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace level compound, poor quantitation
P	1C/2C precision outside limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias

LABORATORY DATA VERIFICATION AND VALIDATION

Sample Duplicate Comparison

PROJECT INFORMATION

Report Number:	410-176867-1	Project Name/Client:	NG-Patchogue
Project Number:	196466	Laboratory:	Eurofins Lancaster
Project Manager:	Jim Marolda	Task/Purpose of Sampling:	GW sampling

SAMPLE INFORMATION

Parent Sample ID:	MW-13S_20240619	Date/Time:	6/19/24 11:21	Matrix:	WG
Duplicate Sample ID:	DUP_20240619	Date/Time:	6/19/24 0:00	Matrix:	WG

Analytes	Unit	Fraction	Analytical Results[a]		Relative Percent Difference (RPD) Comparison		Difference between results	Reporting Limit (RL) Comparison (If Needed)						Control Limit: Is the difference in sample conc. ≥ 2X either RL?	Actions Required
								MW-13S_20240619			DUP_20240619				
			MW-13S_20240619	DUP_20240619	RPD Limit: 30%[b]	Are both results ≥5X RL[c]		RL	2x RL	5x RL	RL	2x RL	5x RL		
Acenaphthene	UG/L	T	3.1	3.6	15%	Yes	**0.50**	0.052	0.10	0.26	0.051	0.10	0.26		No further action required
Acenaphthylene	UG/L	T	0.059	0.17		No	**0.11**	0.052	0.10	0.26	0.051	0.10	0.26	Yes	Qualify detects/non-detects as estimated, J/UJ
Anthracene	UG/L	T	0.19	0.38		No	**0.19**	0.052	0.10	0.26	0.051	0.10	0.26	Yes	Qualify detects/non-detects as estimated, J/UJ
Benzo(a)anthracene	UG/L	T	0.17	0.15		No	**0.02**	0.052	0.10	0.26	0.051	0.10	0.26	No	No further action required
Chrysene	UG/L	T	0.11	0.11		No	**0.00**	0.052	0.10	0.26	0.051	0.10	0.26	No	No further action required
Fluoranthene	UG/L	T	1.0	1.2	18%	Yes	**0.20**	0.052	0.10	0.26	0.051	0.10	0.26		No further action required
Fluorene	UG/L	T	0.46	1.2	89%	Yes	**0.74**	0.052	0.10	0.26	0.051	0.10	0.26		Qualify detects/non-detects as estimated, J/UJ
Napthalene	UG/L	T	*0.072*	1.00		No	**0.93**	0.072	0.14	0.36	0.071	0.14	0.36	Yes	Qualify detects/non-detects as estimated, J/UJ
Phenanthrene	UG/L	T	*0.072*	1.30		No	**1.23**	0.072	0.14	0.36	0.071	0.14	0.36	Yes	Qualify detects/non-detects as estimated, J/UJ
Pyrene	UG/L	T	1.4	1.2	15%	Yes	**0.20**	0.052	0.10	0.26	0.051	0.10	0.26		No further action required

[a]Results in red text and italics were below reporting limits. Values are reporting limits for comparison purposes only.

[b]**Relative Percent Difference (RPD)** is a quantitative indicator of quality assurance and quality control (QA/QC) for repeated measurements (i.e. duplicates) where the outcome is expected to be the same. It is calculated using the following equation:

$$RPD = \left| \frac{x_1 - x_2}{(x_1 + x_2)/2} \right| \times 100$$

[c]When both results are greater than 5X the Reporting Limit (RL) the RPD is calculated. If either result is below 5X the RL, the absolute difference between the two results is compared to 2X the RL.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. James L Marolda
Brown and Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey, New Jersey 07446

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JOB DESCRIPTION

Patchogue, NY

JOB NUMBER

410-176867-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

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Revision 1

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Eurofins Lancaster Laboratories Environment Testing, LLC

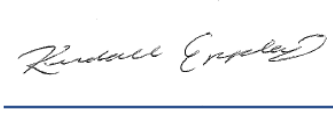
Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



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Definitions/Glossary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
cn	Refer to Case Narrative for further detail
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
410-176867-1

REVISION

The report being provided is a revision of the original report sent on 7/5/2024. The report (revision 1) is being revised due to corrections made to sample IDs.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/20/2024 4:36 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.8°C and 5.5°C.

Receipt Exceptions
The Field Sampler was not listed on the Chain of Custody.

The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB_20240620 (410-176867-14).
The laboratory received 4 total containers, while the COC lists 2 total containers.

The COC is marked for 8260 and 8270. The lab only received containers for 8260. 8270 not entered.

TB_20240620 (410-176867-14)

GC/MS VOA
Method 8260D: The following sample(s) was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed outside the 7-day holding time specified for unpreserved samples but within the 14-day holding time specified for preserved samples: MW-8S_20240618 (410-176867-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_SIM: The continuing calibration verification (CCV) associated with batch 410-522108 recovered above the upper control limit for Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are: MW-7S_20240619 (410-176867-8), MW-10S_20240619 (410-176867-9), DUP_20240619 (410-176867-10), FB_20240620 (410-176867-13) and MW-13D_20240620 (410-176867-15).

Method 8270E_SIM: Internal standard (ISTD) response for the MB was outside of upper acceptance limits: MW-1_20240618 (410-176867-1), MW-8S_20240618 (410-176867-2), MW-12S_20240618 (410-176867-3) and MW-12D_20240618 (410-176867-4). Samples are within compliance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-1_20240618 — Lab Sample ID: 410-176867-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.083	cn	0.073	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-8S_20240618 — Lab Sample ID: 410-176867-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.16	cn	0.051	0.010	ug/L	1		8270E SIM	Total/NA
Naphthalene	0.094	cn	0.071	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	0.011	J cn	0.051	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-12S_20240618 — Lab Sample ID: 410-176867-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.011	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.012	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.010	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	0.015	J cn	0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-12D_20240618 — Lab Sample ID: 410-176867-4

No Detections.

Client Sample ID: MW-11S_20240619 — Lab Sample ID: 410-176867-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	2.0		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.061		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Anthracene	0.045	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.17		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.13		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.31		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.18		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.10		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Chrysene	0.30		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.029	J	0.054	0.021	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.70		0.054	0.011	ug/L	1		8270E SIM	Total/NA
Fluorene	0.039	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.14		0.054	0.021	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.30		0.075	0.032	ug/L	1		8270E SIM	Total/NA
Pyrene	1.0		0.054	0.011	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-3_20240619 — Lab Sample ID: 410-176867-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.59	J	1.0	0.30	ug/L	1		8260D	Total/NA
Ethylbenzene	2.7		1.0	0.40	ug/L	1		8260D	Total/NA
Toluene	0.64	J	1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	4.7		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthylene	3.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	1.7		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.26		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.14		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	8.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	5.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	8.1		0.051	0.010	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-3_20240619 (Continued) — Lab Sample ID: 410-176867-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene - DL	29		0.51	0.10	ug/L	10		8270E SIM	Total/NA
Naphthalene - DL	55		0.71	0.31	ug/L	10		8270E SIM	Total/NA
Phenanthrene - DL	11		0.71	0.31	ug/L	10		8270E SIM	Total/NA

Client Sample ID: MW-13S_20240619 — Lab Sample ID: 410-176867-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.1		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.059		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.19		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.17		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.11		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.0		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	0.46		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Pyrene	1.4		0.052	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-7S_20240619 — Lab Sample ID: 410-176867-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.075		0.056	0.011	ug/L	1		8270E SIM	Total/NA
Anthracene	0.011	J	0.056	0.011	ug/L	1		8270E SIM	Total/NA
Fluorene	0.013	J	0.056	0.011	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-10S_20240619 — Lab Sample ID: 410-176867-9

No Detections.

Client Sample ID: DUP_20240619 — Lab Sample ID: 410-176867-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.6		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.17		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.38		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.15		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.11		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA
Naphthalene	1.0		0.071	0.031	ug/L	1		8270E SIM	Total/NA
Phenanthrene	1.3		0.071	0.031	ug/L	1		8270E SIM	Total/NA
Pyrene	1.2		0.051	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-14S_20240620 — Lab Sample ID: 410-176867-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.57		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.012	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.010	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.023	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.030	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.055		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.066		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.079		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.068		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.083		0.052	0.021	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-14S_20240620 (Continued) — Lab Sample ID: 410-176867-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.018	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	0.094		0.052	0.010	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.051	J	0.052	0.021	ug/L	1		8270E SIM	Total/NA
Naphthalene	0.69		0.072	0.031	ug/L	1		8270E SIM	Total/NA
Pyrene	0.014	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-4S_20240620 — Lab Sample ID: 410-176867-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	6.7		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.16		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	0.16		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.011	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.013	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.023	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.016	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.018	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.024	J	0.050	0.020	ug/L	1		8270E SIM	Total/NA
Fluoranthene	2.4		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Fluorene	1.7		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.040	J	0.070	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	2.0		0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: FB_20240620 — Lab Sample ID: 410-176867-13

No Detections.

Client Sample ID: TB_20240620 — Lab Sample ID: 410-176867-14

No Detections.

Client Sample ID: MW-13D_20240620 — Lab Sample ID: 410-176867-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.011	J	0.055	0.011	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1_20240618

Lab Sample ID: 410-176867-1

Date Collected: 06/18/24 12:08

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 12:15	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 12:15	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 12:15	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 12:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*06/30/24 12:15*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*06/30/24 12:15*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 12:15*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 12:15*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Acenaphthylene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Anthracene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[g,h,i]perylene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Chrysene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		06/24/24 08:37	07/05/24 14:45	1
Fluoranthene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Fluorene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		06/24/24 08:37	07/05/24 14:45	1
Naphthalene	**0.083**	**cn**	0.073	0.031	ug/L		06/24/24 08:37	07/05/24 14:45	1
Phenanthrene	ND	cn	0.073	0.031	ug/L		06/24/24 08:37	07/05/24 14:45	1
Pyrene	ND	cn	0.052	0.010	ug/L		06/24/24 08:37	07/05/24 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*66*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 14:45*	*1*
1-Methylnaphthalene-d10 (Surr)	*74*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 14:45*	*1*
Fluoranthene-d10 (Surr)	*68*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 14:45*	*1*

Client Sample ID: MW-8S_20240618

Lab Sample ID: 410-176867-2

Date Collected: 06/18/24 14:01

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			06/30/24 12:37	1
Ethylbenzene	ND	cn	1.0	0.40	ug/L			06/30/24 12:37	1
Toluene	ND	cn	1.0	0.30	ug/L			06/30/24 12:37	1
Xylenes, Total	ND	cn	1.0	0.40	ug/L			06/30/24 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
4-Bromofluorobenzene (Surr)	*98*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
Dibromofluoromethane (Surr)	*110*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*
Toluene-d8 (Surr)	*102*	*cn*	*80 - 120*		*06/30/24 12:37*	*1*

Client Sample ID: MW-8S_20240618

Lab Sample ID: 410-176867-2

Date Collected: 06/18/24 14:01

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.16**	**cn**	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Acenaphthylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[g,h,i]perylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Chrysene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:08	1
Fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Fluorene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:08	1
Naphthalene	**0.094**	**cn**	0.071	0.030	ug/L		06/24/24 08:37	07/05/24 15:08	1
Phenanthrene	ND	cn	0.071	0.030	ug/L		06/24/24 08:37	07/05/24 15:08	1
Pyrene	**0.011**	**J cn**	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*81*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:08*	*1*
1-Methylnaphthalene-d10 (Surr)	*77*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:08*	*1*
Fluoranthene-d10 (Surr)	*93*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:08*	*1*

Client Sample ID: MW-12S_20240618

Lab Sample ID: 410-176867-3

Date Collected: 06/18/24 15:28

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 12:59	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 12:59	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 12:59	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 12:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*06/30/24 12:59*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*06/30/24 12:59*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 12:59*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 12:59*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.011**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Acenaphthylene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Anthracene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[a]anthracene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[a]pyrene	**0.012**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[b]fluoranthene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[g,h,i]perylene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Benzo[k]fluoranthene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Chrysene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Dibenz(a,h)anthracene	ND	cn	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 15:31	1

Client Sample ID: MW-12S_20240618

Lab Sample ID: 410-176867-3

Date Collected: 06/18/24 15:28
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	**0.010**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Fluorene	ND	cn	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 15:31	1
Naphthalene	ND	cn	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 15:31	1
Phenanthrene	ND	cn	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 15:31	1
Pyrene	**0.015**	**J cn**	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*50*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:31*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:31*	*1*
Fluoranthene-d10 (Surr)	*91*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:31*	*1*

Client Sample ID: MW-12D_20240618

Lab Sample ID: 410-176867-4

Date Collected: 06/18/24 16:14
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 13:22	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 13:22	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 13:22	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*80 - 120*		*06/30/24 13:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*06/30/24 13:22*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 13:22*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/30/24 13:22*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Acenaphthylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[g,h,i]perylene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Chrysene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:55	1
Fluoranthene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Fluorene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/24/24 08:37	07/05/24 15:55	1
Naphthalene	ND	cn	0.071	0.031	ug/L		06/24/24 08:37	07/05/24 15:55	1
Phenanthrene	ND	cn	0.071	0.031	ug/L		06/24/24 08:37	07/05/24 15:55	1
Pyrene	ND	cn	0.051	0.010	ug/L		06/24/24 08:37	07/05/24 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*53*	*cn*	*10 - 136*	*06/24/24 08:37*	*07/05/24 15:55*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*	*cn*	*20 - 144*	*06/24/24 08:37*	*07/05/24 15:55*	*1*

Client Sample ID: MW-12D_20240618

Lab Sample ID: 410-176867-4

Date Collected: 06/18/24 16:14
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluoranthene-d10 (Surr)	*93*	*cn*	*29 - 153*	*06/24/24 08:37*	*07/05/24 15:55*	*1*

Client Sample ID: MW-11S_20240619

Lab Sample ID: 410-176867-5

Date Collected: 06/19/24 09:22
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 16:47	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 16:47	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 16:47	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 16:47*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*06/30/24 16:47*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 16:47*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/30/24 16:47*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**2.0**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Acenaphthylene	**0.061**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Anthracene	**0.045**	J	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[a]anthracene	**0.17**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[a]pyrene	**0.13**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[b]fluoranthene	**0.31**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[g,h,i]perylene	**0.18**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Benzo[k]fluoranthene	**0.10**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Chrysene	**0.30**	J, RC:SL	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Dibenz(a,h)anthracene	**0.029**	J	0.054	0.021	ug/L		06/24/24 15:15	06/26/24 21:26	1
Fluoranthene	**0.70**		0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Fluorene	**0.039**	J	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1
Indeno[1,2,3-cd]pyrene	**0.14**		0.054	0.021	ug/L		06/24/24 15:15	06/26/24 21:26	1
Naphthalene	ND		0.075	0.032	ug/L		06/24/24 15:15	06/26/24 21:26	1
Phenanthrene	**0.30**		0.075	0.032	ug/L		06/24/24 15:15	06/26/24 21:26	1
Pyrene	**1.0**	J, RC:SL	0.054	0.011	ug/L		06/24/24 15:15	06/26/24 21:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*61*		*10 - 136*	*06/24/24 15:15*	*06/26/24 21:26*	*1*
1-Methylnaphthalene-d10 (Surr)	*72*		*20 - 144*	*06/24/24 15:15*	*06/26/24 21:26*	*1*
Fluoranthene-d10 (Surr)	*73*		*29 - 153*	*06/24/24 15:15*	*06/26/24 21:26*	*1*

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.59**	J	1.0	0.30	ug/L			06/30/24 17:07	1
Ethylbenzene	**2.7**		1.0	0.40	ug/L			06/30/24 17:07	1

Client Sample ID: MW-3_20240619

Lab Sample ID: 410-176867-6

Date Collected: 06/19/24 10:15

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.64	J	1.0	0.30	ug/L			06/30/24 17:07	1
Xylenes, Total	4.7		1.0	0.40	ug/L			06/30/24 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*06/30/24 17:07*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 17:07*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 17:07*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 17:07*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	3.1		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Anthracene	1.7		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[a]anthracene	0.26		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Chrysene	0.14	J, RC:SL	0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		06/24/24 15:15	06/26/24 21:49	1
Fluoranthene	8.2		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Fluorene	5.1		0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		06/24/24 15:15	06/26/24 21:49	1
Pyrene	8.1	J, RC:SL	0.051	0.010	ug/L		06/24/24 15:15	06/26/24 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*69*		*10 - 136*	*06/24/24 15:15*	*06/26/24 21:49*	*1*
1-Methylnaphthalene-d10 (Surr)	*63*		*20 - 144*	*06/24/24 15:15*	*06/26/24 21:49*	*1*
Fluoranthene-d10 (Surr)	*94*		*29 - 153*	*06/24/24 15:15*	*06/26/24 21:49*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	29		0.51	0.10	ug/L		06/24/24 15:15	06/27/24 17:21	10
Naphthalene	55		0.71	0.31	ug/L		06/24/24 15:15	06/27/24 17:21	10
Phenanthrene	11		0.71	0.31	ug/L		06/24/24 15:15	06/27/24 17:21	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*	*06/24/24 15:15*	*06/27/24 17:21*	*10*
1-Methylnaphthalene-d10 (Surr)	*69*		*20 - 144*	*06/24/24 15:15*	*06/27/24 17:21*	*10*
Fluoranthene-d10 (Surr)	*71*		*29 - 153*	*06/24/24 15:15*	*06/27/24 17:21*	*10*

Client Sample ID: MW-13S_20240619

Lab Sample ID: 410-176867-7

Date Collected: 06/19/24 11:21

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 17:26	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 17:26	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 17:26	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 17:26	1

Client Sample ID: MW-13S_20240619

Lab Sample ID: 410-176867-7

Date Collected: 06/19/24 11:21

Matrix: Water

Date Received: 06/20/24 16:36

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*06/30/24 17:26*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 17:26*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 17:26*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 17:26*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**3.1**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Acenaphthylene	**0.059**	J, RC:8	0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Anthracene	**0.19**	J, RC:8	0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[a]anthracene	**0.17**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[g,h,i]perylene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Chrysene	**0.11**	J, RC:SL	0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/24/24 15:15	06/27/24 17:44	1
Fluoranthene	**1.0**		0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Fluorene	**0.46**	J, RC:8	0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/24/24 15:15	06/27/24 17:44	1
Naphthalene	ND	UJ, RC:8	0.072	0.031	ug/L		06/24/24 15:15	06/27/24 17:44	1
Phenanthrene	ND	UJ, RC:8	0.072	0.031	ug/L		06/24/24 15:15	06/27/24 17:44	1
Pyrene	**1.4**	J, RC:SL	0.052	0.010	ug/L		06/24/24 15:15	06/27/24 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*56*		*10 - 136*	*06/24/24 15:15*	*06/27/24 17:44*	*1*
1-Methylnaphthalene-d10 (Surr)	*69*		*20 - 144*	*06/24/24 15:15*	*06/27/24 17:44*	*1*
Fluoranthene-d10 (Surr)	*72*		*29 - 153*	*06/24/24 15:15*	*06/27/24 17:44*	*1*

Client Sample ID: MW-7S_20240619

Lab Sample ID: 410-176867-8

Date Collected: 06/19/24 14:43

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 17:46	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 17:46	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 17:46	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*06/30/24 17:46*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/30/24 17:46*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 120*		*06/30/24 17:46*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/30/24 17:46*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.075**		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Acenaphthylene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Anthracene	**0.011**	J	0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1

Client Sample ID: MW-7S_20240619

Lab Sample ID: 410-176867-8

Date Collected: 06/19/24 14:43

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[g,h,i]perylene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Chrysene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Dibenz(a,h)anthracene	ND	cn	0.056	0.023	ug/L		06/26/24 16:23	06/27/24 12:44	1
Fluoranthene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Fluorene	**0.013**	**J**	0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.056	0.023	ug/L		06/26/24 16:23	06/27/24 12:44	1
Naphthalene	ND		0.079	0.034	ug/L		06/26/24 16:23	06/27/24 12:44	1
Phenanthrene	ND		0.079	0.034	ug/L		06/26/24 16:23	06/27/24 12:44	1
Pyrene	ND		0.056	0.011	ug/L		06/26/24 16:23	06/27/24 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*	*06/26/24 16:23*	*06/27/24 12:44*	*1*
1-Methylnaphthalene-d10 (Surr)	*86*		*20 - 144*	*06/26/24 16:23*	*06/27/24 12:44*	*1*
Fluoranthene-d10 (Surr)	*94*		*29 - 153*	*06/26/24 16:23*	*06/27/24 12:44*	*1*

Client Sample ID: MW-10S_20240619

Lab Sample ID: 410-176867-9

Date Collected: 06/19/24 16:11

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 15:48	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 15:48	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 15:48	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 15:48*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 15:48*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 15:48*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 15:48*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Chrysene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Dibenz(a,h)anthracene	ND	cn	0.050	0.020	ug/L		06/26/24 16:23	06/27/24 13:07	1
Fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Fluorene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.050	0.020	ug/L		06/26/24 16:23	06/27/24 13:07	1

Client Sample ID: MW-10S_20240619

Lab Sample ID: 410-176867-9

Date Collected: 06/19/24 16:11

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND	F2	0.070	0.030	ug/L		06/26/24 16:23	06/27/24 13:07	1
Phenanthrene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 13:07	1
Pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*74*		*10 - 136*	*06/26/24 16:23*	*06/27/24 13:07*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*		*20 - 144*	*06/26/24 16:23*	*06/27/24 13:07*	*1*
Fluoranthene-d10 (Surr)	*98*		*29 - 153*	*06/26/24 16:23*	*06/27/24 13:07*	*1*

Client Sample ID: DUP_20240619

Lab Sample ID: 410-176867-10

Date Collected: 06/19/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:05	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:05	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:05	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:05*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/30/24 18:05*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*06/30/24 18:05*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 18:05*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**3.6**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Acenaphthylene	**0.17**	J, RC:8	0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Anthracene	**0.38**	J, RC:8	0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[a]anthracene	**0.15**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Chrysene	**0.11**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		06/26/24 16:23	06/27/24 14:17	1
Fluoranthene	**1.2**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Fluorene	**1.2**	J, RC:8	0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		06/26/24 16:23	06/27/24 14:17	1
Naphthalene	**1.0**	J, RC:8	0.071	0.031	ug/L		06/26/24 16:23	06/27/24 14:17	1
Phenanthrene	**1.3**	J, RC:8	0.071	0.031	ug/L		06/26/24 16:23	06/27/24 14:17	1
Pyrene	**1.2**		0.051	0.010	ug/L		06/26/24 16:23	06/27/24 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*40*		*10 - 136*	*06/26/24 16:23*	*06/27/24 14:17*	*1*
1-Methylnaphthalene-d10 (Surr)	*57*		*20 - 144*	*06/26/24 16:23*	*06/27/24 14:17*	*1*
Fluoranthene-d10 (Surr)	*72*		*29 - 153*	*06/26/24 16:23*	*06/27/24 14:17*	*1*

Client Sample ID: MW-14S_20240620

Lab Sample ID: 410-176867-11

Date Collected: 06/20/24 09:03

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:25	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:25	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:25	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:25*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/30/24 18:25*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*06/30/24 18:25*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 18:25*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.57**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Acenaphthylene	**0.012**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Anthracene	**0.010**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[a]anthracene	**0.023**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[a]pyrene	**0.030**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[b]fluoranthene	**0.055**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[g,h,i]perylene	**0.066**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Benzo[k]fluoranthene	**0.079**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Chrysene	**0.068**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Dibenz(a,h)anthracene	**0.083**		0.052	0.021	ug/L		06/26/24 16:23	06/28/24 20:55	1
Fluoranthene	**0.018**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Fluorene	**0.094**		0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1
Indeno[1,2,3-cd]pyrene	**0.051**	**J**	0.052	0.021	ug/L		06/26/24 16:23	06/28/24 20:55	1
Naphthalene	**0.69**		0.072	0.031	ug/L		06/26/24 16:23	06/27/24 14:40	1
Phenanthrene	ND		0.072	0.031	ug/L		06/26/24 16:23	06/27/24 14:40	1
Pyrene	**0.014**	**J**	0.052	0.010	ug/L		06/26/24 16:23	06/27/24 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*50*		*10 - 136*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
Benzo(a)pyrene-d12 (Surr)	*50*		*10 - 136*	*06/26/24 16:23*	*06/28/24 20:55*	*1*
1-Methylnaphthalene-d10 (Surr)	*80*		*20 - 144*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
1-Methylnaphthalene-d10 (Surr)	*84*		*20 - 144*	*06/26/24 16:23*	*06/28/24 20:55*	*1*
Fluoranthene-d10 (Surr)	*92*		*29 - 153*	*06/26/24 16:23*	*06/27/24 14:40*	*1*
Fluoranthene-d10 (Surr)	*90*		*29 - 153*	*06/26/24 16:23*	*06/28/24 20:55*	*1*

Client Sample ID: MW-4S_20240620

Lab Sample ID: 410-176867-12

Date Collected: 06/20/24 10:03

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 18:45	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 18:45	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 18:45	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 18:45*	*1*

Client Sample ID: MW-4S_20240620

Lab Sample ID: 410-176867-12

Date Collected: 06/20/24 10:03
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*06/30/24 18:45*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 18:45*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 18:45*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**6.7**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Acenaphthylene	**0.16**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Anthracene	**0.16**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[a]anthracene	**0.011**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[b]fluoranthene	**0.013**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[g,h,i]perylene	**0.023**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Benzo[k]fluoranthene	**0.016**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Chrysene	**0.018**	**J**	0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Dibenz(a,h)anthracene	**0.024**	**J**	0.050	0.020	ug/L		06/26/24 16:23	06/28/24 21:18	1
Fluoranthene	**2.4**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Fluorene	**1.7**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/28/24 21:18	1
Naphthalene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 15:03	1
Phenanthrene	**0.040**	**J**	0.070	0.030	ug/L		06/26/24 16:23	06/27/24 15:03	1
Pyrene	**2.0**		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	*51*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
Benzo(a)pyrene-d12 (Surr)	*52*		*10 - 136*	*06/26/24 16:23*	*06/28/24 21:18*	*1*
1-Methylnaphthalene-d10 (Surr)	*79*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
1-Methylnaphthalene-d10 (Surr)	*85*		*20 - 144*	*06/26/24 16:23*	*06/28/24 21:18*	*1*
Fluoranthene-d10 (Surr)	*82*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:03*	*1*
Fluoranthene-d10 (Surr)	*87*		*29 - 153*	*06/26/24 16:23*	*06/28/24 21:18*	*1*

Client Sample ID: FB_20240620

Lab Sample ID: 410-176867-13

Date Collected: 06/20/24 08:52
Matrix: Water
Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 14:49	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 14:49	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 14:49	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*06/30/24 14:49*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/30/24 14:49*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 14:49*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 14:49*	*1*

Client Sample ID: FB_20240620

Lab Sample ID: 410-176867-13

Date Collected: 06/20/24 08:52

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Acenaphthylene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Anthracene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[g,h,i]perylene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Chrysene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Dibenz(a,h)anthracene	ND	cn	0.053	0.021	ug/L		06/26/24 16:23	06/27/24 15:26	1
Fluoranthene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Fluorene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.053	0.021	ug/L		06/26/24 16:23	06/27/24 15:26	1
Naphthalene	ND		0.074	0.032	ug/L		06/26/24 16:23	06/27/24 15:26	1
Phenanthrene	ND		0.074	0.032	ug/L		06/26/24 16:23	06/27/24 15:26	1
Pyrene	ND		0.053	0.011	ug/L		06/26/24 16:23	06/27/24 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*79*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:26*	*1*
1-Methylnaphthalene-d10 (Surr)	*67*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:26*	*1*
Fluoranthene-d10 (Surr)	*84*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:26*	*1*

Client Sample ID: TB_20240620

Lab Sample ID: 410-176867-14

Date Collected: 06/20/24 00:00

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 15:09	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 15:09	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 15:09	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 15:09*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/30/24 15:09*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/30/24 15:09*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/30/24 15:09*	*1*

Client Sample ID: MW-13D_20240620

Lab Sample ID: 410-176867-15

Date Collected: 06/20/24 12:28

Matrix: Water

Date Received: 06/20/24 16:36

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 19:04	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 19:04	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 19:04	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 19:04	1

Client Sample ID: MW-13D_20240620
Date Collected: 06/20/24 12:28
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-15
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*06/30/24 19:04*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*06/30/24 19:04*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 120*		*06/30/24 19:04*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/30/24 19:04*	*1*

Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Acenaphthylene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Anthracene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[a]anthracene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[g,h,i]perylene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Chrysene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Dibenz(a,h)anthracene	ND	cn	0.055	0.022	ug/L		06/26/24 16:23	06/27/24 15:50	1
Fluoranthene	**0.011**	**J**	0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Fluorene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.055	0.022	ug/L		06/26/24 16:23	06/27/24 15:50	1
Naphthalene	ND		0.076	0.033	ug/L		06/26/24 16:23	06/27/24 15:50	1
Phenanthrene	ND		0.076	0.033	ug/L		06/26/24 16:23	06/27/24 15:50	1
Pyrene	ND		0.055	0.011	ug/L		06/26/24 16:23	06/27/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*42*		*10 - 136*	*06/26/24 16:23*	*06/27/24 15:50*	*1*
1-Methylnaphthalene-d10 (Surr)	*79*		*20 - 144*	*06/26/24 16:23*	*06/27/24 15:50*	*1*
Fluoranthene-d10 (Surr)	*81*		*29 - 153*	*06/26/24 16:23*	*06/27/24 15:50*	*1*

Surrogate Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
410-176867-1	MW-1_20240618	102	96	104	103
410-176867-2	MW-8S_20240618	108 cn	98 cn	110 cn	102 cn
410-176867-3	MW-12S_20240618	108	97	107	104
410-176867-4	MW-12D_20240618	108	98	108	102
410-176867-5	MW-11S_20240619	101	102	108	102
410-176867-6	MW-3_20240619	104	104	108	103
410-176867-7	MW-13S_20240619	102	104	108	103
410-176867-8	MW-7S_20240619	103	103	109	102
410-176867-9	MW-10S_20240619	101	104	107	103
410-176867-9 MS	MW-10S_20240619	102	99	106	102
410-176867-9 MSD	MW-10S_20240619	105	99	104	102
410-176867-10	DUP_20240619	101	104	107	101
410-176867-11	MW-14S_20240620	101	103	106	101
410-176867-12	MW-4S_20240620	101	105	108	104
410-176867-13	FB_20240620	99	100	104	103
410-176867-14	TB_20240620	101	103	105	103
410-176867-15	MW-13D_20240620	105	102	108	101
410-177008-B-1 MS	Matrix Spike	103	99	103	107
410-177008-C-1 MSD	Matrix Spike Duplicate	105	100	100	106
LCS 410-523106/4	Lab Control Sample	106	100	102	107
LCS 410-523144/4	Lab Control Sample	101	99	105	104
LCSD 410-523106/5	Lab Control Sample Dup	102	100	99	108
MB 410-523106/7	Method Blank	109	97	106	104
MB 410-523144/6	Method Blank	101	100	104	104

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12	MNPd10	FLN10
Lab Sample ID	Client Sample ID	(10-136)	(20-144)	(29-153)
410-176867-1	MW-1_20240618	66 cn	74 cn	68 cn
410-176867-2	MW-8S_20240618	81 cn	77 cn	93 cn
410-176867-3	MW-12S_20240618	50 cn	85 cn	91 cn
410-176867-4	MW-12D_20240618	53 cn	80 cn	93 cn
410-176867-5	MW-11S_20240619	61	72	73
410-176867-6	MW-3_20240619	69	63	94
410-176867-6 - DL	MW-3_20240619	67	69	71
410-176867-7	MW-13S_20240619	56	69	72
410-176867-8	MW-7S_20240619	67	86	94
410-176867-9	MW-10S_20240619	74	85	98
410-176867-9 MS	MW-10S_20240619	73	66	87
410-176867-9 MSD	MW-10S_20240619	70	45	82
410-176867-10	DUP_20240619	40	57	72

Surrogate Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	BAPd12 (10-136)	MNPd10 (20-144)	FLN10 (29-153)
410-176867-11	MW-14S_20240620	50	80	92
410-176867-11	MW-14S_20240620	50	84	90
410-176867-12	MW-4S_20240620	51	79	82
410-176867-12	MW-4S_20240620	52	85	87
410-176867-13	FB_20240620	79	67	84
410-176867-15	MW-13D_20240620	42	79	81
LCS 410-520557/2-A	Lab Control Sample	62	61	72
LCS 410-520778/2-A	Lab Control Sample	71	64	70
LCS 410-521874/2-A	Lab Control Sample	65	54	65
LCSD 410-520778/3-A	Lab Control Sample Dup	67	59	64
MB 410-520557/1-A	Method Blank	49 *3	49 *3	54 *3
MB 410-520778/1-A	Method Blank	69	73	69
MB 410-521874/1-A	Method Blank	73	75	76

Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)
MNPd10 = 1-Methylnaphthalene-d10 (Surr)
FLN10 = Fluoranthene-d10 (Surr)

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

Lab Sample ID: MB 410-523106/7
Matrix: Water
Analysis Batch: 523106

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 10:55	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 10:55	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 10:55	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*06/30/24 10:55*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*06/30/24 10:55*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*06/30/24 10:55*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 10:55*	*1*

Lab Sample ID: LCS 410-523106/4
Matrix: Water
Analysis Batch: 523106

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	22.0		ug/L		110	80 - 120		
Ethylbenzene			20.0	20.7		ug/L		104	80 - 120		
Toluene			20.0	21.7		ug/L		109	80 - 120		
Xylenes, Total			60.0	61.2		ug/L		102	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Lab Sample ID: LCSD 410-523106/5
Matrix: Water
Analysis Batch: 523106

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			20.0	21.6		ug/L		108	80 - 120	2	30
Ethylbenzene			20.0	20.8		ug/L		104	80 - 120	1	30
Toluene			20.0	21.9		ug/L		109	80 - 120	0	30
Xylenes, Total			60.0	60.7		ug/L		101	80 - 120	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*108*		*80 - 120*

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

Lab Sample ID: 410-177008-B-1 MS
Matrix: Water
Analysis Batch: 523106

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	26		20.0	45.4		ug/L		98	81 - 120
Ethylbenzene	ND		20.0	19.4		ug/L		97	78 - 120
Toluene	0.72	J	20.0	20.6		ug/L		100	79 - 120
Xylenes, Total	1.9		60.0	57.2		ug/L		92	78 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Lab Sample ID: 410-177008-C-1 MSD
Matrix: Water
Analysis Batch: 523106

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	26		20.0	45.9		ug/L		100	81 - 120	1	30
Ethylbenzene	ND		20.0	19.0		ug/L		95	78 - 120	2	30
Toluene	0.72	J	20.0	19.5		ug/L		94	79 - 120	6	30
Xylenes, Total	1.9		60.0	56.2		ug/L		91	78 - 120	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*106*		*80 - 120*

Lab Sample ID: MB 410-523144/6
Matrix: Water
Analysis Batch: 523144

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/30/24 14:16	1
Ethylbenzene	ND		1.0	0.40	ug/L			06/30/24 14:16	1
Toluene	ND		1.0	0.30	ug/L			06/30/24 14:16	1
Xylenes, Total	ND		1.0	0.40	ug/L			06/30/24 14:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*06/30/24 14:16*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/30/24 14:16*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/30/24 14:16*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/30/24 14:16*	*1*

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

Lab Sample ID: LCS 410-523144/4
Matrix: Water
Analysis Batch: 523144

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	20.1		ug/L		101	80 - 120		
Ethylbenzene			20.0	21.1		ug/L		105	80 - 120		
Toluene			20.0	20.9		ug/L		105	80 - 120		
Xylenes, Total			60.0	62.7		ug/L		105	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: 410-176867-9 MS
Matrix: Water
Analysis Batch: 523144

Client Sample ID: MW-10S_20240619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		20.0	21.0		ug/L		105	81 - 120		
Ethylbenzene	ND		20.0	21.6		ug/L		108	78 - 120		
Toluene	ND		20.0	21.4		ug/L		107	79 - 120		
Xylenes, Total	ND		60.0	63.9		ug/L		107	78 - 120		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: 410-176867-9 MSD
Matrix: Water
Analysis Batch: 523144

Client Sample ID: MW-10S_20240619
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	21.0		ug/L		105	81 - 120	0	30
Ethylbenzene	ND		20.0	21.5		ug/L		107	78 - 120	1	30
Toluene	ND		20.0	21.4		ug/L		107	79 - 120	0	30
Xylenes, Total	ND		60.0	64.1		ug/L		107	78 - 120	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-520557/1-A
Matrix: Water
Analysis Batch: 524997

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 520557

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Acenaphthylene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Anthracene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[a]pyrene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[b]fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[g,h,i]perylene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Benzo[k]fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Chrysene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Dibenz(a,h)anthracene	ND	*3	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 13:35	1
Fluoranthene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Fluorene	ND	*3	0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1
Indeno[1,2,3-cd]pyrene	ND	*3	0.050	0.020	ug/L		06/24/24 08:37	07/05/24 13:35	1
Naphthalene	ND	*3	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 13:35	1
Phenanthrene	ND	*3	0.070	0.030	ug/L		06/24/24 08:37	07/05/24 13:35	1
Pyrene	ND		0.050	0.010	ug/L		06/24/24 08:37	07/05/24 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*49*	*3	*10 - 136*	*06/24/24 08:37*	*07/05/24 13:35*	*1*
1-Methylnaphthalene-d10 (Surr)	*49*	*3	*20 - 144*	*06/24/24 08:37*	*07/05/24 13:35*	*1*
Fluoranthene-d10 (Surr)	*54*	*3	*29 - 153*	*06/24/24 08:37*	*07/05/24 13:35*	*1*

Lab Sample ID: LCS 410-520557/2-A
Matrix: Water
Analysis Batch: 524997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 520557

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	50.0	32.3		ug/L		65	37 - 134
Acenaphthylene	50.0	32.9		ug/L		66	42 - 136
Anthracene	50.0	35.9		ug/L		72	49 - 137
Benzo[a]anthracene	50.0	41.1		ug/L		82	47 - 138
Benzo[a]pyrene	50.0	35.2		ug/L		70	51 - 147
Benzo[b]fluoranthene	50.0	36.1		ug/L		72	44 - 144
Benzo[g,h,i]perylene	50.0	27.8		ug/L		56	40 - 146
Benzo[k]fluoranthene	50.0	37.1		ug/L		74	46 - 158
Chrysene	50.0	43.3		ug/L		87	41 - 144
Dibenz(a,h)anthracene	50.0	29.8		ug/L		60	38 - 145
Fluoranthene	50.0	40.6		ug/L		81	44 - 141
Fluorene	50.0	35.2		ug/L		70	42 - 133
Indeno[1,2,3-cd]pyrene	50.0	30.7		ug/L		61	37 - 153
Naphthalene	50.0	29.2		ug/L		58	29 - 129
Phenanthrene	50.0	34.9		ug/L		70	44 - 136
Pyrene	50.0	33.8		ug/L		68	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*62*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*61*		*20 - 144*
Fluoranthene-d10 (Surr)	*72*		*29 - 153*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-520778/1-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 520778

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Anthracene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Chrysene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/24/24 15:15	06/26/24 12:14	1
Fluoranthene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Fluorene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/24/24 15:15	06/26/24 12:14	1
Naphthalene	ND		0.070	0.030	ug/L		06/24/24 15:15	06/26/24 12:14	1
Phenanthrene	ND		0.070	0.030	ug/L		06/24/24 15:15	06/26/24 12:14	1
Pyrene	ND		0.050	0.010	ug/L		06/24/24 15:15	06/26/24 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*69*		*10 - 136*	*06/24/24 15:15*	*06/26/24 12:14*	*1*
1-Methylnaphthalene-d10 (Surr)	*73*		*20 - 144*	*06/24/24 15:15*	*06/26/24 12:14*	*1*
Fluoranthene-d10 (Surr)	*69*		*29 - 153*	*06/24/24 15:15*	*06/26/24 12:14*	*1*

Lab Sample ID: LCS 410-520778/2-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 520778

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	1.00	0.696		ug/L		70	37 - 134
Acenaphthylene	1.00	0.705		ug/L		70	42 - 136
Anthracene	1.00	0.727		ug/L		73	49 - 137
Benzo[a]anthracene	1.00	0.741		ug/L		74	47 - 138
Benzo[a]pyrene	1.00	0.749		ug/L		75	51 - 147
Benzo[b]fluoranthene	1.00	0.717		ug/L		72	44 - 144
Benzo[g,h,i]perylene	1.00	0.772		ug/L		77	40 - 146
Benzo[k]fluoranthene	1.00	0.813		ug/L		81	46 - 158
Chrysene	1.00	0.734		ug/L		73	41 - 144
Dibenz(a,h)anthracene	1.00	0.750		ug/L		75	38 - 145
Fluoranthene	1.00	0.721		ug/L		72	44 - 141
Fluorene	1.00	0.703		ug/L		70	42 - 133
Indeno[1,2,3-cd]pyrene	1.00	0.737		ug/L		74	37 - 153
Naphthalene	1.00	0.582		ug/L		58	29 - 129
Phenanthrene	1.00	0.715		ug/L		71	44 - 136
Pyrene	1.00	0.741		ug/L		74	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*71*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*64*		*20 - 144*
Fluoranthene-d10 (Surr)	*70*		*29 - 153*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCSD 410-520778/3-A
Matrix: Water
Analysis Batch: 521572

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 520778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene			1.00	0.636		ug/L		64	37 - 134	9	33
Acenaphthylene			1.00	0.643		ug/L		64	42 - 136	9	33
Anthracene			1.00	0.677		ug/L		68	49 - 137	7	30
Benzo[a]anthracene			1.00	0.702		ug/L		70	47 - 138	5	27
Benzo[a]pyrene			1.00	0.698		ug/L		70	51 - 147	7	27
Benzo[b]fluoranthene			1.00	0.669		ug/L		67	44 - 144	7	30
Benzo[g,h,i]perylene			1.00	0.731		ug/L		73	40 - 146	5	28
Benzo[k]fluoranthene			1.00	0.760		ug/L		76	46 - 158	7	28
Chrysene			1.00	0.687		ug/L		69	41 - 144	7	27
Dibenz(a,h)anthracene			1.00	0.701		ug/L		70	38 - 145	7	29
Fluoranthene			1.00	0.665		ug/L		66	44 - 141	8	29
Fluorene			1.00	0.651		ug/L		65	42 - 133	8	30
Indeno[1,2,3-cd]pyrene			1.00	0.702		ug/L		70	37 - 153	5	28
Naphthalene			1.00	0.509		ug/L		51	29 - 129	13	36
Phenanthrene			1.00	0.658		ug/L		66	44 - 136	8	29
Pyrene			1.00	0.693		ug/L		69	41 - 134	7	28

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*67*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*59*		*20 - 144*
Fluoranthene-d10 (Surr)	*64*		*29 - 153*

Lab Sample ID: MB 410-521874/1-A
Matrix: Water
Analysis Batch: 522105

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 521874

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Acenaphthylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Chrysene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/27/24 12:24	1
Fluoranthene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Fluorene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/26/24 16:23	06/27/24 12:24	1
Naphthalene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 12:24	1
Phenanthrene	ND		0.070	0.030	ug/L		06/26/24 16:23	06/27/24 12:24	1
Pyrene	ND		0.050	0.010	ug/L		06/26/24 16:23	06/27/24 12:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Benzo(a)pyrene-d12 (Surr)	*73*		*10 - 136*	*06/26/24 16:23*	*06/27/24 12:24*	*1*
1-Methylnaphthalene-d10 (Surr)	*75*		*20 - 144*	*06/26/24 16:23*	*06/27/24 12:24*	*1*
Fluoranthene-d10 (Surr)	*76*		*29 - 153*	*06/26/24 16:23*	*06/27/24 12:24*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: LCS 410-521874/2-A
Matrix: Water
Analysis Batch: 522105

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	1.00	0.598		ug/L		60	37 - 134
Acenaphthylene	1.00	0.609		ug/L		61	42 - 136
Anthracene	1.00	0.639		ug/L		64	49 - 137
Benzo[a]anthracene	1.00	0.661		ug/L		66	47 - 138
Benzo[a]pyrene	1.00	0.660		ug/L		66	51 - 147
Benzo[b]fluoranthene	1.00	0.651		ug/L		65	44 - 144
Benzo[g,h,i]perylene	1.00	0.580		ug/L		58	40 - 146
Benzo[k]fluoranthene	1.00	0.704		ug/L		70	46 - 158
Chrysene	1.00	0.646		ug/L		65	41 - 144
Dibenz(a,h)anthracene	1.00	0.587		ug/L		59	38 - 145
Fluoranthene	1.00	0.642		ug/L		64	44 - 141
Fluorene	1.00	0.619		ug/L		62	42 - 133
Indeno[1,2,3-cd]pyrene	1.00	0.611		ug/L		61	37 - 153
Naphthalene	1.00	0.472		ug/L		47	29 - 129
Phenanthrene	1.00	0.632		ug/L		63	44 - 136
Pyrene	1.00	0.637		ug/L		64	41 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*65*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*54*		*20 - 144*
Fluoranthene-d10 (Surr)	*65*		*29 - 153*

Lab Sample ID: 410-176867-9 MS
Matrix: Water
Analysis Batch: 522108

Client Sample ID: MW-10S_20240619
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	ND		1.04	0.770		ug/L		74	42 - 120
Acenaphthylene	ND		1.04	0.744		ug/L		71	41 - 120
Anthracene	ND		1.04	0.775		ug/L		74	48 - 124
Benzo[a]anthracene	ND		1.04	0.862		ug/L		83	50 - 129
Benzo[a]pyrene	ND		1.04	0.753		ug/L		72	49 - 120
Benzo[b]fluoranthene	ND		1.04	0.739		ug/L		71	47 - 131
Benzo[g,h,i]perylene	ND		1.04	0.892		ug/L		86	40 - 132
Benzo[k]fluoranthene	ND		1.04	0.760		ug/L		73	50 - 128
Chrysene	ND		1.04	0.792		ug/L		76	47 - 121
Dibenz(a,h)anthracene	ND	cn	1.04	0.898		ug/L		86	38 - 136
Fluoranthene	ND		1.04	0.924		ug/L		89	47 - 129
Fluorene	ND		1.04	0.799		ug/L		77	46 - 120
Indeno[1,2,3-cd]pyrene	ND	cn	1.04	0.987		ug/L		95	35 - 144
Naphthalene	ND	F2	1.04	0.645		ug/L		62	28 - 120
Phenanthrene	ND		1.04	0.819		ug/L		78	48 - 121
Pyrene	ND		1.04	0.791		ug/L		76	46 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*73*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*66*		*20 - 144*
Fluoranthene-d10 (Surr)	*87*		*29 - 153*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: 410-176867-9 MSD
Matrix: Water
Analysis Batch: 522108

Client Sample ID: MW-10S_20240619
Prep Type: Total/NA
Prep Batch: 521874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	ND		1.05	0.607		ug/L		58	42 - 120	24	30
Acenaphthylene	ND		1.05	0.591		ug/L		56	41 - 120	23	30
Anthracene	ND		1.05	0.739		ug/L		70	48 - 124	5	30
Benzo[a]anthracene	ND		1.05	0.822		ug/L		78	50 - 129	5	30
Benzo[a]pyrene	ND		1.05	0.740		ug/L		70	49 - 120	2	30
Benzo[b]fluoranthene	ND		1.05	0.724		ug/L		69	47 - 131	2	30
Benzo[g,h,i]perylene	ND		1.05	0.915		ug/L		87	40 - 132	3	30
Benzo[k]fluoranthene	ND		1.05	0.766		ug/L		73	50 - 128	1	30
Chrysene	ND		1.05	0.806		ug/L		76	47 - 121	2	30
Dibenz(a,h)anthracene	ND	cn	1.05	0.931		ug/L		88	38 - 136	4	30
Fluoranthene	ND		1.05	0.894		ug/L		85	47 - 129	3	30
Fluorene	ND		1.05	0.684		ug/L		65	46 - 120	15	30
Indeno[1,2,3-cd]pyrene	ND	cn	1.05	0.995		ug/L		94	35 - 144	1	30
Naphthalene	ND	F2	1.05	0.405	F2	ug/L		38	28 - 120	46	30
Phenanthrene	ND		1.05	0.690		ug/L		65	48 - 121	17	30
Pyrene	ND		1.05	0.773		ug/L		73	46 - 122	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Benzo(a)pyrene-d12 (Surr)	*70*		*10 - 136*
1-Methylnaphthalene-d10 (Surr)	*45*		*20 - 144*
Fluoranthene-d10 (Surr)	*82*		*29 - 153*

GC/MS VOA

Analysis Batch: 523106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	8260D	
410-176867-2	MW-8S_20240618	Total/NA	Water	8260D	
410-176867-3	MW-12S_20240618	Total/NA	Water	8260D	
410-176867-4	MW-12D_20240618	Total/NA	Water	8260D	
MB 410-523106/7	Method Blank	Total/NA	Water	8260D	
LCS 410-523106/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-523106/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-177008-B-1 MS	Matrix Spike	Total/NA	Water	8260D	
410-177008-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260D	

Analysis Batch: 523144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	8260D	
410-176867-6	MW-3_20240619	Total/NA	Water	8260D	
410-176867-7	MW-13S_20240619	Total/NA	Water	8260D	
410-176867-8	MW-7S_20240619	Total/NA	Water	8260D	
410-176867-9	MW-10S_20240619	Total/NA	Water	8260D	
410-176867-10	DUP_20240619	Total/NA	Water	8260D	
410-176867-11	MW-14S_20240620	Total/NA	Water	8260D	
410-176867-12	MW-4S_20240620	Total/NA	Water	8260D	
410-176867-13	FB_20240620	Total/NA	Water	8260D	
410-176867-14	TB_20240620	Total/NA	Water	8260D	
410-176867-15	MW-13D_20240620	Total/NA	Water	8260D	
MB 410-523144/6	Method Blank	Total/NA	Water	8260D	
LCS 410-523144/4	Lab Control Sample	Total/NA	Water	8260D	
410-176867-9 MS	MW-10S_20240619	Total/NA	Water	8260D	
410-176867-9 MSD	MW-10S_20240619	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 520557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	3510C	
410-176867-2	MW-8S_20240618	Total/NA	Water	3510C	
410-176867-3	MW-12S_20240618	Total/NA	Water	3510C	
410-176867-4	MW-12D_20240618	Total/NA	Water	3510C	
MB 410-520557/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-520557/2-A	Lab Control Sample	Total/NA	Water	3510C	

Prep Batch: 520778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	3510C	
410-176867-6 - DL	MW-3_20240619	Total/NA	Water	3510C	
410-176867-6	MW-3_20240619	Total/NA	Water	3510C	
410-176867-7	MW-13S_20240619	Total/NA	Water	3510C	
MB 410-520778/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-520778/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-520778/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

GC/MS Semi VOA

Analysis Batch: 521572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-5	MW-11S_20240619	Total/NA	Water	8270E SIM	520778
410-176867-6	MW-3_20240619	Total/NA	Water	8270E SIM	520778
MB 410-520778/1-A	Method Blank	Total/NA	Water	8270E SIM	520778
LCS 410-520778/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	520778
LCSD 410-520778/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	520778

Prep Batch: 521874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-8	MW-7S_20240619	Total/NA	Water	3510C	
410-176867-9	MW-10S_20240619	Total/NA	Water	3510C	
410-176867-10	DUP_20240619	Total/NA	Water	3510C	
410-176867-11	MW-14S_20240620	Total/NA	Water	3510C	
410-176867-12	MW-4S_20240620	Total/NA	Water	3510C	
410-176867-13	FB_20240620	Total/NA	Water	3510C	
410-176867-15	MW-13D_20240620	Total/NA	Water	3510C	
MB 410-521874/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-521874/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-176867-9 MS	MW-10S_20240619	Total/NA	Water	3510C	
410-176867-9 MSD	MW-10S_20240619	Total/NA	Water	3510C	

Analysis Batch: 522105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-6 - DL	MW-3_20240619	Total/NA	Water	8270E SIM	520778
410-176867-7	MW-13S_20240619	Total/NA	Water	8270E SIM	520778
MB 410-521874/1-A	Method Blank	Total/NA	Water	8270E SIM	521874
LCS 410-521874/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	521874

Analysis Batch: 522108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-8	MW-7S_20240619	Total/NA	Water	8270E SIM	521874
410-176867-9	MW-10S_20240619	Total/NA	Water	8270E SIM	521874
410-176867-10	DUP_20240619	Total/NA	Water	8270E SIM	521874
410-176867-11	MW-14S_20240620	Total/NA	Water	8270E SIM	521874
410-176867-12	MW-4S_20240620	Total/NA	Water	8270E SIM	521874
410-176867-13	FB_20240620	Total/NA	Water	8270E SIM	521874
410-176867-15	MW-13D_20240620	Total/NA	Water	8270E SIM	521874
410-176867-9 MS	MW-10S_20240619	Total/NA	Water	8270E SIM	521874
410-176867-9 MSD	MW-10S_20240619	Total/NA	Water	8270E SIM	521874

Analysis Batch: 522742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-11	MW-14S_20240620	Total/NA	Water	8270E SIM	521874
410-176867-12	MW-4S_20240620	Total/NA	Water	8270E SIM	521874

Analysis Batch: 524997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-176867-1	MW-1_20240618	Total/NA	Water	8270E SIM	520557
410-176867-2	MW-8S_20240618	Total/NA	Water	8270E SIM	520557
410-176867-3	MW-12S_20240618	Total/NA	Water	8270E SIM	520557
410-176867-4	MW-12D_20240618	Total/NA	Water	8270E SIM	520557
MB 410-520557/1-A	Method Blank	Total/NA	Water	8270E SIM	520557

GC/MS Semi VOA (Continued)

Analysis Batch: 524997 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-520557/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	520557

Lab Chronicle

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-1_20240618
Lab Sample ID: 410-176867-1
Date Collected: 06/18/24 12:08
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:15
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 14:45

Client Sample ID: MW-8S_20240618
Lab Sample ID: 410-176867-2
Date Collected: 06/18/24 14:01
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:37
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:08

Client Sample ID: MW-12S_20240618
Lab Sample ID: 410-176867-3
Date Collected: 06/18/24 15:28
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 12:59
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:31

Client Sample ID: MW-12D_20240618
Lab Sample ID: 410-176867-4
Date Collected: 06/18/24 16:14
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523106	TQ4J	ELLE	06/30/24 13:22
Total/NA	Prep	3510C			520557	YDF5	ELLE	06/24/24 08:37
Total/NA	Analysis	8270E SIM		1	524997	UWHS	ELLE	07/05/24 15:55

Client Sample ID: MW-11S_20240619
Lab Sample ID: 410-176867-5
Date Collected: 06/19/24 09:22
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 16:47
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	521572	SJ89	ELLE	06/26/24 21:26

Client Sample ID: MW-3_20240619
Lab Sample ID: 410-176867-6
Date Collected: 06/19/24 10:15
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:07

Lab Chronicle

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-3_20240619
Lab Sample ID: 410-176867-6
Date Collected: 06/19/24 10:15
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	521572	SJ89	ELLE	06/26/24 21:49
Total/NA	Prep	3510C	DL		520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM	DL	10	522105	SJ89	ELLE	06/27/24 17:21

Client Sample ID: MW-13S_20240619
Lab Sample ID: 410-176867-7
Date Collected: 06/19/24 11:21
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:26
Total/NA	Prep	3510C			520778	T9CY	ELLE	06/24/24 15:15
Total/NA	Analysis	8270E SIM		1	522105	SJ89	ELLE	06/27/24 17:44

Client Sample ID: MW-7S_20240619
Lab Sample ID: 410-176867-8
Date Collected: 06/19/24 14:43
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 17:46
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 12:44

Client Sample ID: MW-10S_20240619
Lab Sample ID: 410-176867-9
Date Collected: 06/19/24 16:11
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 15:48
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 13:07

Client Sample ID: DUP_20240619
Lab Sample ID: 410-176867-10
Date Collected: 06/19/24 00:00
Matrix: Water
Date Received: 06/20/24 16:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:05
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 14:17

Lab Chronicle

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Client Sample ID: MW-14S_20240620
Date Collected: 06/20/24 09:03
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:25
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 14:40
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522742	SJ89	ELLE	06/28/24 20:55

Client Sample ID: MW-4S_20240620
Date Collected: 06/20/24 10:03
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 18:45
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:03
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522742	SJ89	ELLE	06/28/24 21:18

Client Sample ID: FB_20240620
Date Collected: 06/20/24 08:52
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 14:49
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:26

Client Sample ID: TB_20240620
Date Collected: 06/20/24 00:00
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 15:09

Client Sample ID: MW-13D_20240620
Date Collected: 06/20/24 12:28
Date Received: 06/20/24 16:36

Lab Sample ID: 410-176867-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	523144	K4WN	ELLE	06/30/24 19:04
Total/NA	Prep	3510C			521874	L2FU	ELLE	06/26/24 16:23
Total/NA	Analysis	8270E SIM		1	522108	SJ89	ELLE	06/27/24 15:50

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	07-17-24
A2LA	ISO/IEC 17025	0001.01	07-17-24
Alabama	State	43200	01-31-25
Alaska	State	PA00009	06-30-25
Alaska (UST)	State	17-027	02-28-25
Arizona	State	AZ0780	03-12-25
Arkansas DEQ	State	88-00660	08-09-24
California	State	2792	11-30-24
Colorado	State	PA00009	06-30-25
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-25
Delaware (DW)	State	N/A	01-31-25
Florida	NELAP	E87997	06-30-25
Georgia (DW)	State	C048	01-31-25
Hawaii	State	N/A	01-31-25
Illinois	NELAP	200027	07-30-24
Iowa	State	361	03-01-26
Kansas	NELAP	E-10151	10-31-24
Kentucky (DW)	State	KY90088	12-31-24
Kentucky (UST)	State	0001.01	07-17-24
Kentucky (WW)	State	KY90088	12-31-24
Louisiana (All)	NELAP	02055	06-30-25
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-25
Massachusetts	State	M-PA009	06-30-25
Michigan	State	9930	01-31-25
Minnesota	NELAP	042-999-487	12-31-24
Mississippi	State	023	01-31-25
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-25
Nebraska	State	NE-OS-32-17	01-31-25
New Hampshire	NELAP	2730	01-10-25
New Jersey	NELAP	PA011	06-30-25
New York	NELAP	10670	04-01-25
North Carolina (DW)	State	42705	07-31-25
North Carolina (WW/SW)	State	521	12-31-24
North Dakota	State	R-205	01-31-24 *
Oklahoma	NELAP	9804	08-31-24
Oregon	NELAP	PA200001	09-11-24
Pennsylvania	NELAP	36-00037	07-29-24
Quebec Ministry of Environment and Fight against Climate Change	PALA	507	09-16-24
Rhode Island	State	LAO00338	12-30-24
South Carolina	State	89002	01-31-25
Tennessee	State	02838	01-31-25
Texas	NELAP	T104704194-23-46	08-31-24
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-24
Virginia	NELAP	460182	07-09-24
Washington	State	C457	04-11-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
West Virginia (DW)	State	9906 C	01-31-25
West Virginia DEP	State	055	07-25-24
Wyoming	State	8TMS-L	01-31-25
Wyoming (UST)	A2LA	0001.01	07-17-24

Method Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

Protocol References:

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Brown and Caldwell
Project/Site: Patchogue, NY

Job ID: 410-176867-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-176867-1	MW-1_20240618	Water	06/18/24 12:08	06/20/24 16:36
410-176867-2	MW-8S_20240618	Water	06/18/24 14:01	06/20/24 16:36
410-176867-3	MW-12S_20240618	Water	06/18/24 15:28	06/20/24 16:36
410-176867-4	MW-12D_20240618	Water	06/18/24 16:14	06/20/24 16:36
410-176867-5	MW-11S_20240619	Water	06/19/24 09:22	06/20/24 16:36
410-176867-6	MW-3_20240619	Water	06/19/24 10:15	06/20/24 16:36
410-176867-7	MW-13S_20240619	Water	06/19/24 11:21	06/20/24 16:36
410-176867-8	MW-7S_20240619	Water	06/19/24 14:43	06/20/24 16:36
410-176867-9	MW-10S_20240619	Water	06/19/24 16:11	06/20/24 16:36
410-176867-10	DUP_20240619	Water	06/19/24 00:00	06/20/24 16:36
410-176867-11	MW-14S_20240620	Water	06/20/24 09:03	06/20/24 16:36
410-176867-12	MW-4S_20240620	Water	06/20/24 10:03	06/20/24 16:36
410-176867-13	FB_20240620	Water	06/20/24 08:52	06/20/24 16:36
410-176867-14	TB_20240620	Water	06/20/24 00:00	06/20/24 16:36
410-176867-15	MW-13D_20240620	Water	06/20/24 12:28	06/20/24 16:36

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Chain of Custody Record

eurofins | Environment Testing

410-176867 Chain of Custody

Clie

Client Contact: Mr. James Marolda	Sampler:	Lab PM: Weyandt, Barbara A	Carrier Tracking No(s):	COC No: 410-123766-5955.1
	Phone:	E-Mail: Barbara.Weyandt@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: Brown and Caldwell	PWSID:	Analysis Requested		Job #:
Address: 500 North Franklin Turnpike Suite 306	Due Date Requested:			Preservation Codes: N - None A - HCL
City: Ramsey	TAT Requested (days): STANDard			
State, Zip: NJ, 07446	Compliance Project: Δ Yes Δ No			
Phone: 201-574-4713(Tel)	PO #: 153021.805			
Email: jmarolda@brwncald.com	WO #:			Other:
Project Name: Patchogue, NY	Project #: 41002571			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW-1-20240618	06/18	1200	G	GW			X	X	5	
MW-8S-20240618		1401					X	X	5	
MW-12S-20240618		1528					X	X	5	
MW-12D-20240618		1614					X	X	5	
MW-11S-20240619	06/19	0921					X	X	5	
MW-3-20240619		1015					X	X	5	
MW-13S-20240619		1121					X	X	5	
MW-2-20240619		1443					X	X	5	
MW-10S-20240619 (MS/MSD		1611					X	X	5	MS/MSD
DUP-20240619		9999					X	X	5	
MW-14S-20240620	06/20	0903					X	X	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) BC Fund NY State Cat B

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Mason	Date/Time: 06/20/24 1415	Company: BC	Received by:	Date/Time: 06/20/24 1415	Company: ELLE
Relinquished by:	Date/Time: 6/20/24 1636	Company: ELLE	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 6/20/24 1636	Company: ENET

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: R: 3.9 - 5.6 C: 3.8-5.5

SR MF

Eurofins Lancaster Laboratories Environme
2425 New Holland Pike
Lancaster, PA 17601
Phone: 717-656-2300 Fax: 717-656-2681

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler:	Lab PM: Weyandt, Barbara A	Carrier Tracking No(s):	COC No: 410-123766-5955.2
Client Contact: Mr. James Marolda	Phone:	E-Mail: Barbara.Weyandt@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: Brown and Caldwell	PWSID:			Job #:
Address: 500 North Franklin Turnpike Suite 306	Due Date Requested:			
City: Ramsey	TAT Requested (days): Standard			
State, Zip: NJ, 07446	Compliance Project: Δ Yes Δ No			
Phone: 201-574-4713(Tel)	PO #: 153021.805			
Email: jmarolda@brwncald.com	WO #:			
Project Name: Patchogue, NY	Project #: 41002571			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: N - None; A - HCL

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW-45-20240620	06/20	1603	G	GW			X	X	5	
FB-20240620	↓	0852	DI	DI			X	X	5	
TB-20240620	↓	LAB	↓	↓			X	X	2	
↓ MW-13D-20240619	06/19	1223		GW			X	X	5	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) DC Regs NJ State Cat B

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	6/20/24 1415	BC	[signature]	6/20/24 1415	ELLE
2	[signature]	6/20/24 1636	ELLE			
3				[signature]	6/20/24 1636	ELLE

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R: 3.9-5.6 C: 3.8-5.5

SR MK

Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-176867-1

Login Number: 176867
List Number: 1
Creator: Roth, Stephanie

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

Appendix E: Evaluation of Potential Impact to River from Site Constituents in Groundwater

Appendix F

Evaluation of Potential Impact to River from Site Constituents in Groundwater Patchogue Former MGP Site Patchogue, New York

As described in the First Quarter 2020 Groundwater Monitoring Report, some potentially MGP-related constituents were detected in the shallow groundwater (i.e., the upper ±18 feet) in the vicinity of the ISS mass during the first groundwater monitoring event following implementation of the site remedy. It is expected these constituents are a result of the short-term disturbance of the subsurface that occurred during implementation of the ISS and, their presence is temporary. Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure F-1 for a depiction of shallow groundwater flow). The concentrations of most of the constituents that were detected and potentially mobile in the dissolved phase in groundwater (benzene, ethylbenzene, xylenes and naphthalene) were below surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the river. However, the concentration in groundwater of three potentially mobile constituents (acenaphthene, fluorene and pyrene) were slightly above their respective applicable surface water quality criteria. Although it was not anticipated that these constituent concentrations would result in an impact to surface water quality if they discharged to the river, the following analysis was conducted to confirm this.

An analysis was conducted to assess the potential for discharge of site-related constituents in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of site-related constituents, dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). This approach is consistent with that described in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf = \Sigma C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source (µg/sec)

C_i = concentration of the constituent (µg/mL=µg/cm^3)

q_i = specific discharge through the flow area (cm/sec)

where: $q_i = Ki$, with K= hydraulic conductivity (cm/sec) and i=hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (cm^2)

where: $A_i = (L)(b)$, with L=width of constituent plume perpendicular to flow and b=plume thickness

In applying this evaluation to the Site, an estimate of mass flux of a constituent (in µg/sec) was calculated shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow groundwater. The horizontal dimension of the flow area, L, is equal to the width of the constituent plume, which is based on the isoconcentration contours developed from the results of the March 2020 sampling event (see Figures F-2 through F-4). The concentration of site constituents in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R = mf_{sgw}/D_R$$

Where: C_R = Concentration of constituent in the river (µg/L)

mf_{sgw} = Mass flux to the river from shallow groundwater (µg/s)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations (11.2 ft^3/s or 317 L/s) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is 20.4 ft^3/s (579 L/s). Table F-1 provides the data used to determine the 7Q10 flow in the Patchogue River. Attachment F-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.

To screen for potential impacts to the river, the estimated concentrations of acenaphthene, fluorene and pyrene were developed using the above-described method and compared to the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004). Listed in the table below are standards and guidance values for acenaphthene, fluorene and pyrene that are applicable to the various classes of fresh water.

Fresh Surface Water Standards and Guidance Values

Substance	Water Class (per 6NYCRR Part 701)	Standard (µg/l)	Guidance Value (µg/l)	Protection for:
Acenaphthene	A, A-S, AA, AA-S, B, C	--	5.3	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	48	Fish survival
	A, A-S, AA, AA-S	20	--	Aesthetics
Fluorene	A, A-S, AA, AA-S	--	50	Drinking water source
	A, A-S, AA, AA-S, B, C	--	0.54	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	4.8	Fish survival
Pyrene	A, A-S, AA, AA-S	--	50	Drinking water source
	A, A-S, AA, AA-S, B, C	--	4.6	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	42	Fish survival

Attachments F-2 through F-4 contain the calculations and results for each of these constituents. The estimated concentrations in the Patchogue River resulting from site groundwater impacts are as follows:

- Acenaphthene = 0.0033 µg/L
- Fluorene = 0.00050 µg/L
- Pyrene = 0.00127 µg/L

These conservatively-estimated (i.e., biased high) concentrations are three orders of magnitude below the surface water standards and guidance values listed above, including the lowest standard applicable to Class C surface waters. Also, the estimated concentration of fluorene is below the analytical laboratory detection limits for this constituent. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables

TABLE F-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Water Year[(1)]	Low Flow (ft^3/s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

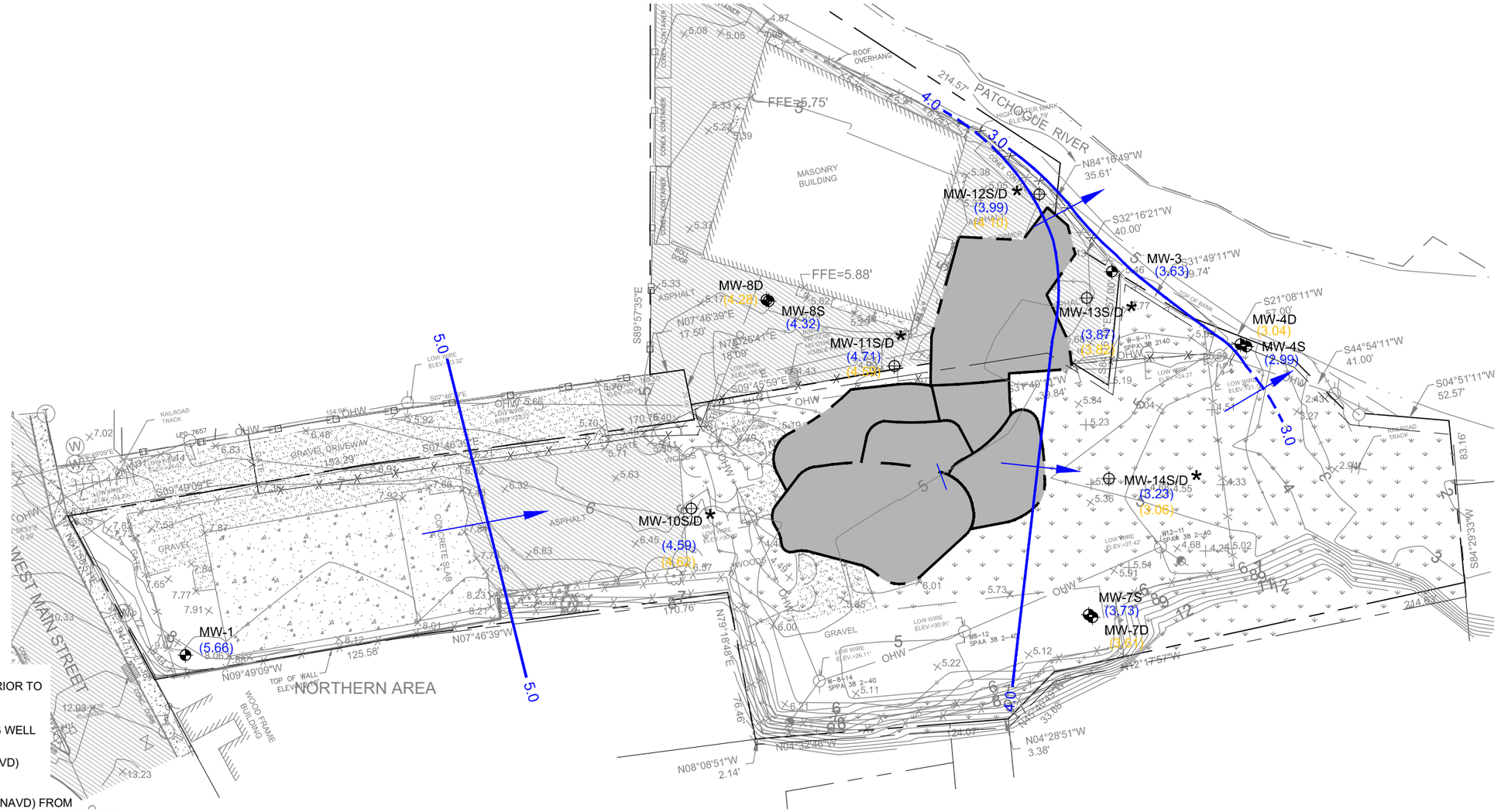
Notes:
(1) - 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

ft^3/s - cubic feet per second

Figures

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL INSTALLED PRIOR TO REMEDIATION
- POST-REMEDIATION MONITORING WELL
- WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (3.87) GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE)
- (3.06) GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- * HORIZONTAL LOCATION AND POSTED GROUNDWATER ELEVATION DATA IS APPROXIMATE, AS SURVEYING OF WELLS WILL BE PERFORMED FOLLOWING COMPLETION OF FINAL SITE RESTORATION ACTIVITIES.

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: May 6, 2020

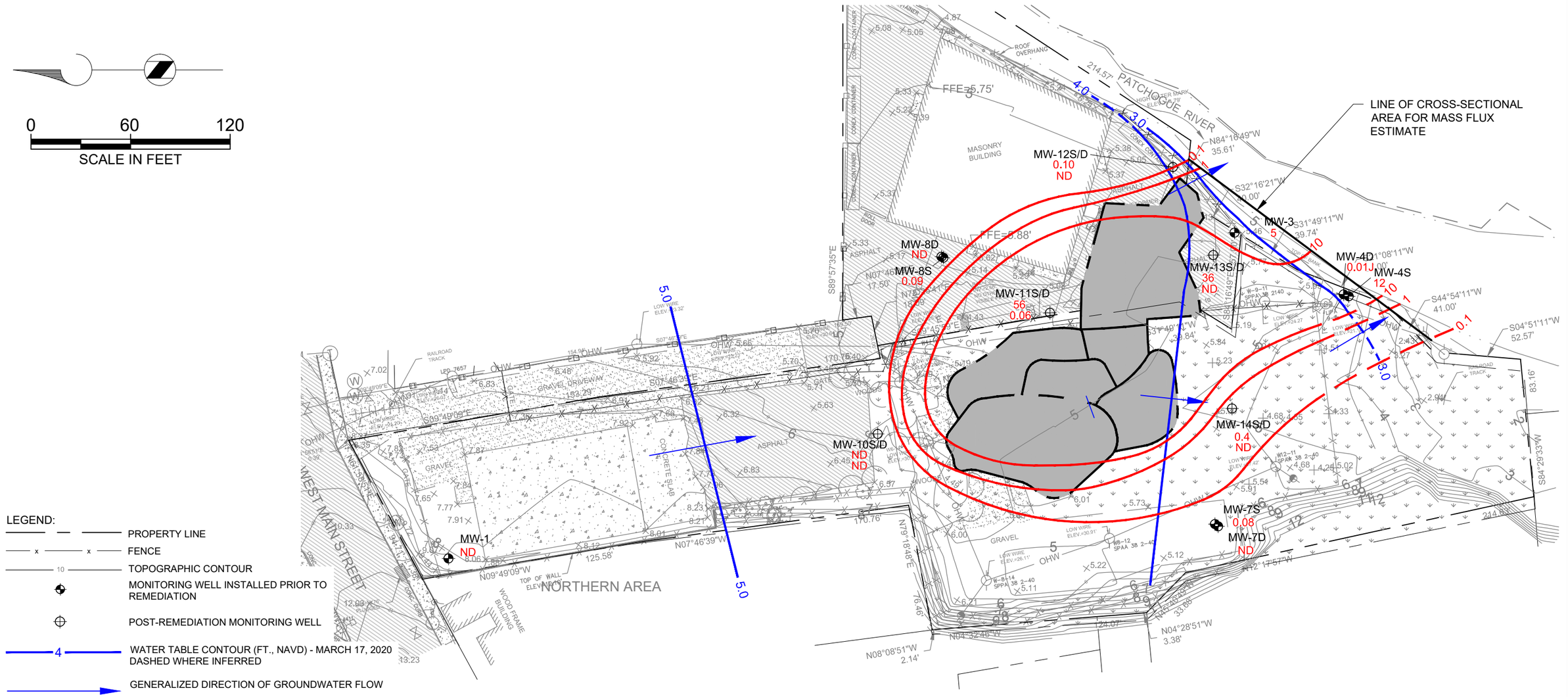
NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP
MARCH 17, 2020

FIGURE

F-1

Path: \\bcusrfp01\Projects\DRAFTING\NATIONAL_GRID\Patchogue\Quarterly-GW-Contour-Map File Name: FIG-E_2_acenaphthene_March2020 Plot Date: May 29, 2020 10:20 AM Cadd User: Alan Santiag



LEGEND:

— — ——	PROPERTY LINE
—x—x—	FENCE
—10—	TOPOGRAPHIC CONTOUR
⊕	MONITORING WELL INSTALLED PRIOR TO REMEDIATION
⊕	POST-REMEDIATION MONITORING WELL
—4—	WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020 DASHED WHERE INFERRED
——→	GENERALIZED DIRECTION OF GROUNDWATER FLOW
—1—	ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L)
12	ACENAPHTHENE CONCENTRATION IN GROUNDWATER (µg/L) - MARCH 2020
J	ESTIMATED CONCENTRATION
ND	NOT DETECTED

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'
153021
DATE: May 6, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

ACENAPHTHENE IN GROUNDWATER
MARCH 2020

FIGURE
F-2

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL INSTALLED PRIOR TO REMEDIATION
- POST-REMEDIATION MONITORING WELL
- WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020 DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L)
- FLUORENE CONCENTRATION IN GROUNDWATER (µg/L) - MARCH 2020
- J ESTIMATED CONCENTRATION
- ND NOT DETECTED

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

LINE OF CROSS-SECTIONAL AREA FOR MASS FLUX ESTIMATE

MW-1 ND

MW-8D ND
MW-8S ND

MW-12S/D 0.20 ND

MW-10S/D ND ND

MW-11S/D 7.0 0.05J

MW-13S/D 7.0 ND

MW-3 0.46 0.5

MW-4D 0.05J
MW-4S 2.0

MW-14S/D ND ND

MW-7S 0.02J
MW-7D ND

PATCHOGUE RIVER

WEST MAIN STREET

NORTHERN AREA

Brown AND Caldwell	SCALE: 1" = 60' 153021 DATE: May 6, 2020	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK	FLUORENE IN GROUNDWATER MARCH 2020	FIGURE F-3

0 60 120

SCALE IN FEET

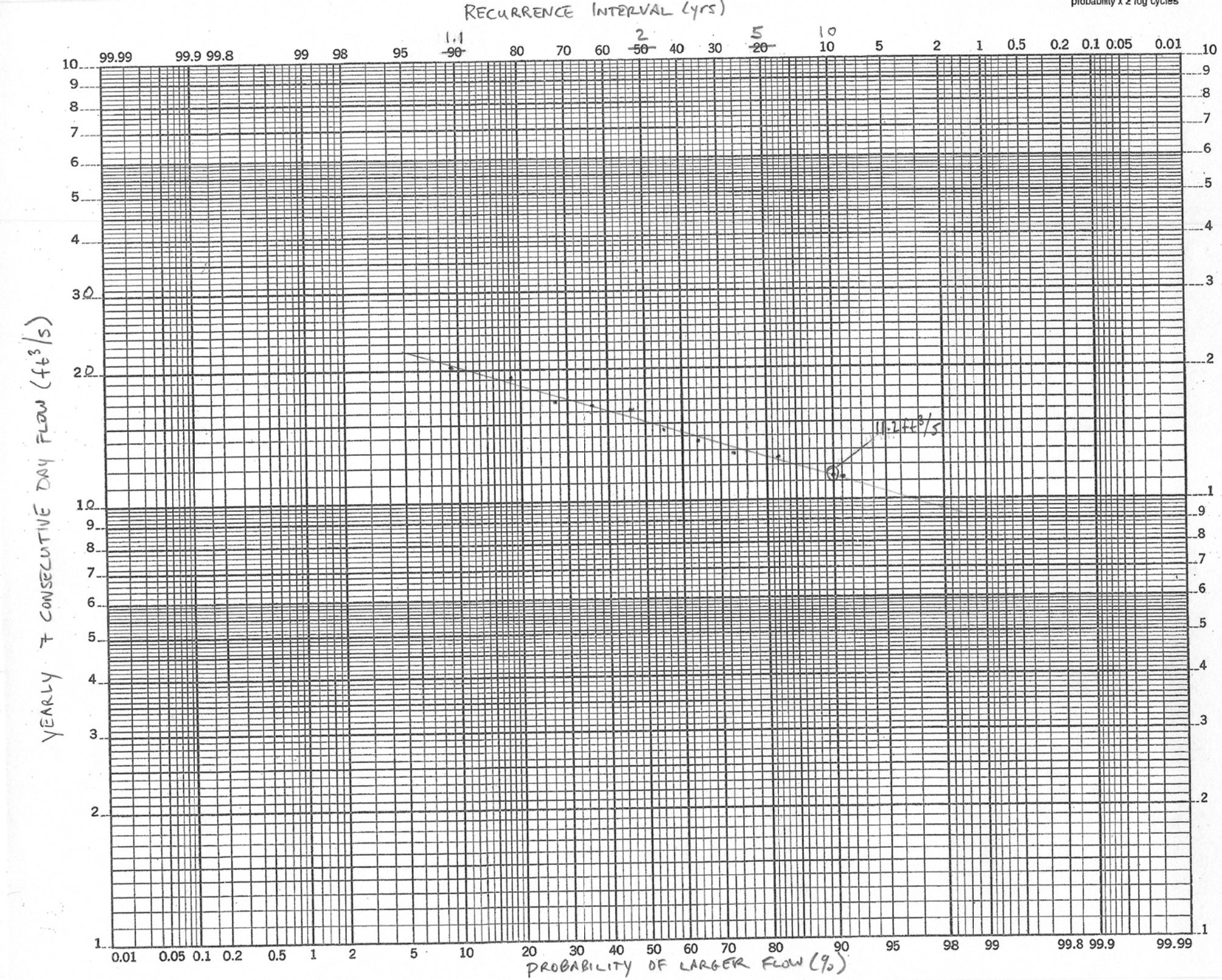
LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL INSTALLED PRIOR TO REMEDIATION
- POST-REMEDIATION MONITORING WELL
- WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020 DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L)
- PYRENE CONCENTRATION IN GROUNDWATER (µg/L) - MARCH 2020
- ESTIMATED CONCENTRATION
- NOT DETECTED

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell	SCALE: 1" = 60' 153021 DATE: May 6, 2020	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK	PYRENE IN GROUNDWATER MARCH 2020	FIGURE F-4

Attachments


RECURRENCE INTERVAL (yrs)
1.1
2
5
10
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
probability x 2 log cycles
YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)
11.2 ft³/s
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
PROBABILITY OF LARGER FLOW (%)

ATTACHMENT F-2
MASS FLUX CALCULATIONS - ACENAPHTHENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Acenaphthene (March 2020) **Figure No.** See Figure F-2

$mf = kiA * C$

Where:
mf = mass flux, µg/s
k = hydraulic conductivity, cm/s
I = hydraulic gradient, dimensionless
A = cross-sectional area, $cm^{2\,(L * b)}$
C = (µg/L)/1000=$µg/cm^3$

Shallow Groundwater Flux

0.1-1 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	1	0.32	36	18
C=	0.316227766	µg/L =	0.000316228	$µg/cm^3$	Geometric mean concentration between selected contours	10	3.16	90	18
L =	36	ft =	1097.28	cm	Length of segment between selected contours [C]	12	10.95	45	18
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	1.5E-02	µg/s	4.8E-01	g/yr	0.00105 lbs/yr				

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	3.16	µg/L =	0.003162278	$µg/cm^3$	Geometric mean concentration between selected contours
L =	90	ft =	2743.2	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	3.8E-01	µg/s	1.2E+01	g/yr	0.0262 lbs/yr

10-12 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	10.95	µg/L =	0.010954451	$µg/cm^3$	Geometric mean concentration between selected contours
L =	45	ft =	1371.6	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	6.5E-01	µg/s	2.1E+01	g/yr	0.045 lbs/yr
mf_{sgw} =	1	µg/s	33	g/yr	0.1 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.0033 µg/L

ATTACHMENT F-3
MASS FLUX CALCULATIONS - FLUORENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Fluorene (March 2020) **Figure No.** See Figure F-3

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	**Contour Interval**	**Geomean**
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	0.1	
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours	1	0.32
L =	90	ft =	2743.2	cm	Length of segment between selected contours [C]	2	1.41
b =	18	ft =	548.64	cm	Saturated thickness		

Segment Length	**Thickness**
90	18
65	18

mf =	3.8E-02	µg/s	1.2E+00	g/yr	0.00262 lbs/yr

1-2 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	1.41	µg/L =	0.001414214	µg/cm^3	Geometric mean concentration between selected contours
L =	65	ft =	1981.2	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness

mf =	1.2E-01	µg/s	3.8E+00	g/yr	0.0085 lbs/yr
mf_{sgw} =	0	µg/s	5	g/yr	0.0 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.00050 µg/L

ATTACHMENT F-4
MASS FLUX CALCULATIONS - PYRENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Pyrene (March 2020) **Figure No.** See Figure F-4

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

								Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells			0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours			1	0.32	38	18
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours			5	2.24	130	18
L =	38	ft =	1158.24	cm	Length of segment between selected contours [C]						
b =	18	ft =	548.64	cm	Saturated thickness						
mf =	1.6E-02	µg/s	5.0E-01	g/yr	0.00111	lbs/yr					

1-5 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells		
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours		
C=	2.24	µg/L =	0.002236068	µg/cm^3	Geometric mean concentration between selected contours		
L =	130	ft =	3962.4	cm	Length of segment between selected contours [C]		
b =	18	ft =	548.64	cm	Saturated thickness		
mf =	3.9E-01	µg/s	1.2E+01	g/yr	0.0268	lbs/yr	
mf_{sgw} =	0	µg/s	13	g/yr	0.0	lbs/yr	

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.00127 µg/L

Appendix G

Evaluation of Potential Impact to River from Site Constituents in Groundwater Patchogue Former MGP Site Patchogue, New York

As described in the Second Quarter 2020 Groundwater Monitoring Report, some potentially MGP-related constituents were detected in the shallow groundwater (i.e., the upper ±18 feet) in the vicinity of the ISS mass during the second groundwater monitoring event following implementation of the site remedy. It is expected these constituents are a result of the disturbance of the subsurface that occurred during implementation of the ISS and, their presence is temporary. Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure G-1 for a depiction of shallow groundwater flow). The concentrations of most of the constituents that were detected and potentially mobile in the dissolved phase in groundwater (benzene and ethylbenzene) were below surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the water quality in the river. However, the concentration in groundwater of four potentially mobile constituents (acenaphthene, fluorene, naphthalene and pyrene) were above their respective applicable surface water quality criteria. Although it was not anticipated that these constituent concentrations would result in an impact to surface water quality if they discharged to the river, a mass flux analysis was conducted to confirm this. The concentrations of acenaphthene, fluorene and pyrene in the June 2020 samples were similar (within the same order of magnitude) to those in the March 2020 samples. Since the estimated surface water concentrations of these three constituents based on the mass flux analysis using the March 2020 data (see Appendix F) were three orders of magnitude below applicable surface water criteria, an additional estimation of concentrations of these constituents in the river is not necessary, and the analysis discussed herein was conducted for naphthalene only.

An analysis was conducted to assess the potential for discharge of naphthalene in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of naphthalene, dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). This approach is consistent with that described in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf=\Sigma\ C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source (µg/sec)

C_i = concentration of the constituent (µg/mL=µg/cm^3)

q_i = specific discharge through the flow area (cm/sec)

where: $q_i=Ki$, with K= hydraulic conductivity (cm/sec) and i=hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (figure cm^2)

where: $A_i=(L)(b)$, with L=width of constituent plume perpendicular to flow and b=plume thickness

In applying this evaluation to the Site, an estimate of mass flux of a constituent (in µg/sec) was calculated for shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow groundwater. The horizontal dimension of the flow area, L, is equal to the width of the constituent plume, which is based on the isoconcentration contours developed from the results of the June 2020 sampling event (see Figure G-2). The concentration of site constituents in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R=mf_{sgw}/D_R$$

Where: C_R = Concentration of constituent in the river (µg/L)

mf_{sgw} = Mass flux to the river from shallow groundwater (µg/s)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations (11.2 ft^3/s or 317 L/s) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is 20.4 ft^3/s (579 L/s). Table G-1 provides the data used to determine the 7Q10 flow in the Patchogue River. Attachment G-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.

To screen for potential impacts to the river, the estimated concentration of naphthalene was calculated using the above-described method and compared to the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004). Listed in the table below are standards and guidance values for naphthalene that are applicable to the various classes of fresh water.

Fresh Surface Water Standards and Guidance Values

Substance	Water Class (per 6NYCRR Part 701)	Standard (µg/l)	Guidance Value (µg/l)	Protection for:
Naphthalene	A, A-S, AA, AA-S, B, C	--	13	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	110	Fish survival
	A, A-S, AA, AA-S	10	--	Aesthetics

Attachment G-2 contains the calculations and results for this constituent. The estimated concentration of naphthalene in the Patchogue River resulting from site groundwater impacts is 0.0197 µg/L. This conservatively-estimated (i.e., biased high) concentration is three orders of magnitude below the surface water standards and guidance values listed above, including the lowest standard applicable to Class C surface waters. Also, the estimated concentration is below the analytical laboratory detection limits for this constituent. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables

TABLE G-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Water Year[(1)]	Low Flow (ft^3/s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

Notes:
(1) - 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

ft^3/s - cubic feet per second

Figures

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (4.30) — GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE) OR RIVER LEVEL FROM STAFF GAUGE (FT., NAVD).
- (4.34) — GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: July 29, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

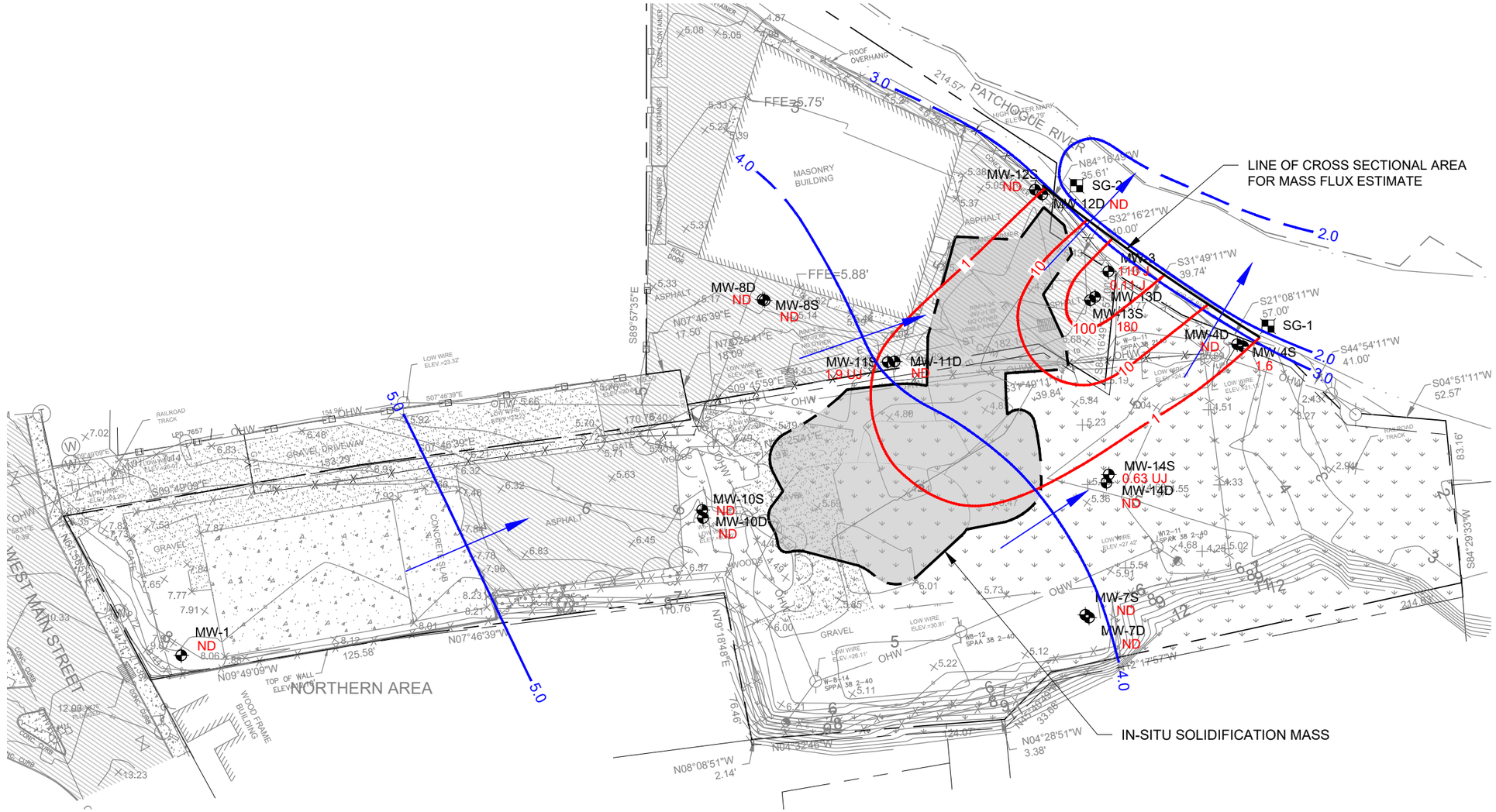
WATER TABLE ELEVATION CONTOUR MAP
JUNE 29, 2020

FIGURE

G-1

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- 10 — ISOCONCENTRATION CONTOUR. LOGARITHMIC CONTOUR INTERVAL (µg/L)
- 1.6 — NAPHTHALENE CONCENTRATION IN GROUNDWATER (µg/L) - JUNE 2020
- J — ESTIMATED CONCENTRATION
- ND — NOT DETECTED

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: September 11, 2020

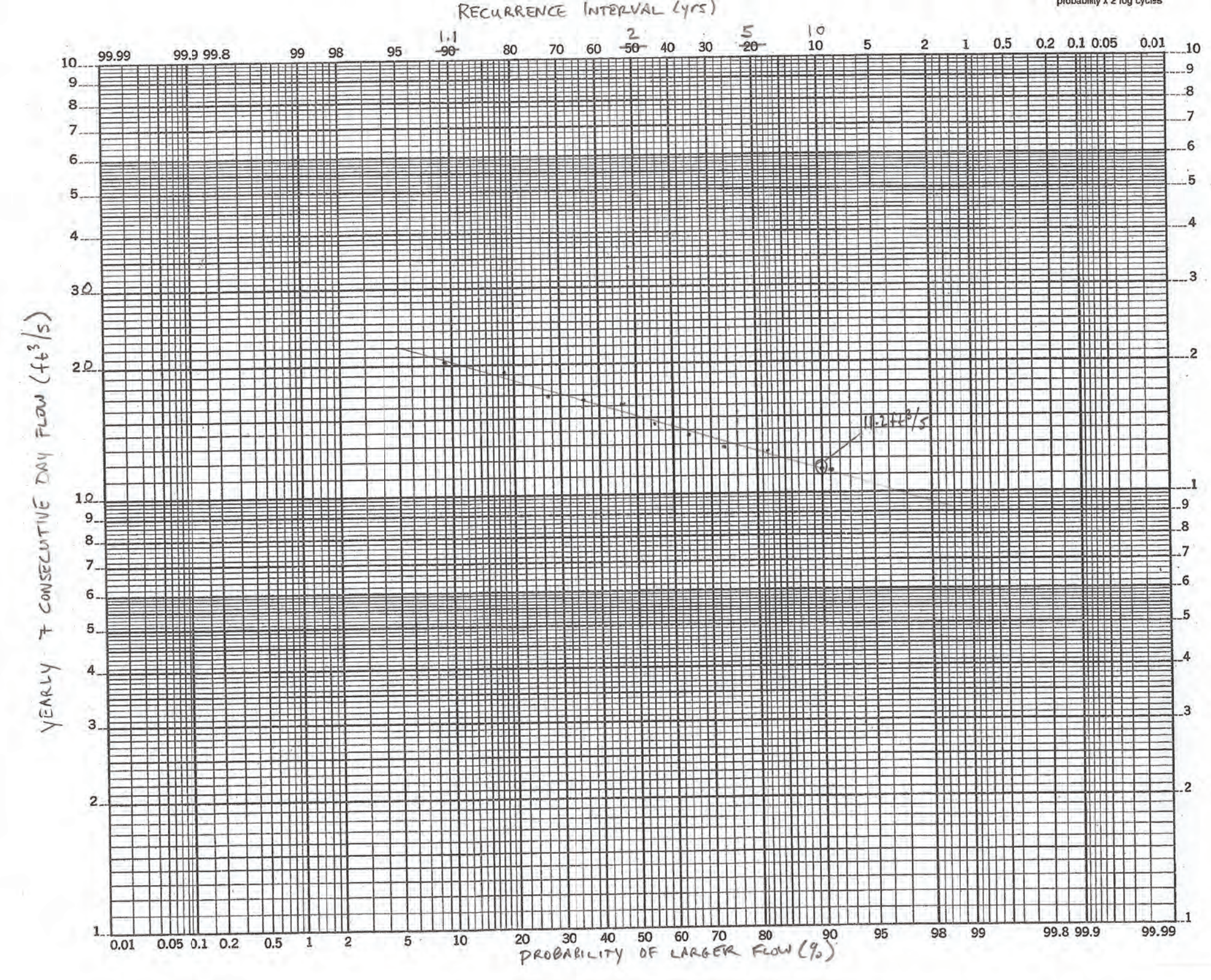
NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

NAPHTHALENE IN GROUNDWATER JUNE 2020

FIGURE

G-2

Attachments


RECURRENCE INTERVAL (yrs)
1.1
2
5
10
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)
11.2 ft³/s
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
PROBABILITY OF LARGER FLOW (%)

ATTACHMENT G-2
MASS FLUX CALCULATIONS - NAPHTHALENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Naphthalene (June 2020) **Figure No.** See Figure G-2

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

1-10 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells				
i =	0.014	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	1			
C=	3.16	µg/L =	0.00316	µg/cm^3	Geometric mean concentration between selected contours	10	3.16	66	18
L =	66	ft =	2011.68	cm	Length of segment between selected contours [C]	100	31.62	32	18
b =	18	ft =	548.64	cm	Saturated thickness	110	104.88	30	18
mf =	3.0E-01	µg/s	9.4E+00	g/yr	0.02070 lbs/yr				

10-100 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.014	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	31.62	µg/L =	0.0316	µg/cm^3	Geometric mean concentration between selected contours
L =	32	ft =	975.36	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	1.4E+00	µg/s	4.6E+01	g/yr	0.1003 lbs/yr

100-110 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.014	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	104.88	µg/L =	0.105	µg/cm^3	Geometric mean concentration between selected contours
L =	30	ft =	914.4	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	4.5E+00	µg/s	1.4E+02	g/yr	0.312 lbs/yr
mf_{sgw} =	6	µg/s	197	g/yr	0.4 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.0197 µg/L

Appendix E

Evaluation of Potential Impact to River from Site Constituents in Groundwater Patchogue Former MGP Site Patchogue, New York

As described in the Third Quarter 2020 Groundwater Monitoring Report, some potentially MGP-related constituents were detected in the shallow groundwater (i.e., the upper ±18 feet) in the vicinity of the ISS mass during the first groundwater monitoring event following implementation of the site remedy. It is expected these constituents are a result of the short-term disturbance of the subsurface that occurred during implementation of the ISS and, their presence is temporary. Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure E-1 for a depiction of shallow groundwater flow). The concentrations of most of the constituents that were detected and potentially mobile in the dissolved phase in groundwater (benzene and ethylbenzene) were below surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the river. However, the concentration of six constituents (acenaphthene, benzo(a)anthracene, fluorene, naphthalene, phenanthrene and pyrene) were detected above their respective applicable surface water quality criteria in downgradient monitoring wells proximal to the river (MW-3 and MW-4S). Although it was not anticipated that these constituent concentrations would result in an impact to surface water quality if they discharged to the river, the following analysis was conducted to confirm this. The concentrations of acenaphthene and naphthalene in the September 2020 samples were similar (within the same order of magnitude) to those in the March and June 2020 samples. Since the estimated surface water concentrations of these two constituents based on the mass flux analysis using the March and June 2020 data were three orders of magnitude below applicable surface water criteria, an additional estimation of concentrations of these constituents in the river is not necessary. However, due to increased concentrations of benzo(a)anthracene, fluorene, phenanthrene and pyrene in MW-3, an additional analysis was conducted for these constituents.

An analysis was conducted to assess the potential for discharge of site-related constituents in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of site-related constituents, dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). This approach is consistent with that described in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf = \Sigma C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source (µg/sec)

C_i = concentration of the constituent (µg/mL=µg/cm^3)

q_i = specific discharge through the flow area (cm/sec)

where: q_i=Ki, with K= hydraulic conductivity (cm/sec) and i=hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (cm^2)

where: A_i=(L)(b), with L=width of constituent plume perpendicular to flow and b=plume thickness

In applying this evaluation to the Site, an estimate of mass flux of a constituent (in µg/sec) was calculated shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow groundwater. The horizontal dimension of the flow area, L, is equal to the width of the constituent plume, which is based on the isoconcentration contours developed from the results of the September 2020 sampling event (see Figures E-2 through E-5). The concentration of site constituents in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R = mf_{sgw}/D_R$$

Where: C_R = Concentration of constituent in the river (µg/L)

mf_{sgw} = Mass flux to the river from shallow groundwater (µg/s)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations (11.2 ft^3/s or 317 L/s) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is 20.4 ft^3/s (579 L/s). Table F-1 provides the data used to determine the 7Q10 flow in the Patchogue River. Attachment F-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.

To screen for potential impacts to the river, the estimated concentrations of benzo(a)anthracene, fluorene, phenanthrene and pyrene were developed using the above-described method and compared to the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004). Listed in the table below are standards and guidance values for benzo(a)anthracene, fluorene, phenanthrene and pyrene that are applicable to Class C Fresh Water (no standards have been developed for these compounds).

Class C Fresh Surface Water Standards and Guidance Values

Substance	Water Class (per 6NYCRR Part 701)	Standard (µg/l)	Guidance Value (µg/l)	Protection for:
Benzo(a)anthracene	A, A-S, AA, AA-S, B, C	--	0.03	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	0.23	Fish survival
Fluorene	A, A-S, AA, AA-S, B, C	--	0.54	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	4.8	Fish survival
Phenanthrene	A, A-S, AA, AA-S, B, C	--	5.0	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	45	Fish survival
Pyrene	A, A-S, AA, AA-S, B, C	--	4.6	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	42	Fish survival

Attachments E-2 through E-5 contain the calculations and results for each of these constituents. The estimated concentrations in the Patchogue River resulting from site groundwater impacts are as follows:

- Benzo(a)anthracene = 0.0008 µg/L
- Fluorene = 0.003 µg/L
- Phenanthrene = 0.001 µg/L
- Pyrene = 0.007 µg/L

These conservatively-estimated (i.e., biased high) concentrations are below the surface water standards and guidance values listed above, including the lowest standard applicable to Class C surface waters. Also, the estimated concentrations are below the analytical laboratory detection limits for these constituents. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables

TABLE E-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Water Year[(1)]	Low Flow (ft^3/s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

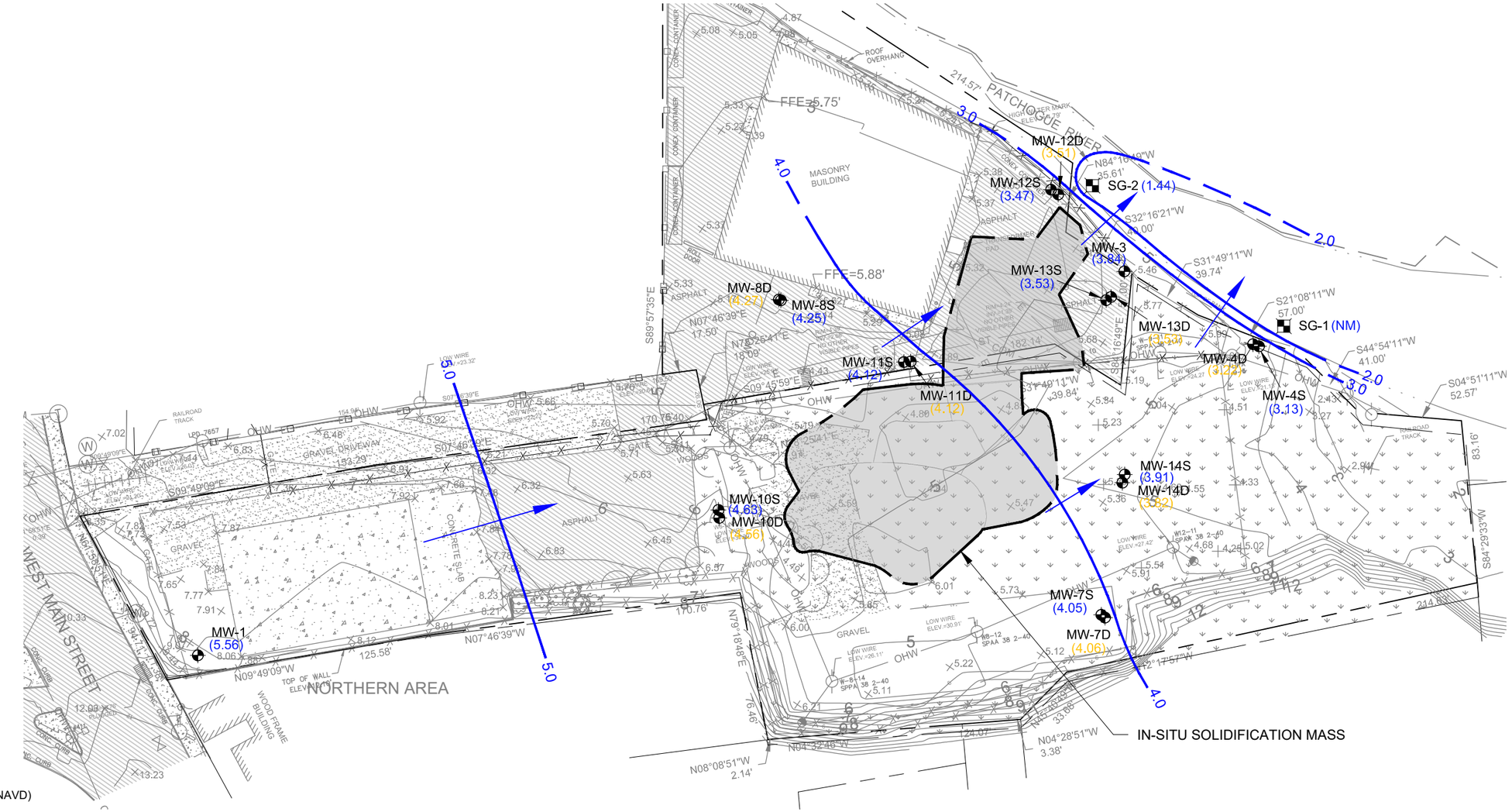
Notes:
(1) - 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

ft^3/s - cubic feet per second

Figures

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (4.30) — GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE) OR RIVER LEVEL FROM STAFF GAUGE (FT., NAVD).
- (4.34) — GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: July 29, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP SEPTEMBER, 2020

FIGURE

E-1

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) - SEPTEMBER 28, 2020 - DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- 2.4 — BENZO(a)ANTHRACENE CONCENTRATION IN GROUNDWATER (µg/L) - SEPTEMBER 2020
- ND — NOT DETECTED
- J — ESTIMATED CONCENTRATION
- 1 — ISOCONCENTRATION CONTOUR. LOGARITHMIC CONTOUR INTERVAL (µg/L).

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

LINE OF CROSS-SECTIONAL AREA FOR MASS FLUX ESTIMATE

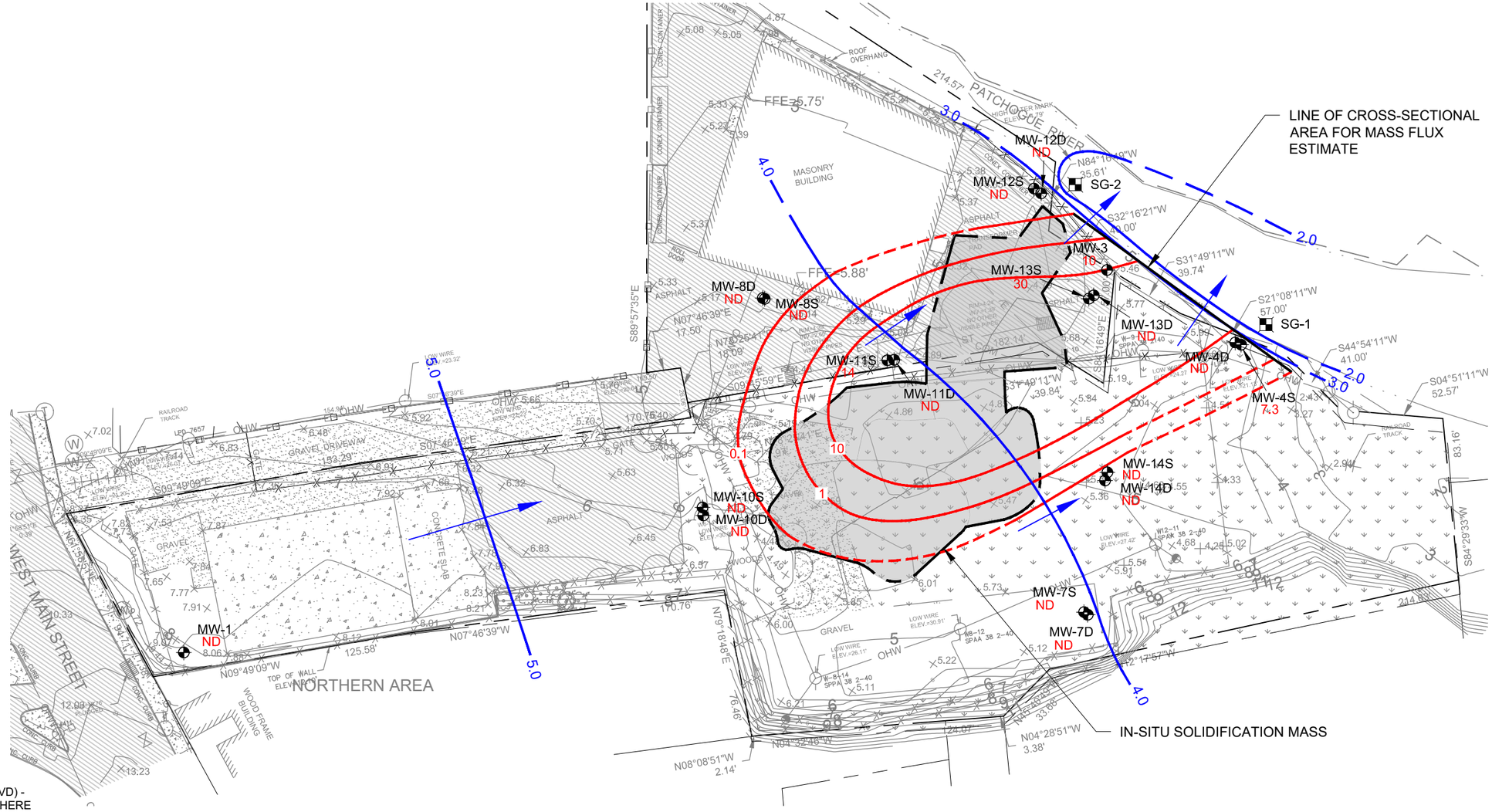
IN-SITU SOLIDIFICATION MASS

NORTHERN AREA

Brown AND Caldwell	SCALE: 1" = 60' 153021 DATE: November 17, 2020	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK	BENZO(a)ANTHRACENE IN GROUNDWATER (µg/L) SEPTEMBER 2020	FIGURE E-2

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) - SEPTEMBER 28, 2020 - DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- 10 — FLUORENE CONCENTRATION IN GROUNDWATER (µg/L) - SEPTEMBER 2020
- ND — NOT DETECTED
- 10 — ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L).

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: November 17, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

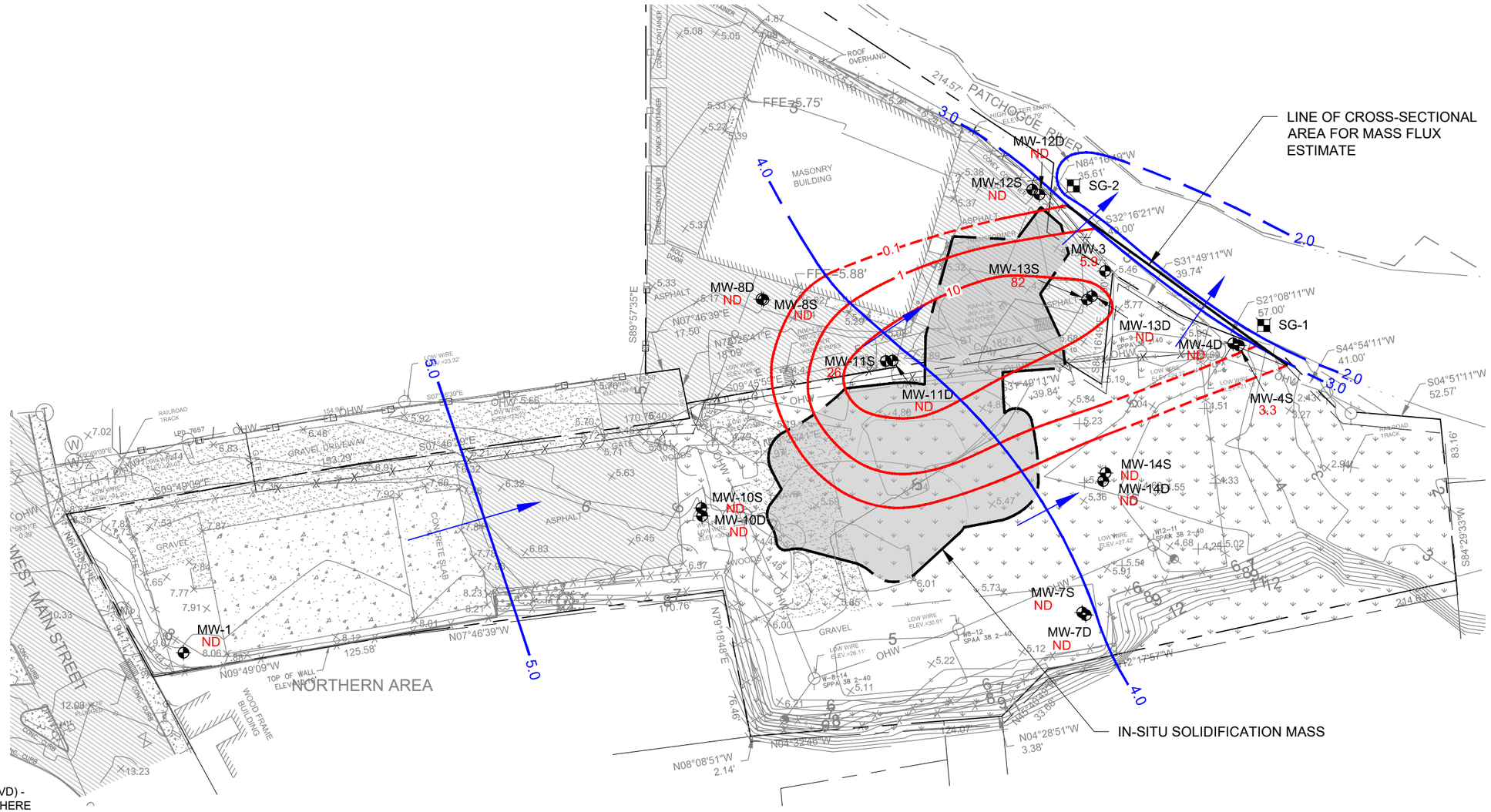
FLUORENE IN GROUNDWATER (µg/L) SEPTEMBER 2020

FIGURE

E-3

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) - SEPTEMBER 28, 2020 - DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- 5.9 — PHENANTHRENE CONCENTRATION IN GROUNDWATER (µg/L) - SEPTEMBER 2020
- ND — NOT DETECTED
- 10 — ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L).

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: November 17, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

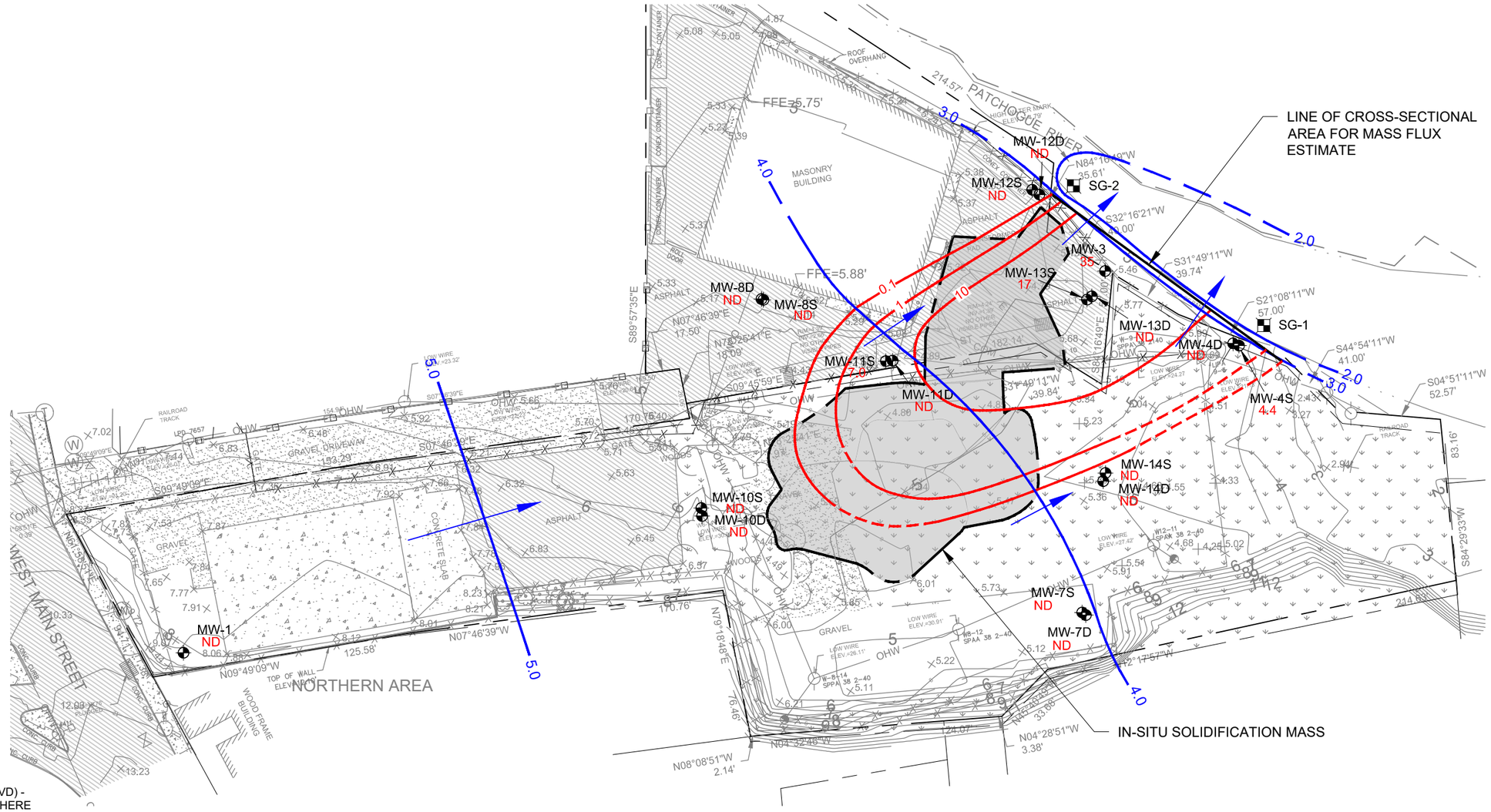
PHENANTHRENE IN GROUNDWATER (µg/L) SEPTEMBER 2020

FIGURE

E-4

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) - SEPTEMBER 28, 2020 - DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW
- 17 — PYRENE CONCENTRATION IN GROUNDWATER (µg/L) - SEPTEMBER 2020
- ND — NOT DETECTED
- 10 — ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L).

NOTES:

1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: November 17, 2020

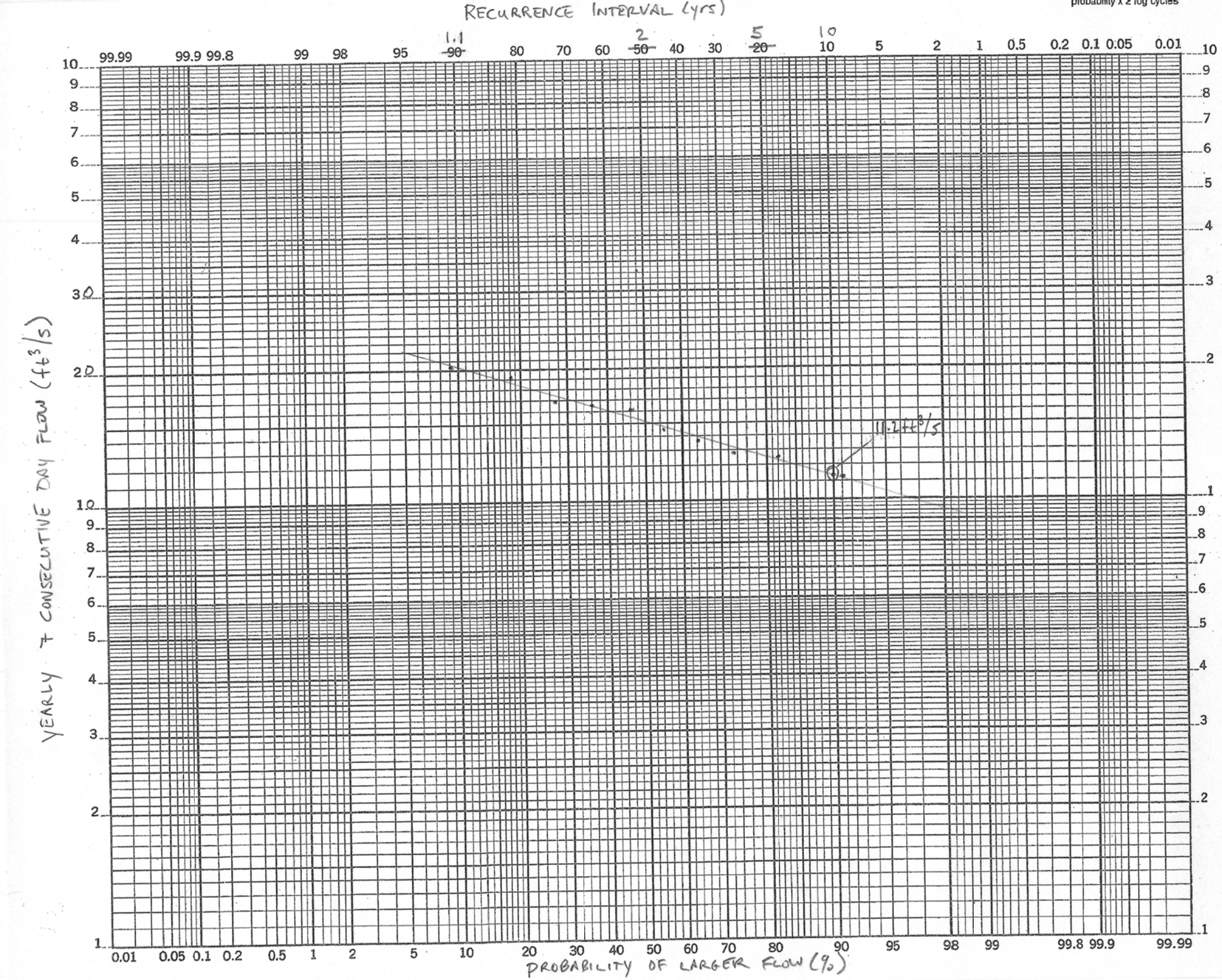
NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

PYRENE IN GROUNDWATER (µg/L) SEPTEMBER 2020

FIGURE

E-5

Attachments


RECURRENCE INTERVAL (yrs)
1.1
2
5
10
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
probability x 2 log cycles
YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)
11.2 ft³/s
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
PROBABILITY OF LARGER FLOW (%)

ATTACHMENT E-2
MASS FLUX CALCULATIONS - BENZO(A)ANTHRACENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Benzon(a)anthracene (September 2020) **Figure No.** See Figure E-2

mf = kiA * C
Where:
mf = mass flux, µg/s
k = hydraulic conductivity, cm/s
I = hydraulic gradient, dimensionless
A = cross-sectional area, $cm^{2\ (L * b)}$
C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours				
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours	1	0.32	34	18
L =	34	ft =	1036.32	cm	Length of segment between selected contours [C]	4.8	2.19	80	18
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	1.4E-02	µg/s	4.5E-01	g/yr	0.00099 lbs/yr				

1-4.8 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	2.19	µg/L =	0.00219089	µg/cm^3	Geometric mean concentration between selected contours
L =	80	ft =	2438.4	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	2.3E-01	µg/s	7.3E+00	g/yr	0.0161 lbs/yr
mf_{sgw} =	0.25	µg/s	7.8	g/yr	0.017 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.0008 µg/L

ATTACHMENT E-3
MASS FLUX CALCULATIONS - FLUORENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Fluorene (September 2020) **Figure No.** See Figure E-3

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	1	0.32	32	18
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours	10	3.16	46	18
L =	32	ft =	975.36	cm	Length of segment between selected contours [C]	10	10.00	60	18
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	1.3E-02	µg/s	4.2E-01	g/yr	0.00093 lbs/yr				

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	3.16	µg/L =	0.003162278	µg/cm^3	Geometric mean concentration between selected contours
L =	46	ft =	1402.08	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	1.9E-01	µg/s	6.1E+00	g/yr	0.0134 lbs/yr

10-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	10.00	µg/L =	0.01	µg/cm^3	Geometric mean concentration between selected contours
L =	60	ft =	1828.8	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	8.0E-01	µg/s	2.5E+01	g/yr	0.0552 lbs/yr
mf_{sgw} =	1.0	µg/s	32	g/yr	0.070 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.003 µg/L

ATTACHMENT E-4
MASS FLUX CALCULATIONS - PHENANTHRENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Phenanthrene (September 2020) **Figure No.** See Figure E-4

mf = kiA * C
Where:
mf = mass flux, µg/s
k = hydraulic conductivity, cm/s
I = hydraulic gradient, dimensionless
A = cross-sectional area, $cm^{2\ (L * b)}$
C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	1	0.32	38	18
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours	5.9	2.43	107	18
L =	38	ft =	1158.24	cm	Length of segment between selected contours [C]				
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	1.6E-02	µg/s	5.0E-01	g/yr	0.00111 lbs/yr				

1-5.9 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	2.43	µg/L =	0.002428992	µg/cm^3	Geometric mean concentration between selected contours
L =	107	ft =	3261.36	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	3.4E-01	µg/s	1.1E+01	g/yr	0.0239 lbs/yr
mf_{sgw} =	0.36	µg/s	11	g/yr	0.025 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.001 µg/L

ATTACHMENT E-5
MASS FLUX CALCULATIONS - PYRENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Pyrene (September 2020) **Figure No.** See Figure E-5

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = $(\mu g/L)/1000 = \mu g/cm^3$

Shallow Groundwater Flux

0.1-1 Contour

							Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells		0.1			
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours		1	0.32	19	18
C=	0.316227766	µg/L =	0.000316228	µg/cm³	Geometric mean concentration between selected contours		10	3.16	45	18
L =	19	ft =	579.12	cm	Length of segment between selected contours [C]		35	18.71	85	18
b =	18	ft =	548.64	cm	Saturated thickness					
mf =	8.0E-03	µg/s	2.5E-01	g/yr	0.00055	lbs/yr				

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	
C=	3.16	µg/L =	0.003162278	µg/cm³	Geometric mean concentration between selected contours	
L =	45	ft =	1371.6	cm	Length of segment between selected contours [C]	
b =	18	ft =	548.64	cm	Saturated thickness	
mf =	1.9E-01	µg/s	6.0E+00	g/yr	0.0131	lbs/yr

1-35 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	
i =	0.013	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	
C=	18.71	µg/L =	0.018708287	µg/cm³	Geometric mean concentration between selected contours	
L =	85	ft =	2590.8	cm	Length of segment between selected contours [C]	
b =	18	ft =	548.64	cm	Saturated thickness	
mf =	2.1E+00	µg/s	6.7E+01	g/yr	0.1464	lbs/yr
mf_{sgw} =	2.3	µg/s	73	g/yr	0.16	lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.007 µg/L

Appendix E

Evaluation of Potential Impact to River from Site Constituents in Groundwater Patchogue Former MGP Site Patchogue, New York

As described in the Fourth Quarter 2020 Groundwater Monitoring Report, some potentially MGP-related constituents were detected in the shallow groundwater (i.e., the upper ±18 feet) in the vicinity of the ISS mass during the December 2020 sampling event. It is expected these constituents are a result of the short-term disturbance of the subsurface that occurred during implementation of the ISS and, their presence is temporary. Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure E-1 for a depiction of shallow groundwater flow). The concentrations of some of the constituents that were detected and potentially mobile in the dissolved phase in groundwater (benzene and ethylbenzene) were below surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the river. However, the concentration of one or more of seven constituents -- acenaphthene, benzo(a)anthracene, benzo(a)pyrene, fluorene, naphthalene, phenanthrene, and pyrene -- were detected above their respective applicable surface water quality criteria in downgradient monitoring wells proximal to the river (MW-3 and MW-4S). Although it was not anticipated that these constituent concentrations would result in an impact to surface water quality if they discharged to the river, the following analysis was conducted to confirm this. The concentrations of acenaphthene, benzo(a)anthracene, fluorene, naphthalene, and pyrene in the December 2020 samples were similar (within the same order of magnitude) to those in the March, June, and September 2020 samples. Since the estimated surface water concentrations of these five constituents based on the mass flux analyses using the March, June, and September 2020 data were below applicable surface water criteria, an additional estimation of concentrations of these constituents in the river is not necessary. However, due to increased concentrations of benzo(a)pyrene and phenanthrene in MW-3 in the December 2020 samples, an additional analysis was conducted for these constituents.

An analysis was conducted to assess the potential for discharge of site-related constituents in shallow groundwater to impact water quality in the Patchogue River. Noteworthy is that including benzo(a)pyrene in this evaluation is a very conservative measure in that benzo(a)pyrene has a very low aqueous solubility, is not readily mobile in groundwater, and is unlikely to have migrated from the on-Site source area, Moreover, the detection of this constituent in the monitoring locations is likely related to the disturbance of fine or colloid sized particles during purging or sampling activities. These particles are derived from within the well or the soil adjacent to the well that become suspended into the water column of the well as a result of disturbance during purging and sampling activities.

The evaluation was conducted by estimating the rate at which a mass of site-related constituents, dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). This approach is consistent with that described

in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf=\Sigma C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source (µg/sec)

C_i = concentration of the constituent (µg/mL=µg/cm^3)

q_i = specific discharge through the flow area (cm/sec)

where: $q_i=Ki$, with K= hydraulic conductivity (cm/sec) and i=hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (cm^2)

where: $A_i=(L)(b)$, with L=width of constituent plume perpendicular to flow and b=plume thickness

In applying this evaluation to the Site, an estimate of mass flux of a constituent (in µg/sec) was calculated for shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow groundwater. The horizontal dimension of the flow area, L, is equal to the width of the constituent plume, which is based on the isoconcentration contours developed from the results of the December 2020 sampling event (see Figures E-2 and E-3). The concentration of site constituents in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R=mf_{sgw}/D_R$$

Where: C_R = Concentration of constituent in the river (µg/L)

mf_{sgw} = Mass flux to the river from shallow groundwater (µg/s)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations (11.2 ft^3/s or 317 L/s) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is 20.4 ft^3/s (579 L/s). Table E-1 provides the data used to determine the 7Q10 flow

in the Patchogue River. Attachment E-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.

To screen for potential impacts to the river, the estimated concentrations of benzo(a)pyrene and phenanthrene were calculated using the above-described method and compared to the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004). Listed in the table below are standards and guidance values for benzo(a)pyrene and phenanthrene that are applicable to Class C Fresh Water (no standards have been developed for these compounds).

Class C Fresh Surface Water Standards and Guidance Values

Substance	Water Class (per 6NYCRR Part 701)	Standard (µg/l)	Guidance Value (µg/l)	Protection for:
Benzo(a)pyrene	A, A-S, AA, AA-S, B, C, D	--	0.0012	Human Consumption of Fish
Phenanthrene	A, A-S, AA, AA-S, B, C	--	5.0	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	45	Fish survival

Attachments E-2 and E-3 contain the calculations and results for each of these constituents. The estimated concentrations in the Patchogue River resulting from site groundwater impacts are as follows:

- Benzo(a)pyrene = 0.00008 µg/L
- Phenanthrene = 0.025 µg/L

These conservatively estimated (i.e., biased high) concentrations are below the surface water guidance values listed above, including the lowest guidance value applicable to Class C surface waters. Also, the estimated concentrations are below the analytical laboratory detection limits for these constituents. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables

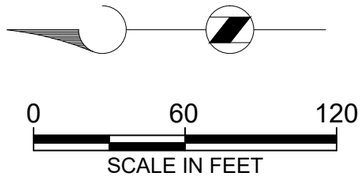
TABLE E-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

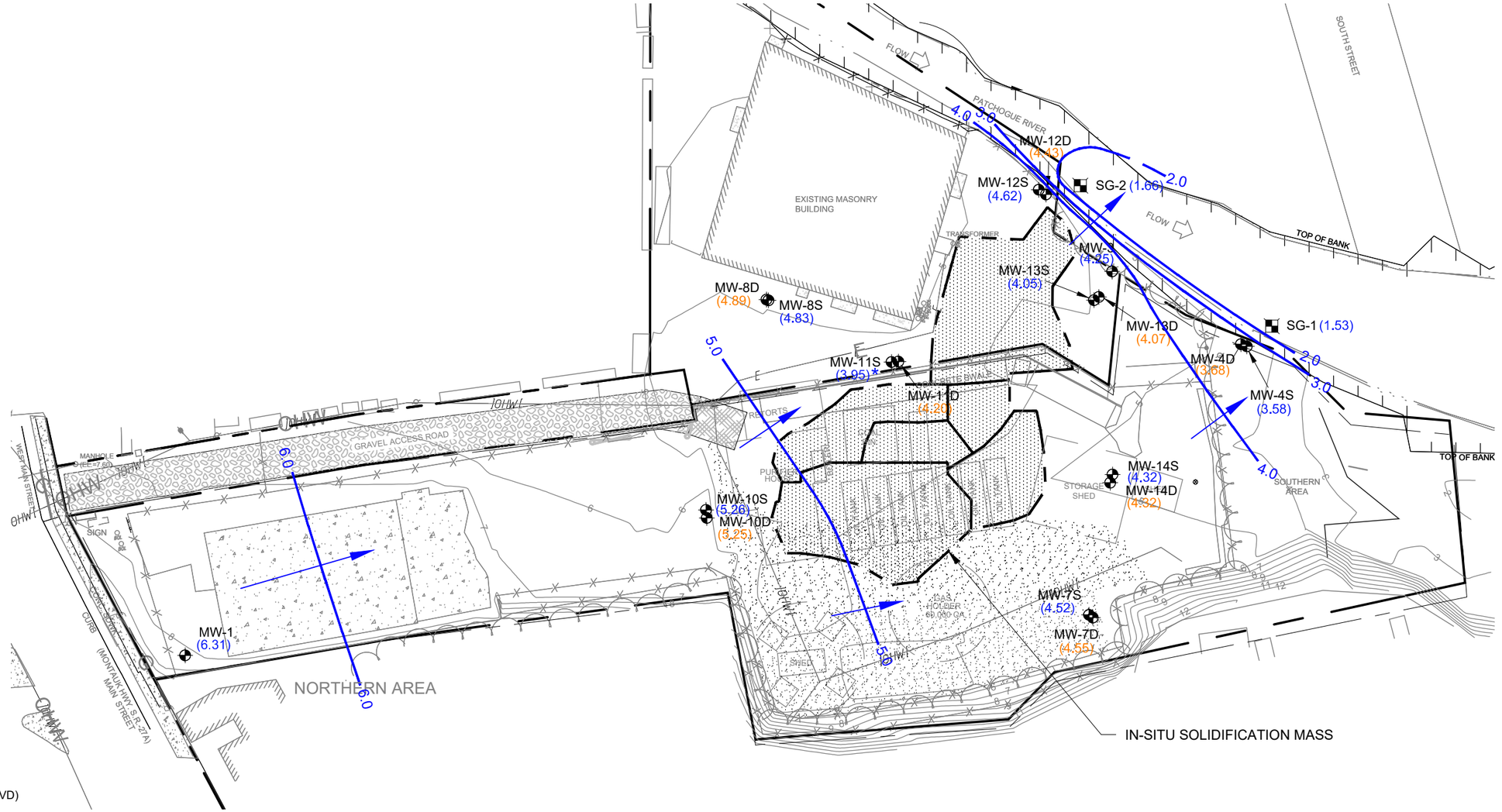
Water Year[(1)]	Low Flow (ft^3/s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

Notes:
(1) - 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

ft^3/s - cubic feet per second

Figures





LEGEND:

- PROPERTY LINE
- FENCE
- 10 — TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (4.30) GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE) OR RIVER LEVEL FROM STAFF GAUGE (FT., NAVD).
- (4.34) GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: February 2021

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP
DECEMBER 28, 2020

FIGURE

E-1

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- 10 TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 0.1 ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L) - DECEMBER 2020
- 0.10 J BENZO(A)PYRENE CONCENTRATION IN GROUNDWATER (µg/L) - DECEMBER 2020
- ND NOT DETECTED
- J ESTIMATED CONCENTRATION
- 4.0 WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

LINE OF CROSS-SECTIONAL AREA USED FOR MASS FLUX ESTIMATE

IN-SITU SOLIDIFICATION MASS

NORTHERN AREA

SOUTHERN AREA

MW-1 ND
MW-4D ND
MW-4S ND
MW-7D ND
MW-7S ND
MW-8D ND
MW-8S ND
MW-10D ND
MW-10S ND
MW-11D ND
MW-11S 0.16 J
MW-12D ND
MW-12S ND
MW-13D ND
MW-13S ND
MW-14D ND
MW-14S ND
SG-1
SG-2

Path: C:\users\asantiagobcpw\d0901435 File Name: BenzoApyrene_December2020 Plot Date: February 8, 2021 12:34 PM Cadd User: Alan Santiago

Brown AND Caldwell	SCALE: 1" = 60' 153021 DATE: January 2021	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK	BENZO(A)PYRENE IN GROUNDWATER DECEMBER, 2020	FIGURE E-2

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- 10 — TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 1 — ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L) - DECEMBER 2020
- 0.74 — PHENANTHRENE CONCENTRATION IN GROUNDWATER (µg/L) - DECEMBER 2020
- ND — NOT DETECTED
- J — ESTIMATED CONCENTRATION
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

LINE OF CROSS-SECTIONAL AREA USED FOR MASS FLUX ESTIMATE

IN-SITU SOLIDIFICATION MASS

NORTHERN AREA

SOUTHERN AREA

MW-1 ND 8.06

MW-8D ND

MW-8S ND

MW-11S 0.74

MW-11D ND

MW-10S ND

MW-10D ND

MW-12D ND

MW-12S ND

MW-13S 45

MW-13D ND

MW-4D ND

MW-4S 0.15 J

MW-14S ND

MW-14D ND

MW-7S ND

MW-7D ND

SG-1

SG-2

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: January 2021

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

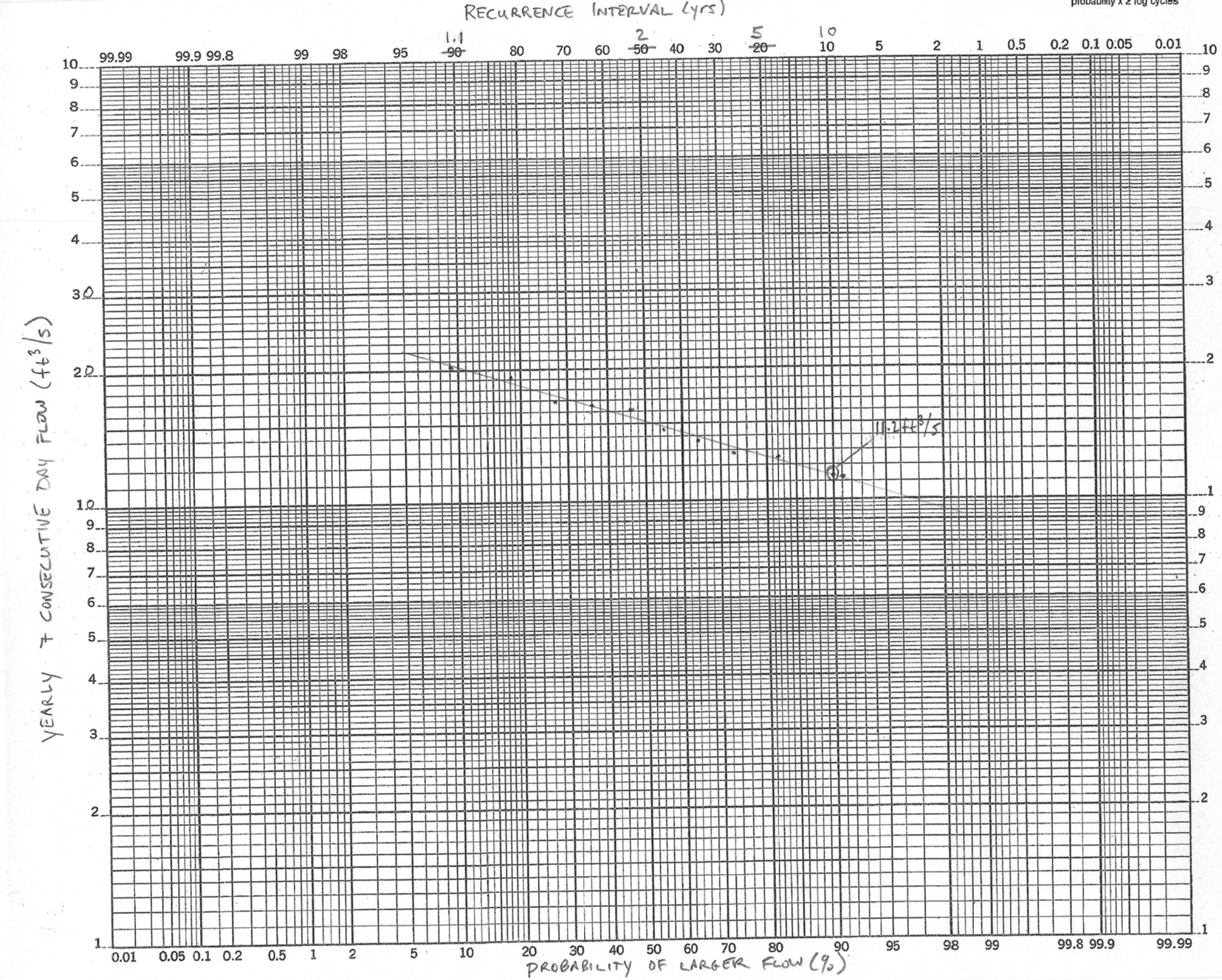
PHENANTHRENE IN GROUNDWATER (µg/L)
DECEMBER, 2020

FIGURE

E-3

Path: C:\users\asantiago\bcpw\d0901435 File Name: Phenanthrene_December2020 Plot Date: February 8, 2021 12:33 PM Cadd User: Alan Santiago

Attachments


RECURRENCE INTERVAL (yrs)
1.1
2
5
10
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
probability x 2 log cycles
YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)
11.2 ft³/s
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
PROBABILITY OF LARGER FLOW (%)

ATTACHMENT E-2
MASS FLUX CALCULATIONS - BENZO(A)PYRENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Benzo(a)pyrene (December 2020) **Figure No.** See Figure E-2

$mf = kiA * C$

Where:
- mf = mass flux, µg/s
- k = hydraulic conductivity, cm/s
- I = hydraulic gradient, dimensionless
- A = cross-sectional area, $cm^{2\,(L * b)}$
- C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-0.1 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	0.1			
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	0.1	0.10	16	18
C=	0.1	µg/L =	0.0001	µg/cm^3	Geometric mean concentration between selected contours				
L =	16	ft =	487.68	cm	Length of segment between selected contours [C]				
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	2.5E-02	µg/s	7.7E-01	g/yr	0.00170 lbs/yr				
mf_{sgw} =	0.02450	µg/s	0.773	g/yr	0.00170 lbs/yr				

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
- D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
- mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.00008 µg/L

ATTACHMENT E-3
MASS FLUX CALCULATIONS - PHENANTHRENE
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

Phenanthrene (December 2020) **Figure No.** See Figure E-3

$mf = kiA * C$

Where:
mf = mass flux, µg/s
k = hydraulic conductivity, cm/s
I = hydraulic gradient, dimensionless
A = cross-sectional area, $cm^{2\,(L * b)}$
C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

0.1-1 Contour

							Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells		0.1			
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours					
C=	0.316227766	µg/L =	0.000316228	µg/cm^3	Geometric mean concentration between selected contours		1	0.32	35	18
L =	35	ft =	1066.8	cm	Length of segment between selected contours [C]		10	3.16	67	18
b =	18	ft =	548.64	cm	Saturated thickness		13	11.40	26	18
mf =	1.7E-01	µg/s	5.3E+00	g/yr	0.01176	lbs/yr				

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	
C=	3.16	µg/L =	0.003162278	µg/cm^3	Geometric mean concentration between selected contours	
L =	67	ft =	2042.16	cm	Length of segment between selected contours [C]	
b =	18	ft =	548.64	cm	Saturated thickness	
mf =	3.2E+00	µg/s	1.0E+02	g/yr	0.2251	lbs/yr

10-13 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	
C=	11.40	µg/L =	0.011401754	µg/cm^3	Geometric mean concentration between selected contours	
L =	26	ft =	792.48	cm	Length of segment between selected contours [C]	
b =	18	ft =	548.64	cm	Saturated thickness	
mf =	4.5E+00	µg/s	1.4E+02	g/yr	0.3150	lbs/yr
mf_{sgw} =	7.95	µg/s	251	g/yr	0.552	lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 0.025 µg/L

Appendix F: Evaluation of Potential Impact to River from Increased pH Levels in Groundwater

Appendix G

Evaluation of Potential Impact to River from Increased pH Levels in Groundwater
Patchogue Former MGP Site
Patchogue, New York

As described in the Fourth Quarter 2020 Groundwater Monitoring Report, elevated pH levels were measured in the shallow groundwater (i.e., the upper ±18 feet) in the vicinity of the ISS mass during the December 2020 groundwater sampling activities. The increased pH levels are considered a potential effect from implementation of ISS in the area and it is anticipated that the pH will decrease to pre-remedy levels with time (i.e., as ISS mass continues to fully cure). Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure G-1 for a depiction of shallow groundwater flow).

The pH levels measured at MW-3 and MW-13S in December 2020 were 10.46 and 9.60, respectively, which is above the acceptable range for pH levels applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). In accordance with 6 NYCRR Part 703.3, pH shall not be less than 6.5 nor more than 8.5 in Class C water bodies. Although it was not anticipated that the increased pH levels would result in an impact to surface water quality if they discharged to the river, the following analysis was conducted to confirm this.

An analysis was conducted to assess the potential for discharge of shallow groundwater with elevated pH levels to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of hydroxide (OH^-), dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of hydroxide from groundwater to surface water). This approach is consistent with that described in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf = \Sigma C_i q_i A_i$$

Where: mf = total mass flux of dissolved hydroxide from the source (µg/sec)

C_i = concentration of the hydroxide ion (µg/mL=µg/cm^3)

q_i = specific discharge through the flow area (cm/sec)

where: q_i=Ki, with K= hydraulic conductivity (cm/sec) and i=hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (cm^2)

where: A_i=(L)(b), with L=width of constituent plume perpendicular to flow and b=plume thickness

In applying this evaluation to the Site, an estimate of the mass flux of hydroxide (in µg/sec) was calculated for shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow

groundwater. The horizontal dimension of the flow area, L, is equal to the width of the hydroxide plume, which is based on the isoconcentration contours developed from the results of the December 2020 sampling event (see Figure G-2). The concentration of hydroxide in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R = mf_{sgw}/D_R$$

Where: C_R = Concentration of hydroxide in the river (µg/L)

mf_{sgw} = Mass flux to the river from shallow groundwater (µg/s)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations (11.2 ft^3/s or 317 L/s) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is 20.4 ft^3/s (579 L/s). Table G-1 provides the data used to determine the 7Q10 flow in the Patchogue River. Attachment G-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.
- The mass flux estimate assumes that there is no pH buffering capacity in the river water; the buffering capacity would resist change to pH in the river water due to contributions of higher pH groundwater.

To screen for potential impacts to the river, the estimated concentration of hydroxide was calculated using the above-described method and then converted back to pH to compare to water quality standards for pH per NYCRR Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Attachment G-2 contains the calculations and results for the analysis performed. The estimated concentration of hydroxide in the Patchogue River resulting from site groundwater impacts is 3.67 µg/L, which equates to a pH level of 7.45. For comparison, water quality data was obtained from a USGS river gauging station proximal to the Site (USGS 01306000, Patchogue River at Patchogue New York) for the period May 6, 1966 to August 12, 1996; pH levels measured at this station during this period ranged from 5.3 to 8.4 and had a median of 6.8. This median pH value was accounted for in the mass flux estimate. Specifically, the median pH of 6.8 in the Patchogue River, which equates to a hydroxide ion concentration of 1.07 µg/L was added to the estimated hydroxide ion concentration in the river contributed by site groundwater to reflect hydroxide conditions already present in the surface water. The conservatively-estimated (i.e., biased high) pH level of 7.45 is above the median level measured in

the river, which may be a result of the increased pH levels in shallow groundwater adjacent to the river; however, it is within the acceptable range for pH levels in Class C water bodies in accordance with 6 NYCRR Part 703.3 (i.e., pH shall not be less than 6.5 nor more than 8.5). Based on the evaluation conducted, the increased pH levels in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables

TABLE G-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Water Year[(1)]	Low Flow (ft^3/s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

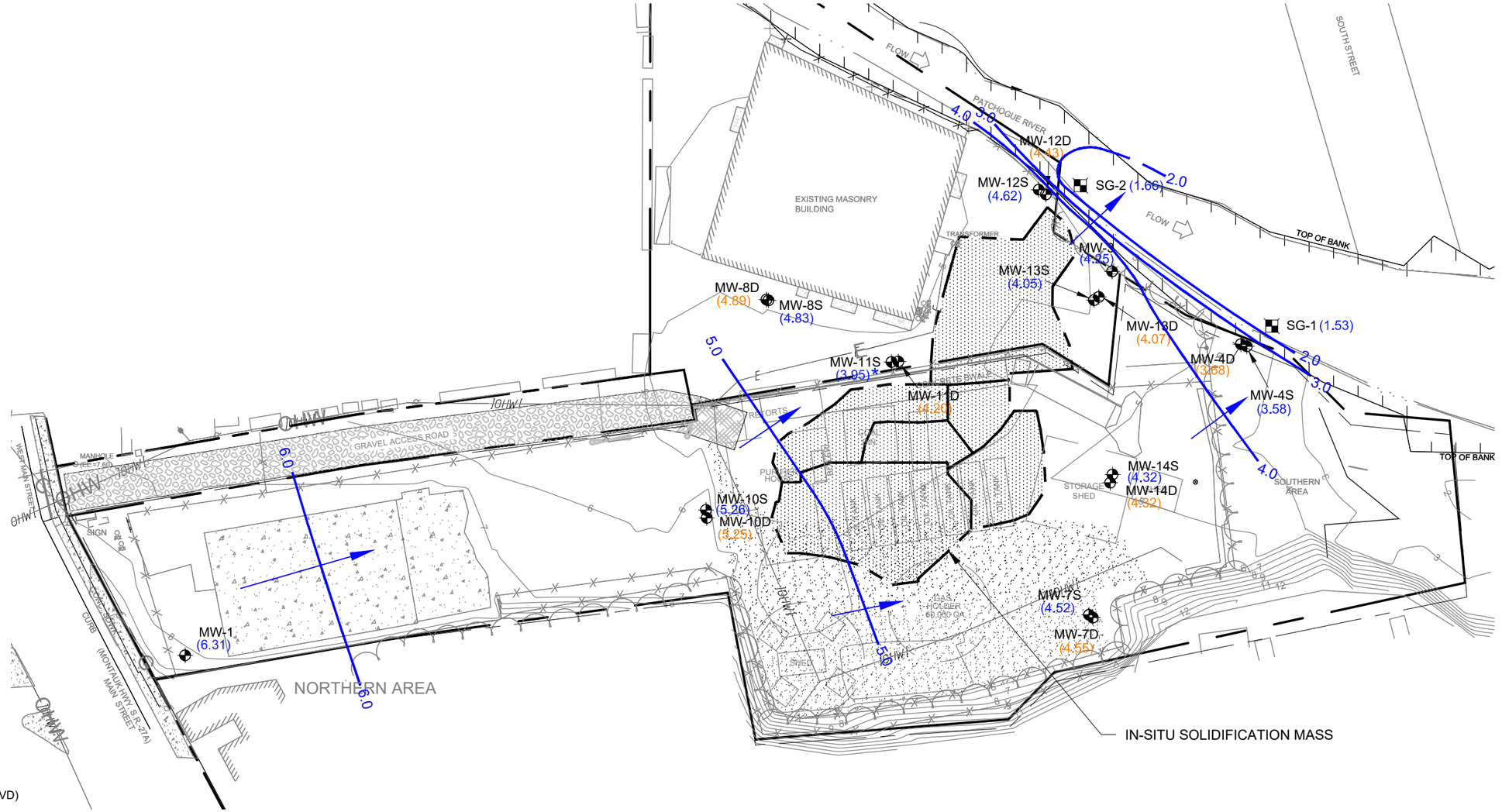
Notes:
(1) - 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

ft^3/s - cubic feet per second

Figures

0 60 120

SCALE IN FEET



LEGEND:

- PROPERTY LINE
- FENCE
- 10 TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 4.0 WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- (4.30) GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE) OR RIVER LEVEL FROM STAFF GAUGE (FT., NAVD).
- (4.34) GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

Brown AND Caldwell

SCALE: 1" = 60'

153021

DATE: February 2021

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP
DECEMBER 28, 2020

FIGURE

G-1

Path: C:\users\asantiagolbcpw\d0901435 File Name: FIG-1-(GW_Contours_December-2020) Plot Date: February 5, 2021 4:04 PM Cadd User: Alan Santiago

0 60 120

SCALE IN FEET

LEGEND:

- PROPERTY LINE
- FENCE
- 10 — TOPOGRAPHIC CONTOUR
- MONITORING WELL LOCATION
- STAFF GAGE LOCATION
- 10 — ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED). LOGARITHMIC CONTOUR INTERVAL (µg/L) - DECEMBER 2020
- 0.65 — HYDROXIDE CONCENTRATION IN GROUNDWATER (µg/L) - DECEMBER 2020
- 4.0 — WATER TABLE CONTOUR (FT., NAVD) DASHED WHERE INFERRED
- GENERALIZED DIRECTION OF GROUNDWATER FLOW

LINE OF CROSS-SECTIONAL AREA USED FOR MASS FLUX ESTIMATE

IN-SITU SOLIDIFICATION MASS

NORTHERN AREA

SOUTHERN AREA

MW-1 0.96
MW-7D 0.03
MW-7S 1.1
MW-8D 0.06
MW-8S 0.59
MW-10D 1.2
MW-10S 0.76
MW-11D 0.45
MW-11S 1.1
MW-12D 0.023
MW-12S 0.65
MW-13D 1.3
MW-13S 677
MW-14D 0.014
MW-14S 2.8
MW-4D 0.12
MW-4S 1.2

SG-1 SG-2 SG-3

PATCHOGUE RIVER

WEST MAIN STREET

SOUTH STREET

TOP OF BANK

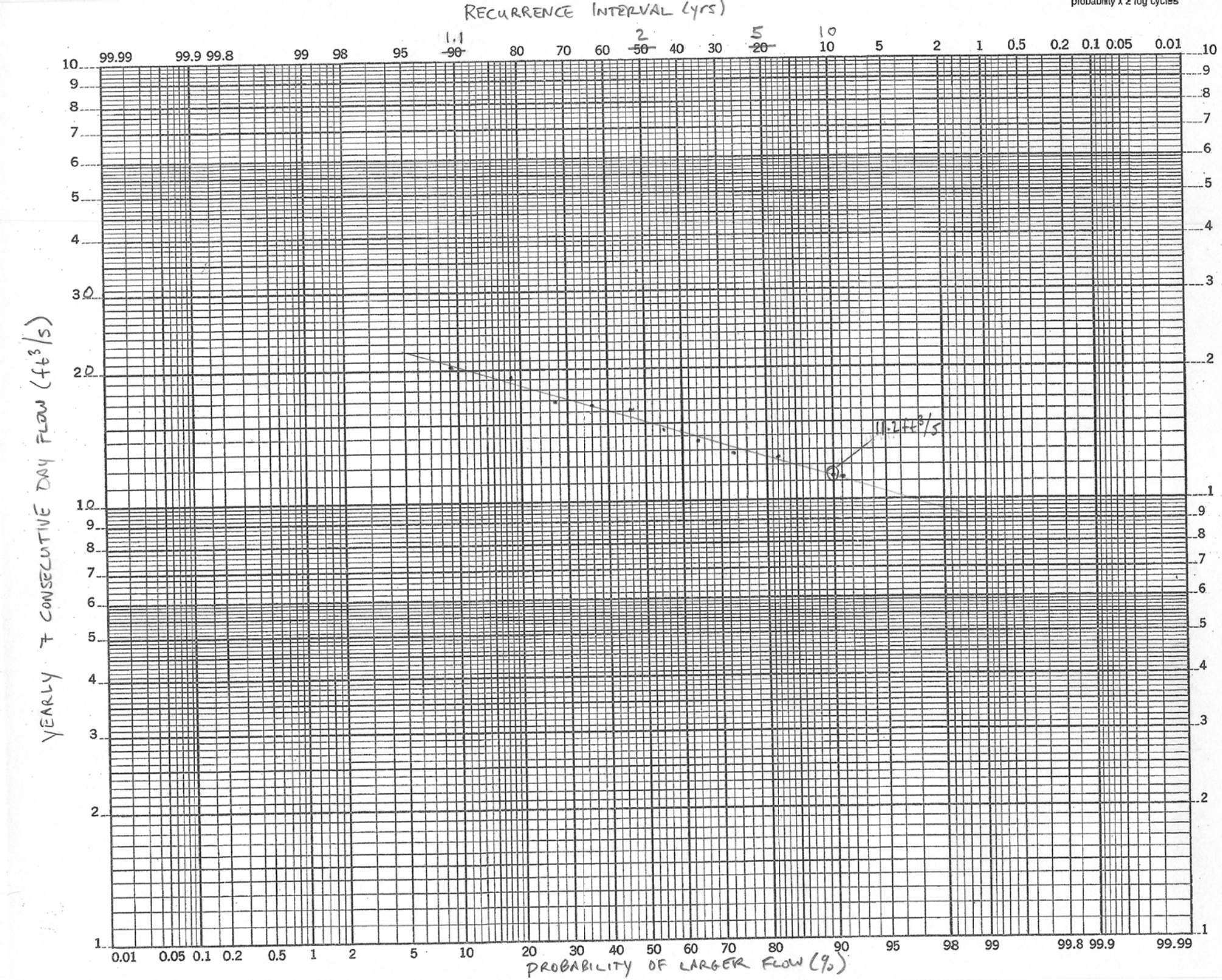
Brown AND Caldwell	SCALE: 1" = 60' 153021 DATE: January 2021	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK

HYDROXIDE(OH-) IN GROUNDWATER (µg/L)
DECEMBER, 2020

FIGURE
G-2

Path: C:\users\asantiago\bcpw\d09901435 File Name: Hydroxide(OH-)_December2020 Plot Date: February 9, 2021 12:33 PM Cadd User: Alan Santiago

Attachments


RECURRENCE INTERVAL (yrs)
1.1
2
5
10
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
probability x 2 log cycles
YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)
11.2 ft³/s
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
PROBABILITY OF LARGER FLOW (%)

ATTACHMENT G-2
MASS FLUX CALCULATIONS - pH
PATCHOGUE RIVER

Mass Flux Calculation
Enter site data in yellow highlighted cells

pH (December 2020) **Figure No.** See Figure G-2

mf = kiA * C
Where: mf = mass flux, µg/s
k = hydraulic conductivity, cm/s
I = hydraulic gradient, dimensionless
A = cross-sectional area, $cm^{2\,(L * b)}$
C = (µg/L)/1000=µg/cm^3

Shallow Groundwater Flux

10-100 Contour

						Contour Interval	Geomean	Segment Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells	10			
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours	100	31.62	23	18
C=	31.6227766	µg/L =	0.031622777	µg/cm^3	Geometric mean concentration between selected contours	1000	316.23	63	18
L =	23	ft =	701.04	cm	Length of segment between selected contours [C]	4905	2214.72	25	18
b =	18	ft =	548.64	cm	Saturated thickness				
mf =	1.1E+01	µg/s	3.5E+02	g/yr	0.77275 lbs/yr				

100-1000 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	316.23	µg/L =	0.316227766	µg/cm^3	Geometric mean concentration between selected contours
L =	63	ft =	1920.24	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	3.1E+02	µg/s	9.6E+03	g/yr	21.1665 lbs/yr

1000-4905 Contour

k =	6.1E-03	hydraulic conductivity, cm/s			Geometric mean of PDI slug tests for shallow water table wells
i =	0.15	hydraulic gradient, dimensionless			Measured in vicinity of selected contours
C=	2214.72	µg/L =	2.214723459	µg/cm^3	Geometric mean concentration between selected contours
L =	25	ft =	762	cm	Length of segment between selected contours [C]
b =	18	ft =	548.64	cm	Saturated thickness
mf =	8.5E+02	µg/s	2.7E+04	g/yr	58.8258 lbs/yr
mf_{sgw} =	1164.11	µg/s	36711.4	g/yr	80.765 lbs/yr

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where:
D_R = Patchogue River flow, L/s — 11.2 — 7Q10 flow (ft^3/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux — See above

D_R = 11.2 ft^3/s = 317 L/s

C_R = 4.74 µg/L
Note - Value is based on hydroxide ion (OH^-) from groundwater discharge plus ambient OH^- in river (1.07 µg/L).

pH_R = 7.45 std. units