

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

Prepared for
National Grid USA
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Table of Contents

Appendices	i
List of Tables	ii
List of Figures	ii
List of Abbreviations	iii
1. Introduction.....	1-1
1.1 Background	1-1
2. Scope of Work.....	2-1
3. Results and Findings.....	3-1
3.1 Water Level Data.....	3-1
3.2 NAPL Gauging.....	3-1
3.3 Groundwater Quality Data	3-1
4. Summary and Conclusions	4-1
5. References.....	5-1

Appendices

Appendix A	Field Sampling Data Sheets
Appendix B	Laboratory Data Reports
Appendix C	Data Validator Qualifications
Appendix D	Data Usability Summary Report
Appendix E	Evaluation of Potential Impact to River from Site Constituents in Groundwater
Appendix F	Evaluation of Potential Impact to River from Increased pH Levels in Groundwater

List of Tables

Table 1. Water Elevations and NAPL Monitoring Data

Table 2. Groundwater Analytical Results

Table 3. Summary of Historical BTEX Concentrations

Table 4. Summary of Historical PAH Concentrations

List of Figures

Figure 1. Water Table Elevation Contour Map – December 10, 2024

Figure 2. Groundwater Quality Trend Plot – Acenaphthene

Figure 3. Groundwater Quality Trend Plot – Benzene

Figure 4. Groundwater Quality Trend Plot – Naphthalene

Figure 5. Groundwater Quality Trend Plot – Fluroene

Figure 6. Groundwater Quality Trend Plot – Pyrene

Figure 7. Groundwater Quality Trend Plot – pH

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
EQulS	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 December 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 December 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 December 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 through 7)
- 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 December 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, except for 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 December 2024 semi-annual groundwater monitoring were conducted by BC during the period from December 10 to 12, 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 and usable for the intended purposes.

Following receipt of the validated data from the December 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 December 10, 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 December 2024 groundwater monitoring event. NAPL was not identified in any of the Site monitoring wells during the December 10, 2024 gauging activities.

3.3 Groundwater Quality Data

Table 2 provides the results of the laboratory analyses of the groundwater samples collected during the December 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 December 10 to 12, 2024 and submitted to the laboratory for analysis of BTEX and PAHs. Samples obtained during the December 2024 sampling detected concentrations of benzene (MW-11S), acenaphthene and naphthalene (MW-3) above Class GA groundwater quality criteria. These constituents are considered Site related and potentially mobile in groundwater. The presence of these constituents in groundwater at these locations 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 2 through 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. During post-remediation monitoring benzene concentrations have fluctuated above and below the Class GA groundwater quality criterion at MW-

11S, with a concentration range of non-detect to 2.4 µg/L (see Figure 2), with 2.4 µg/L measured in December 2024. Additionally, PAH compounds benzo(a)anthracene (MW-3 and MW-11S), chrysene (MW-3 and MW-11S), benzo(b)fluoranthene (MW-11S), and benzo(k)fluoranthene (MW-11S) were also detected at concentrations above Class GA groundwater quality criteria. 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).

In addition to the above-described detections at MW-3 and MW-11S, one or more of the following six PAH compounds were detected above the Class GA groundwater quality criteria in wells , MW-12D and MW-13S, during the December 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 six 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, 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 December 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 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 four of the last five 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 11.06 was recorded during the December 2024 sampling event, which is similar to the previous event (11.05 in June 2024). 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 December 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 December 2024 groundwater monitoring event.

- NAPL was not identified in any of the Site monitoring wells during the December 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, and benzene was detected above Class GA groundwater quality criteria at well MW-11S. 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-13S have been within the Class GA criterion range (6.5 to 8.5) for four of the last five monitoring events, including the December 2024 event.

Section 5

References

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

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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
DECEMBER 2024 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Location ID	Top of Casing Elevation (ft., NAVD)	12/10/2024			
		Depth to Water (ft., BTOC)	Water Elevation (ft., NAVD)	Depth to NAPL (ft., BTOC)	Total Depth of Well (ft., BTOC)
MW-1	11.47	5.93	5.54	NI	15.23
MW-3	5.56	1.76	3.80	NI	10.14
MW-4S	7.97	4.83	3.14	NI	12.29
MW-4D	7.79	4.61	3.18	NI	26.73
MW-7S	8.45	4.43	4.02	NI	12.45
MW-7D	8.31	4.33	3.98	NI	28.17
MW-8S	5.01	0.79	4.22	NI	9.89
MW-8D	4.99	0.72	4.27	NI	25.17
MW-10S	5.77	1.11	4.66	NI	15.50
MW-10D	5.73	0.99	4.74	NI	25.25
MW-11S	5.02	0.93	4.09	NI	13.72
MW-11D	5.14	1.03	4.11	NI	23.80
MW-12S	4.99	1.45	3.54	NI	23.99
MW-12D	4.92	1.57	3.35	NI	13.95
MW-13S	4.98	1.47	3.51	NI	13.33
MW-13D	4.96	1.46	3.50	NI	23.96
MW-14S	4.86	0.95	3.91	NI	12.65
MW-14D	4.82	1.07	3.75	NI	22.14
SG-1	5.38	3.86	1.52	NA	NA
SG-2	5.25	3.68	1.57	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
DECEMBER 2024 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Constituent	Class GA Groundwater Criteria ⁽¹⁾		Loc ID Date	MW-1 12/11/2024	MW-3 12/11/2024	MW-4S 12/12/2024	MW-7S 12/11/2024	MW-8S 12/10/2024	MW-10S 12/11/2024	MW-11S 12/10/2024							
	TOGS 1.1.1 Guidance	NYS Part 703 Standard									Units						
Volatile Organic Compounds (VOCs)																	
<i>Benzene, Toluene, Ethylbenzene and Isomers of Xylene (BTEX)</i>																	
Benzene	NE	1	µg/L	<0.30	U	<0.30	U	<0.30	U	<0.30	U	<0.30	U	<0.30	U	2.4	
Toluene	NE	5	µg/L	<0.30	U	0.72	J	<0.30	U	<0.30	U	<0.30	U	<0.30	U	<0.30	U
Ethylbenzene	NE	5	µg/L	<0.40	U	1.5		<0.40	U	<0.40	U	<0.40	U	<0.40	U	<0.40	U
Xylenes, total	NE	5	µg/L	<0.40	U	1.1		<0.40	U	<0.40	U	<0.40	U	<0.40	U	1.1	
Total BTEX ⁽²⁾	NE	NE	µg/L	ND		3.3		ND		ND		ND		ND		3.5	
Semi-Volatile Organic Compounds (SVOCs)																	
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>																	
Acenaphthene	20	NE	µg/L	<0.014	U	29		10		0.18		<0.010	U	<0.014	U	0.24	
Acenaphthylene	NE	NE	µg/L	<0.015	U	3.2		0.18		<0.015	U	<0.010	U	<0.015	U	0.75	
Anthracene	50	NE	µg/L	<0.025	U	1.5		0.1		0.035	J	<0.010	U	<0.025	U	3.1	
Benzo(a)anthracene	0.002	NE	µg/L	<0.016	U	0.34		<0.016	U	<0.016	U	<0.010	U	<0.016	U	0.7	
Benzo(a)pyrene	NE	0	µg/L	<0.022	U	<0.022	U	<0.022	U	<0.022	U	<0.010	U	<0.022	U	0.24	
Benzo(b)fluoranthene	0.002	NE	µg/L	<0.024	U	<0.024	U	<0.024	U	<0.024	U	<0.047	U	<0.024	U	0.45	
Benzo(g,h,i)perylene	NE	NE	µg/L	<0.035	U	<0.035	U	<0.035	U	<0.035	U	<0.010	U	<0.035	U	0.27	
Benzo(k)fluoranthene	0.002	NE	µg/L	<0.028	U	<0.028	U	<0.028	U	<0.028	U	<0.010	U	<0.028	U	0.13	
Chrysene	0.002	NE	µg/L	<0.030	U	0.21		<0.030	U	<0.030	U	<0.025	U	<0.030	U	0.7	
Dibenz(a,h)anthracene	NE	NE	µg/L	<0.020	UJ	<0.020	UJ	<0.020	UJ	<0.020	UJ	<0.020	U	<0.020	UJ	0.055	

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

Constituent	Class GA Groundwater Criteria ⁽¹⁾		Units	Loc ID	Date	MW-1		MW-3		MW-4S		MW-7S		MW-8S		MW-10S		MW-11S			
	TOGS 1.1.1	NYS Part 703				12/11/2024	U	12/11/2024	U	12/12/2024	U	12/11/2024	U	12/10/2024	U	12/11/2024	U	12/10/2024	U	12/11/2024	U
	Guidance	Standard																			
Fluoranthene	50	NE	µg/L		<0.039	U	9.2		1.6		<0.039	U	<0.023	U	<0.039	U	4.4				
Fluorene	50	NE	µg/L		<0.012	U	7.6		1.6		0.037	J	<0.010	U	<0.012	U	8.9				
Indeno(1,2,3-c,d)pyrene	0.002	NE	µg/L		<0.036	UJ	<0.036	UJ	<0.036	UJ	<0.036	UJ	<0.020	U	<0.036	UJ	0.21				
Naphthalene	10	NE	µg/L		<0.12	U	50		<0.12	U	<0.12	U	<0.068	U	<0.12	U	6.1				
Phenanthrene	50	NE	µg/L		<0.022	U	13		0.035	J	<0.022	U	<0.030	U	<0.022	U	1.3				
Pyrene	50	NE	µg/L		<0.031	U	8.8		1.7		<0.031	U	<0.021	U	<0.031	U	6.5				
Total PAHs ⁽³⁾	NE	NE	µg/L		ND		123		15		0.25		ND		ND		34				

Notes, Abbreviations and Description of Qualifiers:

(1) - Class GA Groundwater Quality Criteria: 6 NYCRR Part 703 Standards and guidance values from the Division of Water Technical and Operational Guidance Series [TOGS] 1.1.1.

(2) - To calculate total BTEX concentration, a value of zero is used for non-detects.

(3) - To calculate total PAH concentration, a value of zero is used for non-detects.

Boxed and bolded concentrations are greater than New York State Class GA Groundwater Standards or Guidance values.

NE - Standard and/or guidance value not established.

ND - Not detected

mg/L - milligrams per liter

µg/L - micrograms per liter

U - The analyte was analyzed for, but was not detected. Value shown is representative of method detection limit for the analyzed constituent.

J - Estimated concentration. The result is below the quantitation limit but above the method detection limit.

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

Constituent	Class GA Groundwater Criteria ⁽¹⁾			Loc ID Date	MW-12S 12/10/2024	MW-12D 12/10/2024	MW-13S 12/11/2024	MW-13S (Dup) 12/11/2024	MW-13D 12/12/2024	MW-14S 12/11/2024						
	TOGS 1.1.1 Guidance	NYS Part 703 Standard	Units													
Volatile Organic Compounds (VOCs)																
<i>Benzene, Toluene, Ethylbenzene and Isomers of Xylene (BTEX)</i>																
Benzene	NE	1	µg/L		<0.30	U	<0.30	U	<0.30	U	<0.30	U	<0.30	U		
Toluene	NE	5	µg/L		<0.30	U	<0.30	U	<0.30	U	<0.30	U	<0.30	U		
Ethylbenzene	NE	5	µg/L		<0.40	U	<0.40	U	<0.40	U	<0.40	U	<0.40	U		
Xylenes, total	NE	5	µg/L		<0.40	U	<0.40	U	<0.40	U	<0.40	U	<0.40	U		
Total BTEX ⁽²⁾	NE	NE	µg/L		ND		ND		ND		ND		ND			
Semi-Volatile Organic Compounds (SVOCs)																
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>																
Acenaphthene	20	NE	µg/L		<0.010	U	<0.010	U	3.5		3.8		<0.014	U	0.15	
Acenaphthylene	NE	NE	µg/L		<0.010	U	<0.010	U	0.16		0.18		<0.015	U	<0.015	U
Anthracene	50	NE	µg/L		<0.010	U	<0.010	U	0.24		0.22		<0.025	U	<0.025	U
Benzo(a)anthracene	0.002	NE	µg/L		<0.010	U	0.01	J	0.16		0.16		<0.016	U	<0.016	U
Benzo(a)pyrene	NE	0	µg/L		<0.010	U	<0.010	U	<0.022	U	<0.022	U	<0.022	U	<0.022	U
Benzo(b)fluoranthene	0.002	NE	µg/L		<0.048	U	<0.047	U	0.025	J	0.027	J	<0.024	U	<0.024	U
Benzo(g,h,i)perylene	NE	NE	µg/L		<0.010	U	<0.010	U	<0.035	U	<0.035	U	<0.035	U	<0.035	U
Benzo(k)fluoranthene	0.002	NE	µg/L		<0.010	U	<0.010	U	<0.028	U	<0.028	U	<0.028	U	<0.028	U
Chrysene	0.002	NE	µg/L		<0.025	U	<0.025	U	0.12		0.12		<0.030	U	<0.030	U
Dibenz(a,h)anthracene	NE	NE	µg/L		<0.020	U	<0.020	U	<0.020	UJ	<0.020	UJ	<0.020	UJ	<0.020	UJ

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

Constituent	Class GA Groundwater Criteria ⁽¹⁾		Loc ID	Date	MW-12S		MW-12D		MW-13S		MW-13S (Dup)		MW-13D		MW-14S	
	TOGS 1.1.1 Guidance	NYS Part 703 Standard			Units	12/10/2024	U	12/10/2024	U	12/11/2024	UJ	12/11/2024	UJ	12/12/2024	U	12/11/2024
Fluoranthene	50	NE	µg/L	<0.023	U	<0.023	U	0.91		0.97		<0.039	U	<0.039	U	
Fluorene	50	NE	µg/L	<0.010	U	<0.010	U	0.83		0.88		<0.012	U	0.03	J	
Indeno(1,2,3-c,d)pyrene	0.002	NE	µg/L	<0.020	U	<0.020	U	<0.036	UJ	<0.036	UJ	<0.036	UJ	<0.036	UJ	
Naphthalene	10	NE	µg/L	<0.069	U	<0.069	U	2		2.2		<0.12	U	<0.12	U	
Phenanthrene	50	NE	µg/L	<0.030	U	<0.030	U	0.68		0.71		<0.022	U	0.079		
Pyrene	50	NE	µg/L	<0.021	U	<0.021	U	1.1		1.1		<0.031	U	<0.031	U	
Total PAHs ⁽³⁾	NE	NE	µg/L	ND		0.01		9.7		10		ND		0.26		

Notes, Abbreviations and Description of Qualifiers:

- (1) - Class GA Groundwater Quality Criteria: 6 NYCRR Part 703 Standards and guidance values from the Division of Water Technical and Operational Guidance Series [TOGS] 1.1.1.
- (2) - To calculate total BTEX concentration, a value of zero is used for non-detects.
- (3) - To calculate total PAH concentration, a value of zero is used for non-detects.

Boxed and bolded concentrations are greater than New York State Class GA Groundwater Standards or Guidance values.

NE - Standard and/or guidance value not established.
 ND - Not detected
 mg/L - milligrams per liter
 µg/L - micrograms per liter

U - The analyte was analyzed for, but was not detected. Value shown is representative of method detection limit for the analyzed constituent.
 J - Estimated concentration. The result is below the quantitation limit but above the method detection limit.



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)
Dec-24	0	-- ^(b)	-- ^(b)	3.3	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	NS ^(d)	0	0	0	0	0	NS ^(d)	-- ^(c)
Dec-24	0	NS ^(d)	3.5	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	1.6	0	0	0	8	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)
Dec-24	0	-- ^(b)	-- ^(b)	123	15	NS ^(d)	-- ^(c)	-- ^(c)	0.25	NS ^(d)	0	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	72	11	3.3	2413	65	0.45	0.15	1.2	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)
Dec-24	0	NS ^(d)	34	NS ^(d)	0	0.01	10	0	0.26	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	0.048	0.049	61	0.21	1.1	0.027	142	0.057	0.83	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.

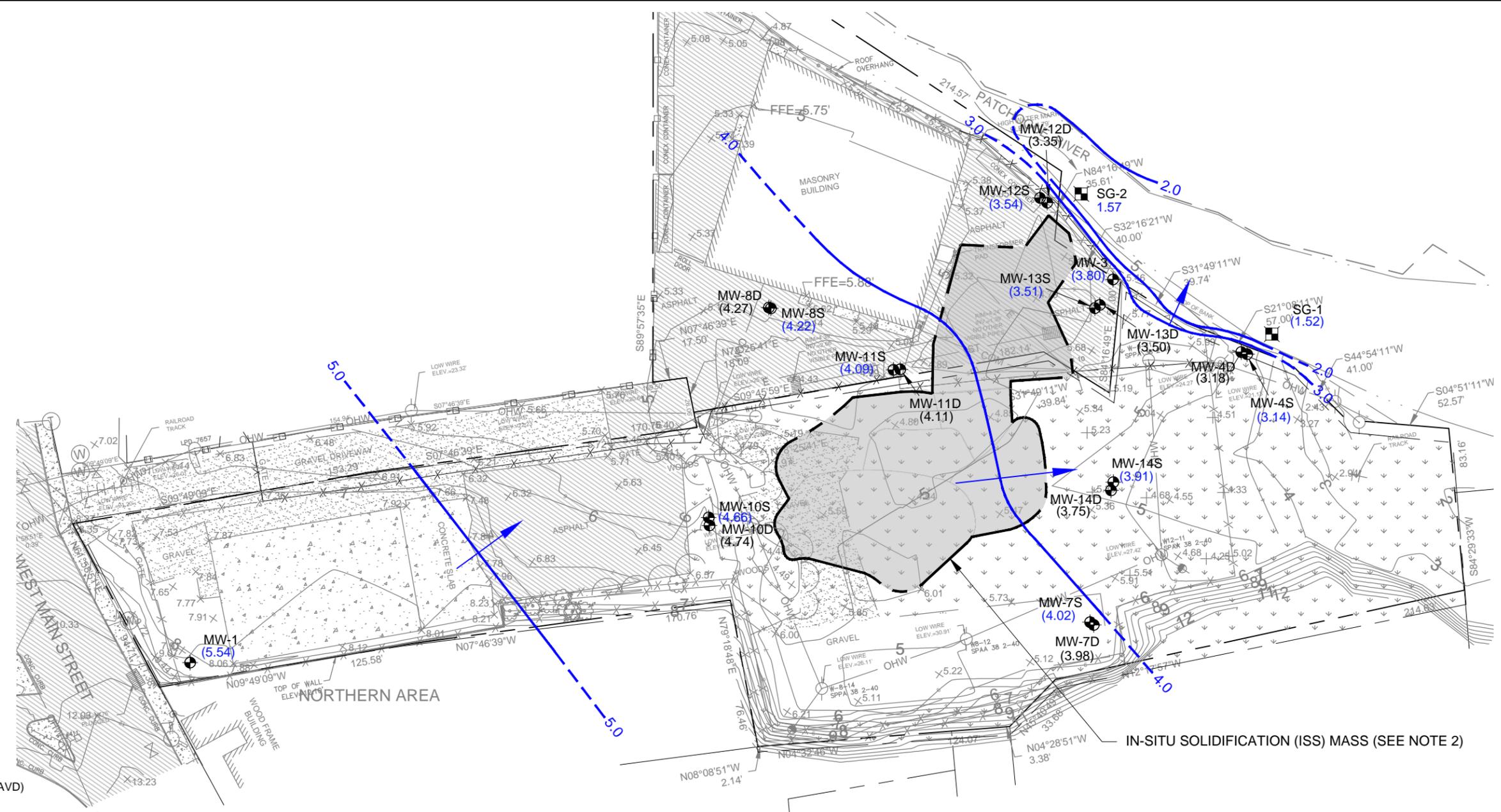
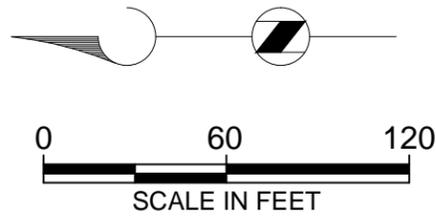
(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (Brown and Caldwell, December 2012).

(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





- LEGEND:**
- — — — — PROPERTY LINE
 - x - x - FENCE
 - 10 — — — — — 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

- 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.

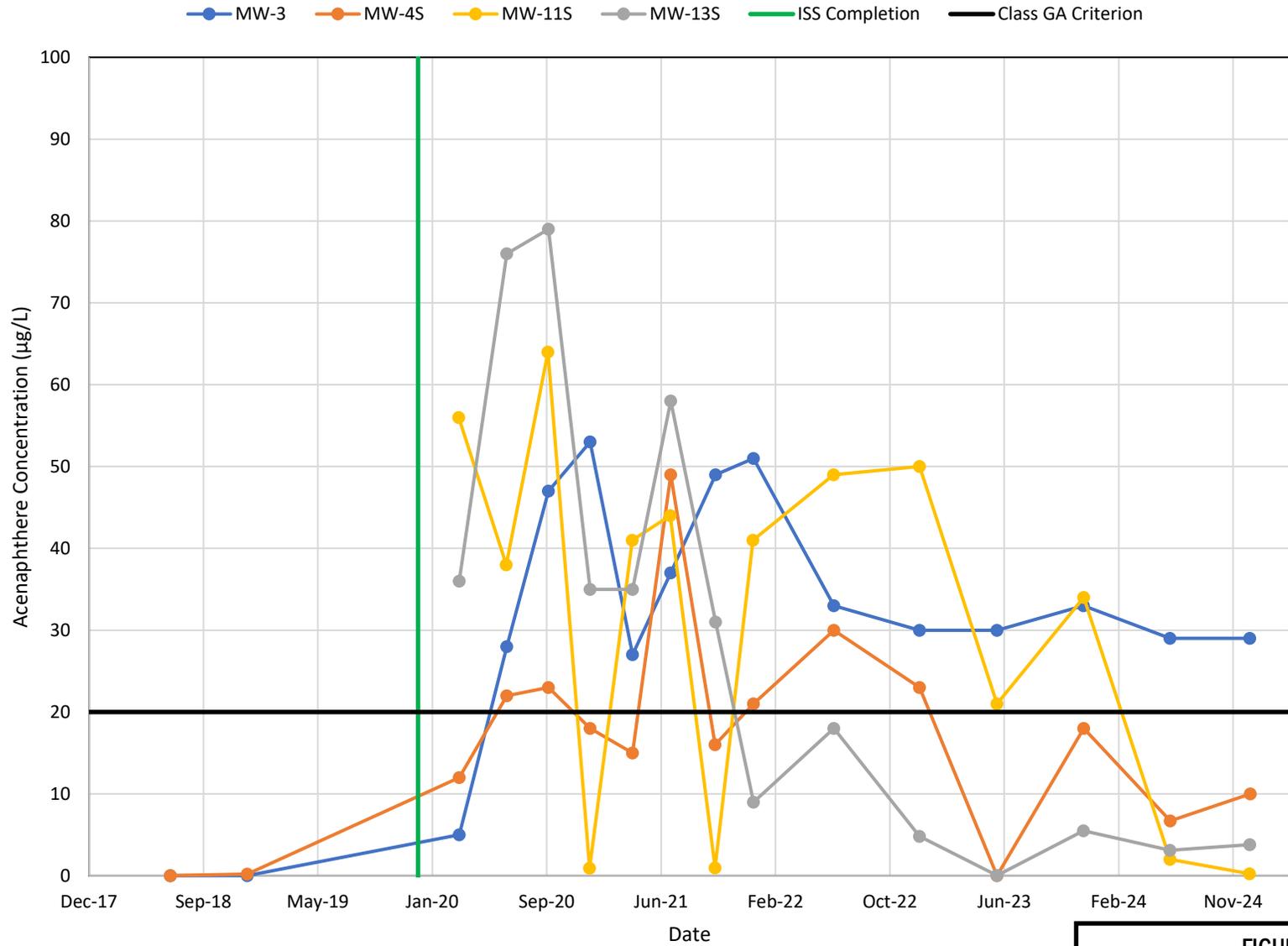


SCALE: 1" = 60'
196466
DATE: March 6, 2025

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

WATER TABLE ELEVATION CONTOUR MAP
DECEMBER 10, 2024

Path: C:\bcpw\196466\196466 Water Table December 2024 Plot Date: March 6, 2025 1:38 PM Cadd User: Alan Santiago

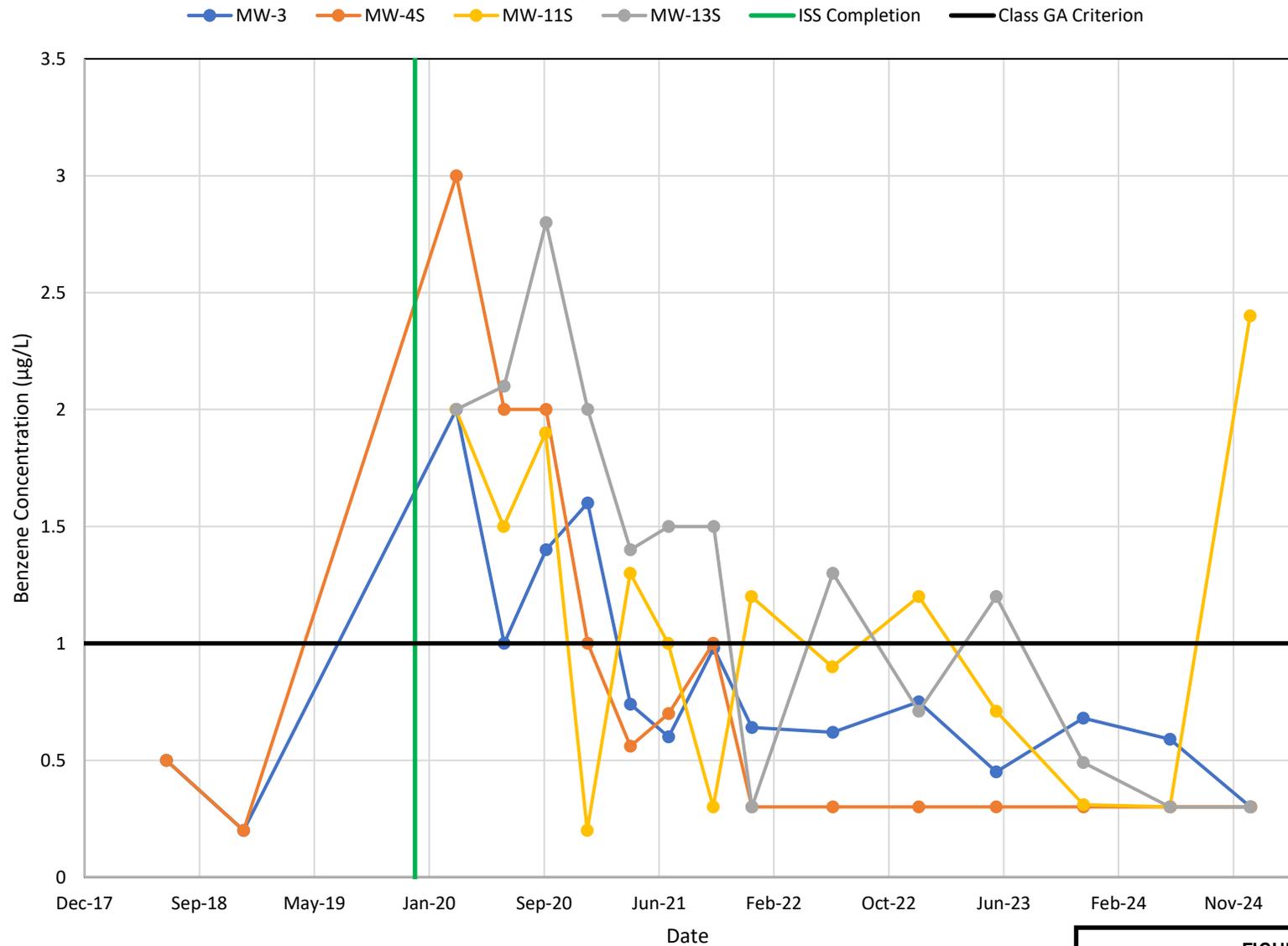


Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 20 µg/L

FIGURE 2
GROUNDWATER QUALITY TREND PLOT - ACENAPHTHENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell

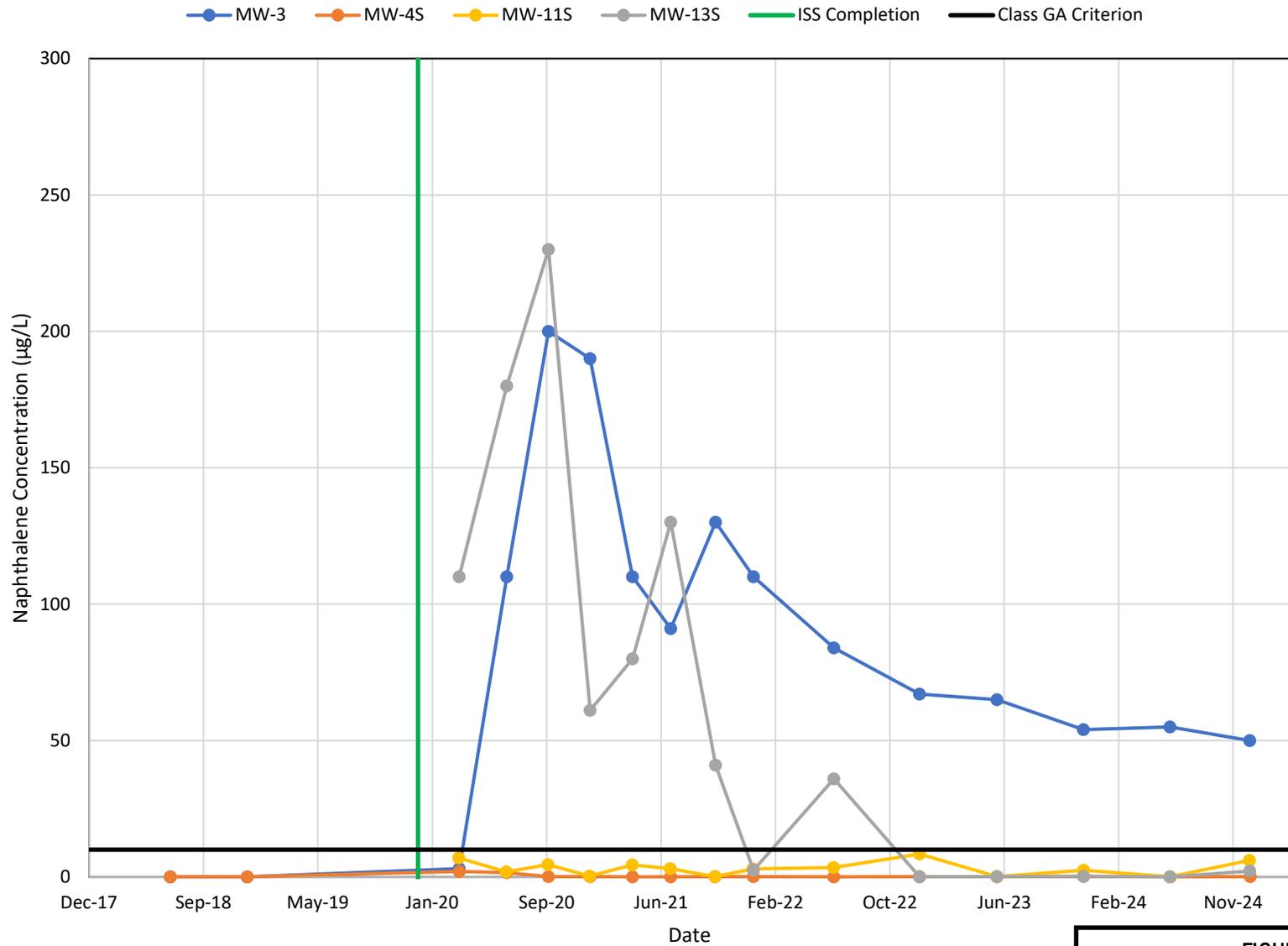


Notes:
ISS = In-Situ Solidification
NYS Part 703 Class GA Standard = 1 µg/L

FIGURE 3
GROUNDWATER QUALITY TREND PLOT - BENZENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK



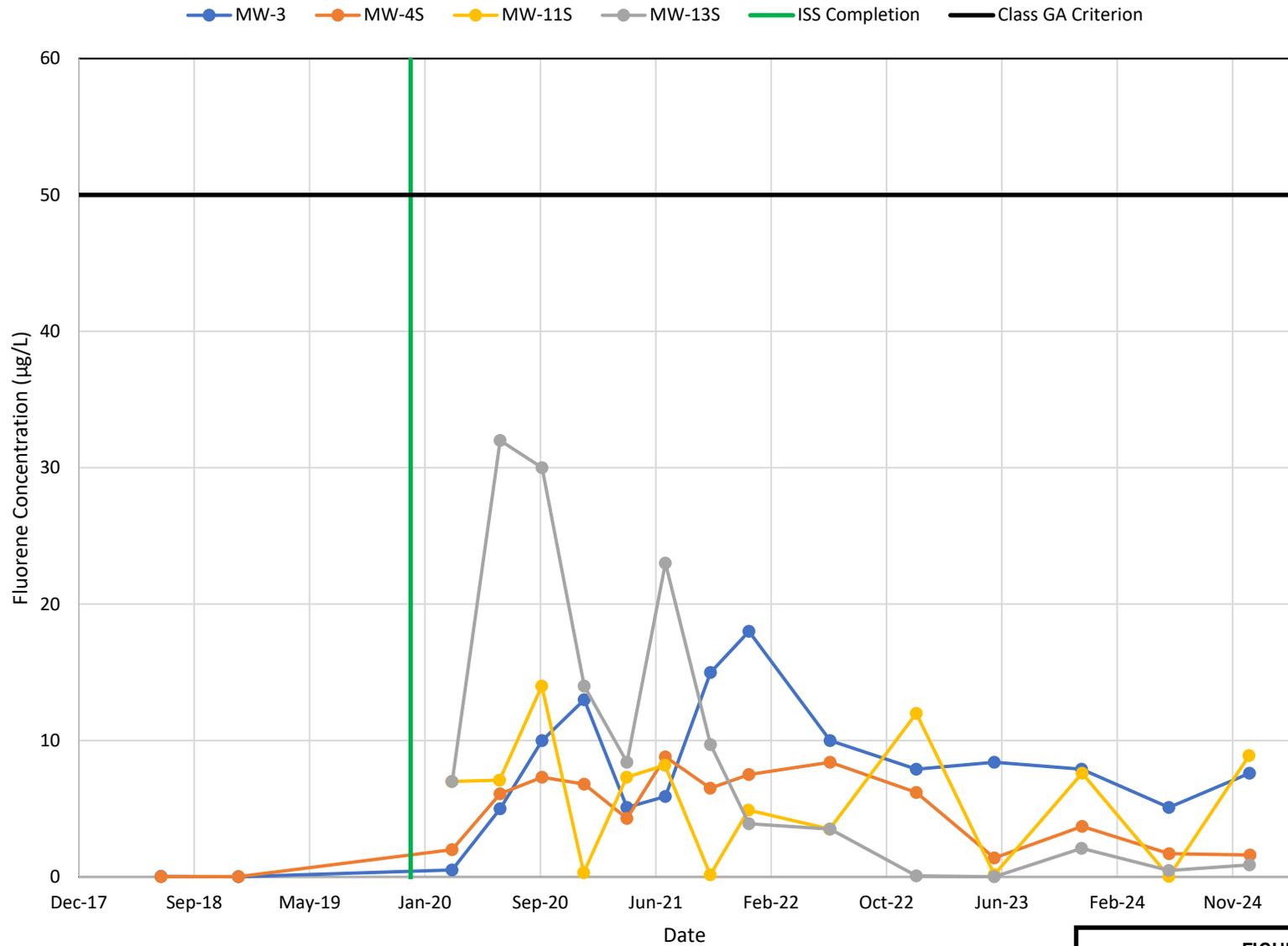


Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 10 µg/L

FIGURE 4
GROUNDWATER QUALITY TREND PLOT -
NAPHTHALENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK



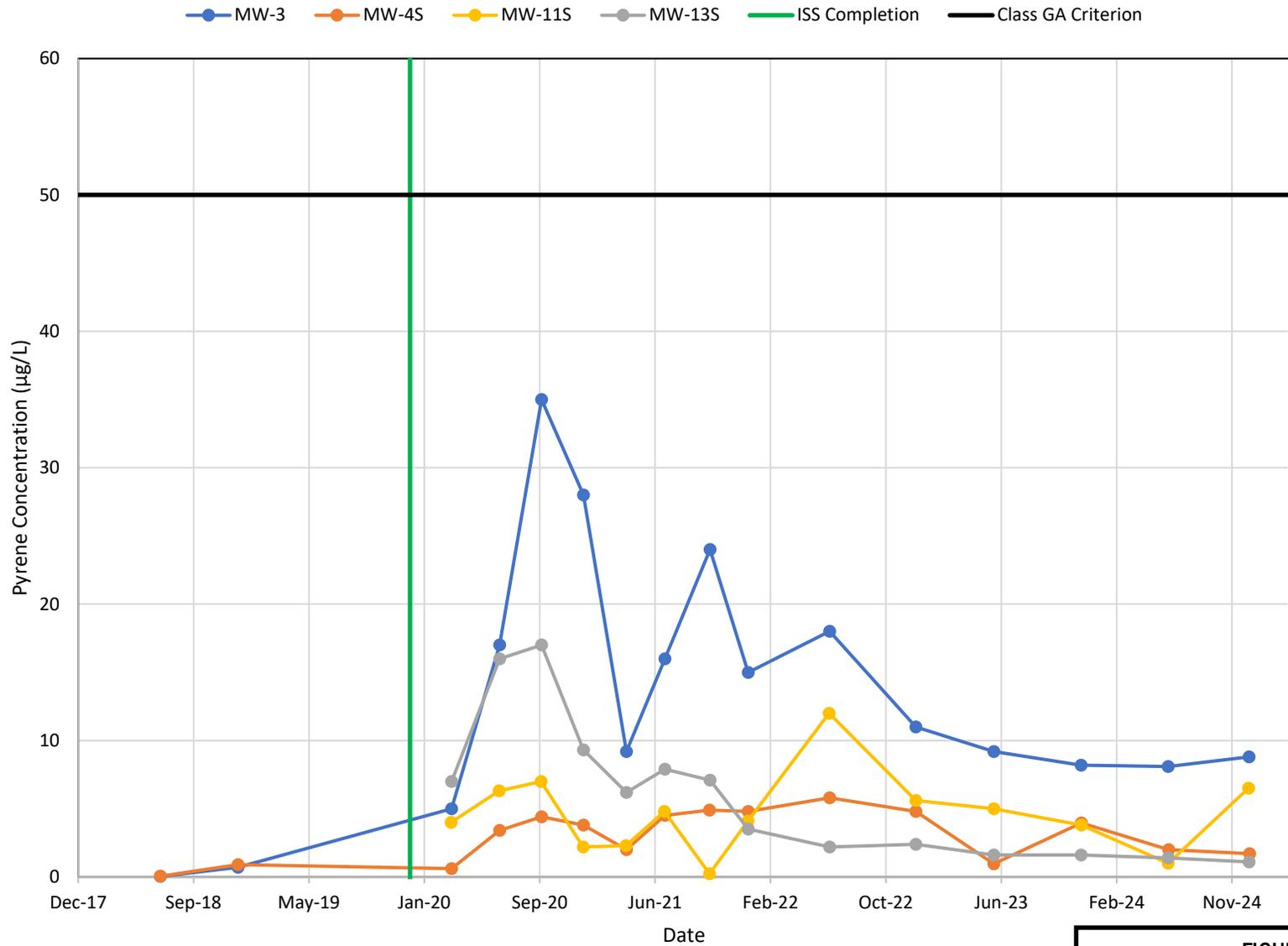


Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 50 µg/L

FIGURE 5
GROUNDWATER QUALITY TREND PLOT -
FLUORENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK



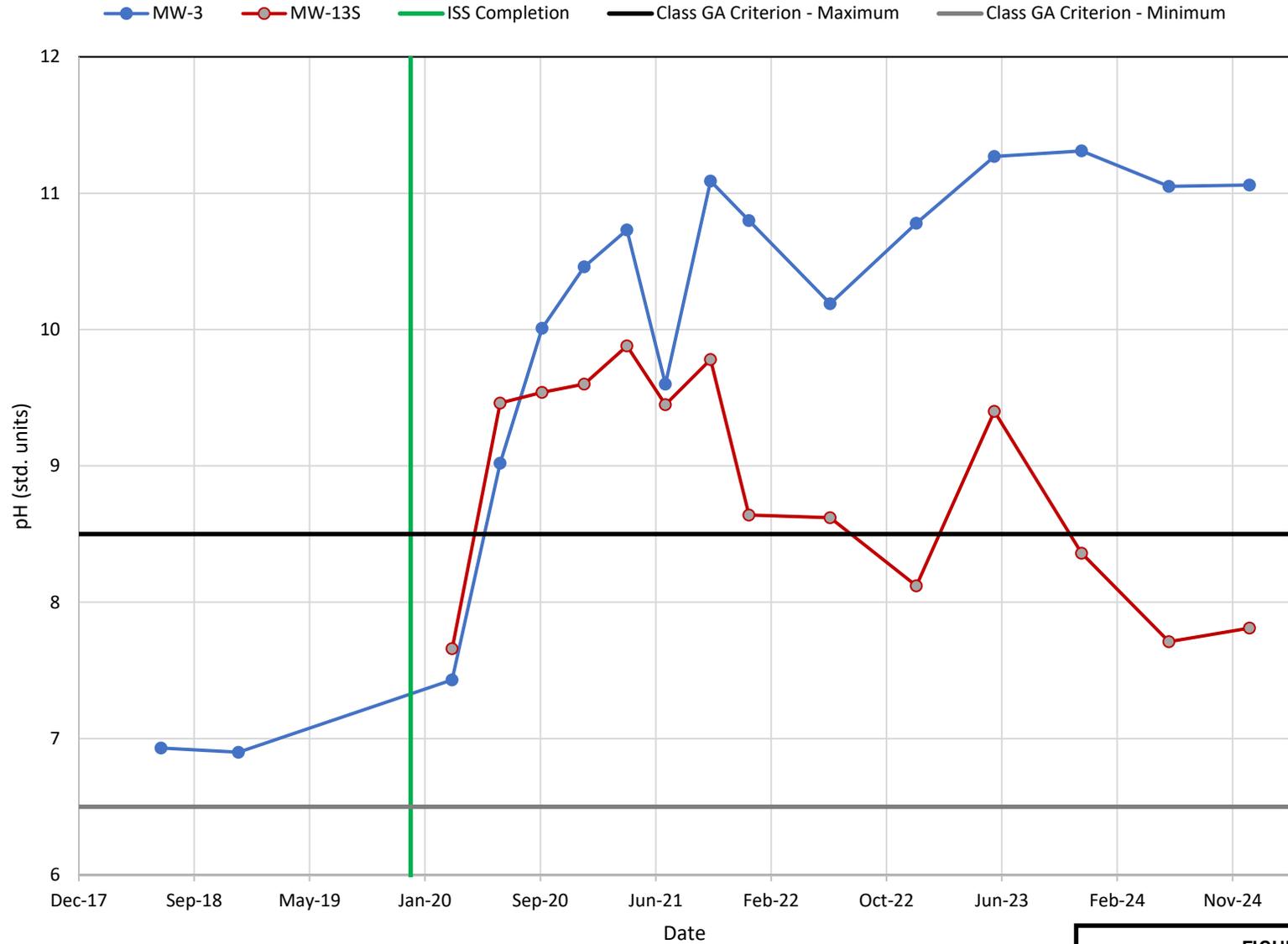


Notes:
ISS = In-Situ Solidification
TOGS 1.1.1 Guidance Value = 50 µg/L

FIGURE 6
GROUNDWATER QUALITY TREND PLOT - PYRENE

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Brown AND Caldwell



Notes:

ISS = In-Situ Solidification

NYS Part 703 Class GA Standard (Minimum) = 6.5

NYS Part 703 Class GA Standard (Maximum) = 8.5

FIGURE 7

GROUNDWATER QUALITY TREND PLOT - pH

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK



Appendix A: Field Sampling Data Sheets



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-85
Sample I.D.: MW-85-20241210

Project: Peribogal
Personnel: M. Macorey, M. Segler

Date: 12/10/24 Time: 11:18
Weather: Clear Air Temp.: 64.4

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO: Static Water Level: _____ 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: 300 mL/min Elapsed Time: 36 min Volume Pumped: 3.2 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: 12/10/24

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: <u>Patchogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/10/24</u>
Personnel: <u>MJM</u>	Well ID: <u>MW-85</u>
Purge/Sample Depth: <u>~7.5</u>	Sample ID: <u>MW-85-20241210</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1118	9.63	12.83	0.29	3.52	33.2	114	0.83	300 ↓ ✓	
1121	6.06	13.94	0.551	0.78	114.5	20	0.85		
1124	6.18	14.66	0.511	0.73	41.9	8	0.87		
1127	6.20	14.16	0.533	0.66	34.9	0	0.88		
1130	6.17	14.26	0.526	0.91	32.7	-10	0.89		
1133	6.33	14.33	0.520	0.55	19.4	-15	0.88		
1136	6.32	14.34	0.518	0.58	16.2	-20	0.89		
1139	6.32	14.34	0.516	0.60	14.3	-22	0.88		
1142	6.48	14.36	0.514	0.87	11.3	-25	0.88		
1145	6.40	14.41	0.512	1.10	11.5	-22	0.88		
1148	6.48	14.43	0.511	0.56	10.3	-24	0.89		
1151	6.48	14.49	0.509	0.55	8.8	-22	0.89		
1154	6.48	14.51	0.509	0.58	7.9	-25	0.88		
1157		Collect							
MJM 12/10									

Certified Sample Information:

Time of Sample: 1157

Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba - 452

Serial No. Unit: 30M16249

Serial No. Handheld: NBY/KSRZ

Calibration Date/Time: 12/10/24 @ 1110

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-125
Sample I.D.: MW-125-20241210

Project:
Personnel: M. Nooney M. Feigler

Date: 12/10/24 Time: _____
Weather: Rain Air Temp.: 48

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: 1.59 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 Property 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 mL/min Elapsed Time: 35 min Volume Pumped: 3.2 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: 12/10/24

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

Project Name: <u>Interogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/10/24</u>
Personnel: <u>M. Seigler</u>	Well ID: <u>MW-125</u>
Purge/Sample Depth: <u>~7.5'</u>	Sample ID: <u>MW-125-20241210</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1219	6.75	13.25	0.413	1.45	53.2	18	1.59	300	
1222	6.66	13.98	0.416	0.73	26.3	17	1.59	300	
1225	6.62	14.26	0.424	0.54	16.1	19	1.59	300	
1228	6.64	14.34	0.430	0.48	13.6	13	1.59	300	
1231	6.66	14.413	0.432	0.49	11.0	11	1.59	300	
1234	6.71	13.98	0.434	0.50	10.0	10	1.59	300	
1237	6.64	14.38	0.435	0.44	8.8	0	1.59	300	
1240	6.72	14.49	0.436	0.41	7.8	3	1.59	300	
1243	6.71	14.41	0.437	0.38	7.9	3	1.59	300	
1246	6.72	14.48	0.437	0.37	7.8	2	1.59	300	
1249	6.73	14.50	0.437	0.36	7.8	2	1.59	300	
1252	6.74	14.51	0.438	0.35	7.8	2	1.59	300	
1255	Collected MW-125-20241210								

Certified Sample Information:

Time of Sample: 1255

Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba-U52

Serial No. Unit: 30M 16247

Serial No. Handheld: NBYKK SRZ

Calibration Date/Time: 12/10/24 @ 1110

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-120
Sample I.D.: MW-120-2024/210

Project: Patchogue
Personnel: M. Moroney, M. Seigel

Date: 12/10/24 Time: 1312
Weather: Rain Air Temp.: 50

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: _____ 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: 2.5 Elapsed Time: 36 Volume Pumped: 3.2 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: 12/10/24



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: <u>Pxchge</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/10/24</u>
Personnel: <u>MHM, MKS</u>	Well ID: <u>MW-120</u>
Purge/Sample Depth: <u>~21'</u>	Sample ID: <u>MW-120-20241210</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1312	6.57	12.71	0.438	3.52	5.8	73	1.48	325	
1315	5.78	13.25	0.458	0.89	22.2	151	1.48	325	
1318	5.60	13.37	0.455	0.55	35.6	171	1.48	325	
1321	5.52	13.39	0.454	0.98	27.5	180	1.48	325	
1324	5.47	13.41	0.453	1.20	20.7	192	1.48	325	
1327	5.41	13.44	0.454	0.94	11.4	10.1	1.48	325	
1330	5.41	13.45	0.455	0.40	9.4	205	1.48	325	
1333	5.38	13.45	0.456	0.58	4.3	215	1.48	325	
1336	5.38	13.47	0.457	0.22	2.4	221	1.48	325	
1339	5.43	13.45	0.458	0.33	0.9	226	1.48	325	
1342	5.41	13.45	0.458	0.35	1.0	237	1.48	325	
1345	5.38	13.45	0.458	0.31	0.4	238	1.48	325	
1348	collected MW-120-20241210								

Certified Sample Information:
 Time of Sample: 1348 Analyst Signature: [Signature]

Instrument Data:
 Manufacturer/Model: Horiba U-52
 Serial No. Unit: JDM16249 Serial No. Handheld: NBYKKSR2
 Calibration Date/Time: 12/10/24 @ 1110

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-115-20241210 (M)
Sample I.D.: MW-115-20241210

Project: Patchogue
Personnel: M. Moroney M. Seigler

Date: 12/10/24 Time: 1406
Weather: Rain Air Temp.: 48

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2 1/2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: _____ 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: 330 Elapsed Time: 48 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: 12/10/24



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

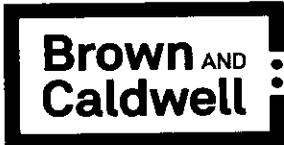
Project Name: <u>Patchogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/10/24</u>
Personnel: <u>MHM, MKS</u>	Well ID: <u>MW-115</u>
Purge/Sample Depth: <u>~11.5'</u>	Sample ID: <u>MW-115-20241210</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1406	6.37	12.72	0.946	7.65	77.8	-14	0.98	330	
1409	6.57	12.74	0.968	6.75	77.0	-40	0.98	330	
1412	6.73	12.87	0.969	6.59	59.4	-57	0.98	330	
1415	6.76	12.88	0.967	6.50	51.0	-67	0.98	330	
1418	6.84	12.88	0.966	6.31	45.7	-72	0.98	330	
1421	6.85	12.90	0.966	6.29	39.3	-73	0.98	330	
1424	6.89	12.92	0.967	6.17	35.7	-78	0.98	330	
1427	6.85	12.93	0.967	6.12	34.6	-83	0.98	330	
1430	6.90	12.97	0.967	6.02	30.3	-82	0.98	330	
1433	6.92	12.96	0.967	5.87	28.4	-86	0.98	330	
1437	6.91	12.96	0.969	5.88	27.4	-86	0.98	330	
1439	6.95	12.98	0.970	5.64	23.0	-85	0.98	330	
1442	6.93	12.97	0.972	5.62	22.1	-89	0.98	330	
1445	6.88	12.99	0.972	5.47	21.3	-91	0.98	330	
1448	ADJ collected MW-115-20241210								

Certified Sample Information:
 Time of Sample: 1448 Analyst Signature: [Signature]

Instrument Data:
 Manufacturer/Model: Horiba-U52
 Serial No. Unit: 30M16249 Serial No. Handheld: NBYKKSR2
 Calibration Date/Time: 12/10/24 @ 1110

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-1
Sample I.D.: MW-1-20241211 (if different from well no.)

Project: Patchogue
Personnel: A. Mearns, M. Seigler

Date: 12/11/24 Time: 0207
Weather: SN Air Temp.: 40

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2 1/2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO: Static Water Level: 5.81 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: 200ml/min Elapsed Time: 51 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: 12/11/24

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: <u>Patchogue</u>	Project Number: <u>1846</u>
Client: <u>National Grid</u>	Date: <u>12/11/24</u>
Personnel: <u>MHM, MKS</u>	Well ID: <u>MW-1</u>
Purge/Sample Depth: <u>-12'</u>	Sample ID: <u>MW-1-20241211</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond ()	DO (mg/L)	Turbidity (NTU)				
0909	5.93	13.97	1.06	2.48	16.3	51	5.81	200	
0912	6.04	13.92	1.05	1.68	15.6	2	5.81		
0915	6.51	13.83	1.05	1.89	32.8	-11	5.81		
0918	6.69	13.75	1.05	2.12	48.2	-23	5.81		
0921	6.73	14.12	1.04	1.37	138	-35	5.81		
0924	6.83	14.44	1.04	0.98	209	-44	5.81		
0927	6.77	14.67	1.09	0.62	129	-45	5.81		
0930	6.81	14.73	1.10	2.25	91.4	-50	5.81		
0933	6.80	14.78	1.11	0.99	80.0	-51	5.81		
0936	6.78	14.82	1.13	0.44	63.6	-52	5.81		
0939	6.81	14.87	1.14	0.48	51.2	-53	5.81		
0942	6.85	14.88	1.15	0.52	45.5	-58	5.81		
0945	6.85	14.89	1.15	0.45	35.3	-59	5.81		
0948	6.88	14.89	1.16	0.48	34.1	-61	5.81		
0951	6.87	14.91	1.17	0.41	29.9	-63	5.81		
0954	6.87	14.95	1.16	0.46	28.0	-64	5.81		
0957	6.93	14.97	1.16	0.43	29.0	-64	5.81		
1600	Collected								

Certified Sample Information:

Time of Sample: 1600

Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba-US2

Serial No. Unit: 30M16249

Calibration Date/Time: 12/11/24 0905

Serial No. Handheld: NBYKK5R2

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-75
Sample I.D.: MW-75-20241211 (different from well no.)

Project: Patchogue
Personnel: M. McCree, M. Saylor

Date: 12/11/24 Time: 10:17
Weather: sun Air Temp.: 42

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO: Static Water Level: 450 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: 250 400 mL/min Elapsed Time: 36 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: _____

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

Signature: [Signature] Date: 12/11/24



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MH-105
Sample I.D.: MW-105-2024(21)

Project: Patchogue
Personnel: M. MURPHY, M. SEYDOR

Date: 12/11/24 Time: 1109
Weather: Rain Air Temp.: 43

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: 0.92 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: 300 mL/min Elapsed Time: 57 min Volume Pumped: 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: [Signature]

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

Signature: [Signature]

Date: 12/11/24

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: <u>Patchogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/11/24</u>
Personnel: <u>MHM, MRS</u>	Well ID: <u>MW-75 105 (MS)</u>
Purge/Sample Depth: <u>~ 14'</u>	Sample ID: <u>MW-105-2024 1211</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1109	6.87	14.62	0.550	1.21	398	-64	0.92	300	
1112	6.68	15.09	0.561	0.35	625	-67	0.92		
1115	6.70	15.14	0.562	0.79	575	-70	0.92		
1118	6.77	15.21	0.565	0.31	937	-76	0.92		
1121	6.80	15.27	0.570	0.32	36	-77	0.92		
1124	6.82	15.30	0.574	0.32	250	-83	0.92		
1127	6.84	15.33	0.578	0.32	202	-88	0.92		
1130	6.85	15.38	0.602	0.22	144	-86	0.92		
1133	6.82	15.43	0.602	0.31	948	-89	0.92		
1136	6.82	15.44	0.604	0.29	850	-86	0.92		
1139	6.81	15.48	0.602	0.29	61.4	-86	0.92		
1142	6.81	15.50	0.604	0.30	48.5	-87	0.92		
1145	6.76	15.52	0.608	0.27	37.7	-89	0.92		
1148	6.79	15.56	0.614	0.28	31.0	-86	0.92		
1151	6.78	15.56	0.619	0.33	26.8	-89	0.92		
1154	6.80	15.55	0.622	0.32	22.4	-89	0.92		
1157	6.78	15.54	0.686	0.31	18.8	-88	0.92		
1200	6.79	15.55	0.627	0.32	17.3	-88	0.92		
1203	6.80	15.55	0.629	0.38	15.2	-90	0.92		
1206	collect	MW-105-2024/12/11							

Certified Sample Information:
 Time of Sample: 1206 Analyst Signature: [Signature]

Instrument Data:
 Manufacturer/Model: Horiba-U52
 Serial No. Unit: 50M16249 Serial No. Handheld: NBYKK5R2
 Calibration Date/Time: 12/11/24 0905

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-145
Sample I.D.: MW-145-20241211 (if different from well no.)

Project: Patchogue
Personnel: M. Maroney, M. Segler

Date: 12/11/24 Time: 1233
Weather: Rain Air Temp.: 50

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO: Static Water Level: 0.98 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 Polyethylene
 PVC Polypropylene
 Other: _____ Other: _____
Tubing/Rope: Teflon® Polyethylene
 Polypropylene Other: _____
Pumping Rate: 300 ml/min Elapsed Time: 36 Volume Pumped: 3.5 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 Polyethylene
 Polypropylene
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: 12/11/2024



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-
Sample I.D.: MW- -20241211

Project: Patchogue
Personnel: M. Murray, M. Seigel

Date: 12/11/24 Time: _____
Weather: Rain Air Temp.: 55

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
 Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
 DEPTH TO : Static Water Level: _____ 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: 250 Elapsed Time: 39 Volume Pumped: 3.5 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: DUP-20241211
 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: 12/11/2024



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: <u>Patchogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/11/24</u>
Personnel: <u>MHM, MKS</u>	Well ID: <u>MW-135</u>
Purge/Sample Depth: <u>~7'</u>	Sample ID: <u>MW-135-20241211</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments	
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)					
1429	7.17	10.79	0.628	10.67	86.2	-89	1.38	250	Heavy rain during sampling - mild gas-like odor	
1432	7.40	13.27	0.659	10.27	92.3	-138	1.38			
1435	7.51	13.32	0.657	10.07	52.5	-165	1.38			
1438	7.57	13.46	0.652	9.38	62.7	-186	1.38			
1441	7.65	13.51	0.649	10.09	54.2	-196	1.38			
1444	7.69	13.54	0.648	9.67	46.3	-204	1.38			
1447	7.69	13.60	0.647	10.01	33.2	-216	1.38			
1450	7.76	13.62	0.647	9.64	34.6	-217	1.38			
1453	7.78	13.65	0.648	8.80	26.9	-221	1.38			
1456	7.83	13.68	0.645	8.71	22.3	-226	1.38			
1459	7.82	13.73	0.645	8.91	21.5	-230	1.38			
1502	7.77	13.75	0.645	8.73	17.1	-235	1.38			
1505	7.81	13.75	0.646	8.85	15.8	-237	1.38			
1508	Collect									

Certified Sample Information:
 Time of Sample: 1508 Analyst Signature: [Signature]

Instrument Data:
 Manufacturer/Model: Horiba U-52
 Serial No. Unit: 30M16249 Serial No. Handheld: NBYKK5R2
 Calibration Date/Time: 12/11/24 0905

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-3
Sample I.D.: MW-3-2024/211

Project: Patchogue
Personnel: M. Moroney, M. Seigler

Date: 12/11/24 Time: _____
Weather: Rain Air Temp.: 50

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: 1.67 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: 30 mL/min Elapsed Time: 42 min Volume Pumped: 9 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: 12/11/24

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: <u>Patchogue</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/11/24</u>
Personnel: <u>MJM, MKS</u>	Well ID: <u>MW-3</u>
Purge/Sample Depth: _____	Sample ID: <u>MW-3-2024R11</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1523	1325 9.84	13.84	0.722	3.23	8.6	-280	15.167	300	
1526	1326 10.15	13.82	0.750	1.25	4.8	-291	1.67		
1529	1329 10.55	13.81	0.744	0.50	3.4	-309	1.67		
1532	1332 10.91	13.84	0.767	0.41	2.0	-316	1.67		
1535	1335 10.94	13.83	0.776	0.65	1.8	-311	1.67		
1538	1338 10.95	13.84	0.765	0.45	1.4	-315	1.67		
1541	1341 10.98	13.86	0.763	0.57	1.1	-316	1.67		
1544	1344 11.06	13.85	0.778	0.77	0.7	-318	1.67		
1547	1347 11.03	13.85	0.781	0.55	0.7	-316	1.67		
1550	1350 11.06	13.85	0.778	0.49	0.6	-312	1.67		
1553	1353 11.02	13.85	0.775	0.48	0.6	-310	1.67		
1556	1356 11.04	13.84	0.770	0.52	0.7	-304	1.67		
1559	1359 11.05	13.83	0.781	0.41	0.3	-306	1.67		
1602	1602 11.06	13.83	0.773	0.50	0.5	-302	1.67		
1605	collected MW-3-2024R11								

Certified Sample Information:

Time of Sample: 1605

Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba-U52

Serial No. Unit: 30M16249

Calibration Date/Time: 12/11/24 0905

Serial No. Handheld: NBYKK5R2

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.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MN-130
Sample I.D.: MW-130-20241212

Project: Parkway
Personnel: M. Maroney, M. Segler

Date: 12/12/24 Time: 0709
Weather: clear Air Temp.: 50

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: 1.03 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: 2.75 mL/min Elapsed Time: 33 Volume Pumped: 3.5 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: 12/12/24



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-45
Sample I.D.: MW-45-20241212 (if different from well no.)

Project: Patchogue
Personnel: M. Mironey, M. Segler

Date: 12/12/24 Time: 1003
Weather: Clear Air Temp.: 50

WELL DATA:

Casing Diameter: 6" Stainless Steel Steel PVC Teflon® Other: _____
Intake Diameter: 2" Stainless Steel Galv. Steel PVC Teflon® Open rock
DEPTH TO : Static Water Level: 4.30 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: 300 ml/min Elapsed Time: 45 min Volume Pumped: 3.5 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: 12/12/24



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: <u>Petchoque</u>	Project Number: <u>196466</u>
Client: <u>National Grid</u>	Date: <u>12/12/24</u>
Personnel: <u>MHM, MKS</u>	Well ID: <u>MW-45</u>
Purge/Sample Depth: <u>~7'</u>	Sample ID: <u>MW-45-20241212</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond ()	DO (mg/L)	Turbidity (NTU)				
1003	5.72	6.65	0.466	2.35	983	108	4.50	3W ↓	
1006	5.83	6.94	0.471	0.89	2100.0	81	4.50		Turbidity out of range
1009	5.81	7.14	0.481	0.61	"0.0"	69	4.50		Turbidity out of range
1012	5.90	7.14	0.486	0.61	834	52	4.50		
1015	5.96	7.35	0.487	0.56	439	39	4.50		
1018	5.99	7.46	0.491	0.50	296	23	4.50		
1021	5.99	7.44	0.494	0.49	206	8	4.50		
1024	6.04	7.47	0.497	0.45	143	-7	4.50		
1027	6.05	7.61	0.497	0.41	125	-16	4.50		
1030	6.05	7.78	0.498	0.70	90.3	-22	4.50		
1033	6.05	7.84	0.499	1.00	80.2	-31	4.50		
1036	6.12	7.85	0.499	0.55	64.9	-33	4.50		
1039	6.14	7.73	0.501	0.50	57.1	-42	4.50		
1042	6.08	7.81	0.502	0.60	50.9	-47	4.50		
1045	6.06	7.95	0.502	0.60	42.7	-56	4.50		
1048	Collected MW-45-20241212								

Certified Sample Information:
 Time of Sample: 1048 Analyst Signature: [Signature]

Instrument Data:
 Manufacturer/Model: Horiba-U52
 Serial No. Unit: 30M16249 Serial No. Handheld: NBYKK5R2
 Calibration Date/Time: 12/12/24 0850

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

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Mr. James L Marolda
Brown and Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey, New Jersey 07446
Generated 1/9/2025 11:41:47 AM Revision 1

JOB DESCRIPTION

Patchogue, NY

JOB NUMBER

410-200485-1

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



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

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1/9/2025 11:41:47 AM
Revision 1

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.

Barb Weyandt



Table of Contents

Cover Page	1
Table of Contents	4
Definitions/Glossary	5
Case Narrative	6
Detection Summary	7
Client Sample Results	10
Surrogate Summary	22
QC Sample Results	24
QC Association Summary	29
Lab Chronicle	31
Certification Summary	34
Method Summary	35
Sample Summary	36
Chain of Custody	37
Receipt Checklists	41

Definitions/Glossary

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

Job ID: 410-200485-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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
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

Case Narrative

Client: Brown and Caldwell
Project: Patchogue, NY

Job ID: 410-200485-1

Job ID: 410-200485-1

Eurofins Lancaster Laboratories Environment

**Job Narrative
410-200485-1**

REVISION

The report being provided is a revision of the original report sent on 12/19/2024. The report (revision 1) is being revised due to adding the missing QC (surrogates, internal standards, etc.) from the SVOC 8270 analysis.

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 12/12/2024 7:45 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 0.8°C and 2.4°C.

Receipt Exceptions

The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB-20241212 (410-200485-15).

The laboratory received 4 total containers, while the COC lists 2 total containers.

GC/MS VOA

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) analyzed in batch 460-1012748 was outside the method criteria for the following analyte(s): Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

No Detections.

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

No Detections.

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.010	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.4		1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	1.1		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthene	0.24		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.75		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	3.1		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.70		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.24		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.45		0.050	0.047	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.27		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.13		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.70		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.055		0.050	0.020	ug/L	1		8270E SIM	Total/NA
Fluoranthene	4.4		0.050	0.023	ug/L	1		8270E SIM	Total/NA
Fluorene	8.9		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.21		0.050	0.020	ug/L	1		8270E SIM	Total/NA
Naphthalene	6.1		0.070	0.068	ug/L	1		8270E SIM	Total/NA
Phenanthrene	1.3		0.070	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	6.5		0.050	0.021	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

No Detections.

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.18		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Anthracene	0.035	J	0.050	0.025	ug/L	1		8270E SIM	Total/NA
Fluorene	0.037	J	0.050	0.012	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

No Detections.

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.15		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Fluorene	0.030	J	0.050	0.012	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.079		0.050	0.022	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Detection Summary

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

Job ID: 410-200485-1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.5		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.16		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	0.24		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.16		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.025	J	0.050	0.024	ug/L	1		8270E SIM	Total/NA
Chrysene	0.12		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.91		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	0.83		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	2.0		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.68		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.1		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.5		1.0	0.40	ug/L	1		8260D	Total/NA
Toluene	0.72	J	1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	1.1		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthene	29		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	3.2		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	1.5		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.34		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Chrysene	0.21		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	9.2		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	7.6		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	50		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	13		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	8.8		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.8		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.18		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	0.22		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.16		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.027	J	0.050	0.024	ug/L	1		8270E SIM	Total/NA
Chrysene	0.12		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.97		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	0.88		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	2.2		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.71		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.1		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

No Detections.

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	10		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.18		0.050	0.015	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Euofins Lancaster Laboratories Environment Testing, LLC

Detection Summary

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

Job ID: 410-200485-1

Client Sample ID: MW-4S-20241212 (Continued)

Lab Sample ID: 410-200485-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	0.10		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.6		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	1.6		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.035	J	0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.7		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.59	J	1.0	0.30	ug/L	1		8260D	Total/NA

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

Date Collected: 12/10/24 11:57

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 00:37	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 00:37	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 00:37	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 00:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 00:37	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/17/24 00:37	1
Dibromofluoromethane (Surr)	96		80 - 120					12/17/24 00:37	1
Toluene-d8 (Surr)	105		80 - 120					12/17/24 00:37	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		12/17/24 15:20	12/18/24 12:59	1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 12:59	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 12:59	1
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 12:59	1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 12:59	1
Naphthalene	ND		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 12:59	1
Phenanthrene	ND		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 12:59	1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 12:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 136				12/17/24 15:20	12/18/24 12:59	1
1-Methylnaphthalene-d10 (Surr)	91		20 - 144				12/17/24 15:20	12/18/24 12:59	1
Fluoranthene-d10 (Surr)	76		29 - 153				12/17/24 15:20	12/18/24 12:59	1

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 00:59	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 00:59	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 00:59	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 00:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 00:59	1
4-Bromofluorobenzene (Surr)	96		80 - 120					12/17/24 00:59	1
Dibromofluoromethane (Surr)	97		80 - 120					12/17/24 00:59	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 00:59	1

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Acenaphthylene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Anthracene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[a]anthracene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[b]fluoranthene	ND		0.051	0.048	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Chrysene	ND		0.051	0.025	ug/L		12/17/24 15:20	12/18/24 13:20	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		12/17/24 15:20	12/18/24 13:20	1
Fluoranthene	ND		0.051	0.023	ug/L		12/17/24 15:20	12/18/24 13:20	1
Fluorene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		12/17/24 15:20	12/18/24 13:20	1
Naphthalene	ND		0.071	0.069	ug/L		12/17/24 15:20	12/18/24 13:20	1
Phenanthrene	ND		0.071	0.030	ug/L		12/17/24 15:20	12/18/24 13:20	1
Pyrene	ND		0.051	0.021	ug/L		12/17/24 15:20	12/18/24 13:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	57		10 - 136				12/17/24 15:20	12/18/24 13:20	1
1-Methylnaphthalene-d10 (Surr)	98		20 - 144				12/17/24 15:20	12/18/24 13:20	1
Fluoranthene-d10 (Surr)	87		29 - 153				12/17/24 15:20	12/18/24 13:20	1

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 01:22	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 01:22	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 01:22	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 01:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					12/17/24 01:22	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 01:22	1
Dibromofluoromethane (Surr)	97		80 - 120					12/17/24 01:22	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 01:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[a]anthracene	0.010	J	0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 13:40	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 13:40	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 13:40	1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 13:40	1
Naphthalene	ND		0.071	0.069	ug/L		12/17/24 15:20	12/18/24 13:40	1
Phenanthrene	ND		0.071	0.030	ug/L		12/17/24 15:20	12/18/24 13:40	1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 13:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44		10 - 136	12/17/24 15:20	12/18/24 13:40	1
1-Methylnaphthalene-d10 (Surr)	86		20 - 144	12/17/24 15:20	12/18/24 13:40	1
Fluoranthene-d10 (Surr)	78		29 - 153	12/17/24 15:20	12/18/24 13:40	1

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.4		1.0	0.30	ug/L			12/17/24 01:44	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 01:44	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 01:44	1
Xylenes, Total	1.1		1.0	0.40	ug/L			12/17/24 01:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 01:44	1
4-Bromofluorobenzene (Surr)	96		80 - 120		12/17/24 01:44	1
Dibromofluoromethane (Surr)	98		80 - 120		12/17/24 01:44	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 01:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.24		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Acenaphthylene	0.75		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Anthracene	3.1		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[a]anthracene	0.70		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[a]pyrene	0.24		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[b]fluoranthene	0.45		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[g,h,i]perylene	0.27		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[k]fluoranthene	0.13		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Chrysene	0.70		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 14:01	1
Dibenz(a,h)anthracene	0.055		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 14:01	1
Fluoranthene	4.4		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 14:01	1
Fluorene	8.9		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Indeno[1,2,3-cd]pyrene	0.21		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 14:01	1
Naphthalene	6.1		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 14:01	1
Phenanthrene	1.3		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 14:01	1
Pyrene	6.5		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	83		10 - 136	12/17/24 15:20	12/18/24 14:01	1
1-Methylnaphthalene-d10 (Surr)	86		20 - 144	12/17/24 15:20	12/18/24 14:01	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Fluoranthene-d10 (Surr)	87		29 - 153	12/17/24 15:20	12/18/24 14:01	1

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

Date Collected: 12/11/24 10:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:06	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:06	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:06	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/17/24 02:06	1
4-Bromofluorobenzene (Surr)	95		80 - 120		12/17/24 02:06	1
Dibromofluoromethane (Surr)	98		80 - 120		12/17/24 02:06	1
Toluene-d8 (Surr)	106		80 - 120		12/17/24 02:06	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:30	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:30	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:30	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:30	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:30	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:30	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:30	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:30	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:30	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:30	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		10 - 150	12/18/24 17:42	12/19/24 00:30	1
Nitrobenzene-d5	82		55 - 150	12/18/24 17:42	12/19/24 00:30	1
2-Fluorobiphenyl	86		10 - 150	12/18/24 17:42	12/19/24 00:30	1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:29	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:29	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:29	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 02:29	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 02:29	1
Dibromofluoromethane (Surr)	98		80 - 120					12/17/24 02:29	1
Toluene-d8 (Surr)	105		80 - 120					12/17/24 02:29	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.18		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:51	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:51	1
Anthracene	0.035	J	0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:51	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:51	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:51	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:51	1
Fluorene	0.037	J	0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:51	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:51	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:51	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:51	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		10 - 150				12/18/24 17:42	12/19/24 00:51	1
Nitrobenzene-d5	88		55 - 150				12/18/24 17:42	12/19/24 00:51	1
2-Fluorobiphenyl	89		10 - 150				12/18/24 17:42	12/19/24 00:51	1

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 22:23	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 22:23	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 22:23	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 22:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/16/24 22:23	1
4-Bromofluorobenzene (Surr)	92		80 - 120					12/16/24 22:23	1
Dibromofluoromethane (Surr)	98		80 - 120					12/16/24 22:23	1
Toluene-d8 (Surr)	106		80 - 120					12/16/24 22:23	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:12	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:12	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:12	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:12	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:12	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:12	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:12	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:12	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:12	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:12	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		10 - 150	12/18/24 17:42	12/19/24 01:12	1
Nitrobenzene-d5	88		55 - 150	12/18/24 17:42	12/19/24 01:12	1
2-Fluorobiphenyl	90		10 - 150	12/18/24 17:42	12/19/24 01:12	1

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:51	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:51	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:51	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 02:51	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/17/24 02:51	1
Dibromofluoromethane (Surr)	100		80 - 120		12/17/24 02:51	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 02:51	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.15		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:33	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:33	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:33	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:33	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:33	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:33	1
Fluorene	0.030	J	0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:33	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:33	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:33	1
Phenanthrene	0.079		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:33	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		10 - 150				12/18/24 17:42	12/19/24 01:33	1
Nitrobenzene-d5	90		55 - 150				12/18/24 17:42	12/19/24 01:33	1
2-Fluorobiphenyl	93		10 - 150				12/18/24 17:42	12/19/24 01:33	1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:13	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 03:13	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 03:13	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 03:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120					12/17/24 03:13	1
4-Bromofluorobenzene (Surr)	93		80 - 120					12/17/24 03:13	1
Dibromofluoromethane (Surr)	99		80 - 120					12/17/24 03:13	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 03:13	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3.5		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:54	1
Acenaphthylene	0.16		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:54	1
Anthracene	0.24		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[a]anthracene	0.16		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[b]fluoranthene	0.025	J	0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:54	1
Chrysene	0.12		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:54	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:54	1
Fluoranthene	0.91		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:54	1
Fluorene	0.83		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:54	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:54	1
Naphthalene	2.0		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:54	1
Phenanthrene	0.68		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:54	1
Pyrene	1.1		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:54	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		10 - 150	12/18/24 17:42	12/19/24 01:54	1
Nitrobenzene-d5	84		55 - 150	12/18/24 17:42	12/19/24 01:54	1
2-Fluorobiphenyl	83		10 - 150	12/18/24 17:42	12/19/24 01:54	1

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Date Collected: 12/11/24 16:05

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:36	1
Ethylbenzene	1.5		1.0	0.40	ug/L			12/17/24 03:36	1
Toluene	0.72	J	1.0	0.30	ug/L			12/17/24 03:36	1
Xylenes, Total	1.1		1.0	0.40	ug/L			12/17/24 03:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 03:36	1
4-Bromofluorobenzene (Surr)	97		80 - 120		12/17/24 03:36	1
Dibromofluoromethane (Surr)	99		80 - 120		12/17/24 03:36	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 03:36	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	29		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 04:20	1
Acenaphthylene	3.2		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 04:20	1
Anthracene	1.5		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[a]anthracene	0.34		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 04:20	1
Chrysene	0.21		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 04:20	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 04:20	1
Fluoranthene	9.2		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 04:20	1
Fluorene	7.6		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 04:20	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 04:20	1
Naphthalene	50		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 04:20	1
Phenanthrene	13		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 04:20	1
Pyrene	8.8		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 04:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		10 - 150	12/18/24 17:42	12/19/24 04:20	1
Nitrobenzene-d5	78		55 - 150	12/18/24 17:42	12/19/24 04:20	1
2-Fluorobiphenyl	80		10 - 150	12/18/24 17:42	12/19/24 04:20	1

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:58	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 03:58	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 03:58	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 03:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					12/17/24 03:58	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/17/24 03:58	1
Dibromofluoromethane (Surr)	96		80 - 120					12/17/24 03:58	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 03:58	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3.8		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:14	1
Acenaphthylene	0.18		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:14	1
Anthracene	0.22		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[a]anthracene	0.16		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[b]fluoranthene	0.027 J		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:14	1
Chrysene	0.12		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:14	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:14	1
Fluoranthene	0.97		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:14	1
Fluorene	0.88		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:14	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:14	1
Naphthalene	2.2		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:14	1
Phenanthrene	0.71		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:14	1
Pyrene	1.1		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150				12/18/24 17:42	12/19/24 02:14	1
Nitrobenzene-d5	90		55 - 150				12/18/24 17:42	12/19/24 02:14	1
2-Fluorobiphenyl	89		10 - 150				12/18/24 17:42	12/19/24 02:14	1

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 04:20	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 04:20	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 04:20	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 04:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					12/17/24 04:20	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 04:20	1
Dibromofluoromethane (Surr)	98		80 - 120					12/17/24 04:20	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 120		12/17/24 04:20	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:35	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:35	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:35	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:35	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:35	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:35	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:35	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:35	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:35	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:35	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150	12/18/24 17:42	12/19/24 02:35	1
Nitrobenzene-d5	97		55 - 150	12/18/24 17:42	12/19/24 02:35	1
2-Fluorobiphenyl	97		10 - 150	12/18/24 17:42	12/19/24 02:35	1

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 04:43	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 04:43	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 04:43	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 04:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/17/24 04:43	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/17/24 04:43	1
Dibromofluoromethane (Surr)	97		80 - 120		12/17/24 04:43	1
Toluene-d8 (Surr)	107		80 - 120		12/17/24 04:43	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	10		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:56	1
Acenaphthylene	0.18		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:56	1
Anthracene	0.10		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:56	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:56	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:56	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:56	1
Fluoranthene	1.6		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:56	1
Fluorene	1.6		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:56	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:56	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:56	1
Phenanthrene	0.035	J	0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:56	1
Pyrene	1.7		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		10 - 150				12/18/24 17:42	12/19/24 02:56	1
Nitrobenzene-d5	96		55 - 150				12/18/24 17:42	12/19/24 02:56	1
2-Fluorobiphenyl	98		10 - 150				12/18/24 17:42	12/19/24 02:56	1

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 21:38	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 21:38	1
Toluene	0.59	J	1.0	0.30	ug/L			12/16/24 21:38	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 21:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					12/16/24 21:38	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/16/24 21:38	1
Dibromofluoromethane (Surr)	98		80 - 120					12/16/24 21:38	1
Toluene-d8 (Surr)	107		80 - 120					12/16/24 21:38	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 03:17	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 03:17	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 03:17	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 03:17	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 03:17	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 03:17	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 03:17	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 03:17	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 03:17	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 03:17	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 03:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	93		10 - 150	12/18/24 17:42	12/19/24 03:17	1
Nitrobenzene-d5	95		55 - 150	12/18/24 17:42	12/19/24 03:17	1
2-Fluorobiphenyl	96		10 - 150	12/18/24 17:42	12/19/24 03:17	1

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

Date Collected: 12/12/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 22:00	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 22:00	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 22:00	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 22:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/16/24 22:00	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/16/24 22:00	1
Dibromofluoromethane (Surr)	99		80 - 120		12/16/24 22:00	1
Toluene-d8 (Surr)	105		80 - 120		12/16/24 22:00	1

Surrogate Summary

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

Job ID: 410-200485-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-200485-1	MW-8S-20241210	98	94	96	105
410-200485-2	MW-12S-20241210	98	96	97	104
410-200485-3	MW-12D-20241210	99	95	97	104
410-200485-4	MW-11S-20241210	102	96	98	105
410-200485-5	MW-1-20241211	100	95	98	106
410-200485-6	MW-7S-20241211	98	95	98	105
410-200485-7	MW-10S-20241211	98	92	98	106
410-200485-7 MS	MW-10S-20241211	99	95	96	106
410-200485-7 MSD	MW-10S-20241211	106	96	97	108
410-200485-8	MW-14S-20241211	102	94	100	105
410-200485-9	MW-13S-20241211	102	93	99	104
410-200485-10	MW-3-20241211	102	97	99	105
410-200485-11	DUP-20241211	95	94	96	104
410-200485-12	MW-13D-20241212	101	95	98	105
410-200485-13	MW-4S-20241212	100	94	97	107
410-200485-14	FB-20241212	101	94	98	107
410-200485-15	TB-20241212	100	94	99	105
LCS 410-586685/4	Lab Control Sample	100	94	96	109
LCS 410-586685/5	Lab Control Sample Dup	99	95	96	109
MB 410-586685/7	Method Blank	95	93	97	108

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-136)	MNPd10 (20-144)	FLN10 (29-153)
410-200485-1	MW-8S-20241210	82	91	76
410-200485-2	MW-12S-20241210	57	98	87
410-200485-3	MW-12D-20241210	44	86	78
410-200485-4	MW-11S-20241210	83	86	87
MB 410-587243/1-A	Method Blank	77	79	73

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		TBP (10-150)	NBZ (55-150)	FBP (10-150)
410-200485-5	MW-1-20241211	85	82	86

Eurofins Lancaster Laboratories Environment Testing, LLC

Surrogate Summary

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

Job ID: 410-200485-1

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	TBP	NBZ	FBP
		(10-150)	(55-150)	(10-150)
410-200485-6	MW-7S-20241211	87	88	89
410-200485-7	MW-10S-20241211	86	88	90
410-200485-7 MS	MW-10S-20241211	98	95	100
410-200485-7 MSD	MW-10S-20241211	95	98	102
410-200485-8	MW-14S-20241211	87	90	93
410-200485-9	MW-13S-20241211	88	84	83
410-200485-10	MW-3-20241211	88	78	80
410-200485-11	DUP-20241211	89	90	89
410-200485-12	MW-13D-20241212	89	97	97
410-200485-13	MW-4S-20241212	90	96	98
410-200485-14	FB-20241212	93	95	96
LCS 460-1012723/2-A	Lab Control Sample	93	85	87
LCSD 460-1012723/3-A	Lab Control Sample Dup	95	84	92
MB 460-1012723/1-A	Method Blank	89	87	91

Surrogate Legend

TBP = 2,4,6-Tribromophenol

NBZ = Nitrobenzene-d5

FBP = 2-Fluorobiphenyl

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: MB 410-586685/7
Matrix: Water
Analysis Batch: 586685

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			12/16/24 21:13	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 21:13	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 21:13	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 21:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		12/16/24 21:13	1
4-Bromofluorobenzene (Surr)	93		80 - 120		12/16/24 21:13	1
Dibromofluoromethane (Surr)	97		80 - 120		12/16/24 21:13	1
Toluene-d8 (Surr)	108		80 - 120		12/16/24 21:13	1

Lab Sample ID: LCS 410-586685/4
Matrix: Water
Analysis Batch: 586685

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	19.0		ug/L		95	80 - 120
Ethylbenzene	20.0	19.6		ug/L		98	80 - 120
Toluene	20.0	20.9		ug/L		104	80 - 120
Xylenes, Total	60.0	58.6		ug/L		98	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	109		80 - 120

Lab Sample ID: LCSD 410-586685/5
Matrix: Water
Analysis Batch: 586685

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	18.5		ug/L		93	80 - 120	3	30
Ethylbenzene	20.0	19.8		ug/L		99	80 - 120	1	30
Toluene	20.0	20.5		ug/L		103	80 - 120	2	30
Xylenes, Total	60.0	58.6		ug/L		98	80 - 120	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	109		80 - 120

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: 410-200485-7 MS
Matrix: Water
Analysis Batch: 586685

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	22.0		ug/L		110	81 - 120
Ethylbenzene	ND		20.0	22.8		ug/L		114	78 - 120
Toluene	ND		20.0	23.8		ug/L		119	79 - 120
Xylenes, Total	ND		60.0	66.8		ug/L		111	78 - 120

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: 410-200485-7 MSD
Matrix: Water
Analysis Batch: 586685

Client Sample ID: MW-10S-20241211
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	22.0		ug/L		110	81 - 120	0	30
Ethylbenzene	ND		20.0	23.0		ug/L		115	78 - 120	1	30
Toluene	ND		20.0	23.9		ug/L		120	79 - 120	0	30
Xylenes, Total	ND		60.0	66.8		ug/L		111	78 - 120	0	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	106		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	108		80 - 120

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

Lab Sample ID: MB 460-1012723/1-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:09	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:09	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:09	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:09	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:09	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:09	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:09	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:09	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:09	1

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: MB 460-1012723/1-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:09	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150	12/18/24 17:42	12/19/24 00:09	1
Nitrobenzene-d5	87		55 - 150	12/18/24 17:42	12/19/24 00:09	1
2-Fluorobiphenyl	91		10 - 150	12/18/24 17:42	12/19/24 00:09	1

Lab Sample ID: LCS 460-1012723/2-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	2.00	1.43		ug/L		71	57 - 138
Acenaphthylene	2.00	1.41		ug/L		71	36 - 150
Anthracene	2.00	1.51		ug/L		76	40 - 150
Benzo[a]anthracene	2.00	1.47		ug/L		73	56 - 150
Benzo[a]pyrene	2.00	1.39		ug/L		69	48 - 150
Benzo[b]fluoranthene	2.00	1.41		ug/L		71	39 - 150
Benzo[g,h,i]perylene	2.00	1.43		ug/L		72	13 - 150
Benzo[k]fluoranthene	2.00	1.47		ug/L		74	38 - 150
Chrysene	2.00	1.41		ug/L		70	61 - 146
Dibenz(a,h)anthracene	2.00	1.28		ug/L		64	10 - 150
Fluoranthene	2.00	1.52		ug/L		76	45 - 150
Fluorene	2.00	1.48		ug/L		74	40 - 150
Indeno[1,2,3-cd]pyrene	2.00	1.47		ug/L		74	10 - 150
Naphthalene	2.00	1.48		ug/L		74	61 - 134
Phenanthrene	2.00	1.47		ug/L		73	27 - 150
Pyrene	2.00	1.30		ug/L		65	57 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	93		10 - 150
Nitrobenzene-d5	85		55 - 150
2-Fluorobiphenyl	87		10 - 150

Lab Sample ID: LCSD 460-1012723/3-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	2.00	1.42		ug/L		71	57 - 138	1	30
Acenaphthylene	2.00	1.43		ug/L		72	36 - 150	1	30
Anthracene	2.00	1.55		ug/L		77	40 - 150	2	30
Benzo[a]anthracene	2.00	1.45		ug/L		73	56 - 150	1	30
Benzo[a]pyrene	2.00	1.40		ug/L		70	48 - 150	1	30
Benzo[b]fluoranthene	2.00	1.44		ug/L		72	39 - 150	2	30
Benzo[g,h,i]perylene	2.00	1.44		ug/L		72	13 - 150	1	30
Benzo[k]fluoranthene	2.00	1.37		ug/L		68	38 - 150	7	30

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: LCSD 460-1012723/3-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Chrysene	2.00	1.38		ug/L		69	61 - 146	2	30	
Dibenz(a,h)anthracene	2.00	1.28		ug/L		64	10 - 150	0	30	
Fluoranthene	2.00	1.56		ug/L		78	45 - 150	3	30	
Fluorene	2.00	1.49		ug/L		74	40 - 150	1	30	
Indeno[1,2,3-cd]pyrene	2.00	1.46		ug/L		73	10 - 150	1	30	
Naphthalene	2.00	1.47		ug/L		74	61 - 134	1	30	
Phenanthrene	2.00	1.51		ug/L		75	27 - 150	3	30	
Pyrene	2.00	1.30		ug/L		65	57 - 150	0	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	95		10 - 150
Nitrobenzene-d5	84		55 - 150
2-Fluorobiphenyl	92		10 - 150

Lab Sample ID: 410-200485-7 MS
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Acenaphthene	ND		2.00	1.68		ug/L		84	57 - 138		30	
Acenaphthylene	ND		2.00	1.70		ug/L		85	36 - 150		30	
Anthracene	ND		2.00	1.81		ug/L		91	40 - 150		30	
Benzo[a]anthracene	ND		2.00	1.66		ug/L		83	56 - 150		30	
Benzo[a]pyrene	ND		2.00	1.61		ug/L		81	48 - 150		30	
Benzo[b]fluoranthene	ND		2.00	1.62		ug/L		81	39 - 150		30	
Benzo[g,h,i]perylene	ND		2.00	1.60		ug/L		80	13 - 150		30	
Benzo[k]fluoranthene	ND		2.00	1.53		ug/L		76	38 - 150		30	
Chrysene	ND		2.00	1.55		ug/L		78	61 - 146		30	
Dibenz(a,h)anthracene	ND		2.00	1.45		ug/L		73	10 - 150		30	
Fluoranthene	ND		2.00	1.75		ug/L		87	45 - 150		30	
Fluorene	ND		2.00	1.78		ug/L		89	40 - 150		30	
Indeno[1,2,3-cd]pyrene	ND		2.00	1.65		ug/L		82	10 - 150		30	
Naphthalene	ND		2.00	1.73		ug/L		87	61 - 134		30	
Phenanthrene	ND		2.00	1.71		ug/L		86	27 - 150		30	
Pyrene	ND		2.00	1.51		ug/L		75	57 - 150		30	

Surrogate	MS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	98		10 - 150
Nitrobenzene-d5	95		55 - 150
2-Fluorobiphenyl	100		10 - 150

Lab Sample ID: 410-200485-7 MSD
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Acenaphthene	ND		2.00	1.60		ug/L		80	57 - 138	5	30	
Acenaphthylene	ND		2.00	1.60		ug/L		80	36 - 150	6	30	

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: 410-200485-7 MSD

Matrix: Water

Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211

Prep Type: Total/NA

Prep Batch: 1012723

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Anthracene	ND		2.00	1.69		ug/L		85	40 - 150	7	30
Benzo[a]anthracene	ND		2.00	1.58		ug/L		79	56 - 150	4	30
Benzo[a]pyrene	ND		2.00	1.46		ug/L		73	48 - 150	10	30
Benzo[b]fluoranthene	ND		2.00	1.41		ug/L		71	39 - 150	14	30
Benzo[g,h,i]perylene	ND		2.00	1.47		ug/L		74	13 - 150	8	30
Benzo[k]fluoranthene	ND		2.00	1.51		ug/L		75	38 - 150	1	30
Chrysene	ND		2.00	1.47		ug/L		73	61 - 146	6	30
Dibenz(a,h)anthracene	ND		2.00	1.31		ug/L		65	10 - 150	10	30
Fluoranthene	ND		2.00	1.65		ug/L		83	45 - 150	6	30
Fluorene	ND		2.00	1.68		ug/L		84	40 - 150	6	30
Indeno[1,2,3-cd]pyrene	ND		2.00	1.50		ug/L		75	10 - 150	9	30
Naphthalene	ND		2.00	1.69		ug/L		84	61 - 134	3	30
Phenanthrene	ND		2.00	1.62		ug/L		81	27 - 150	6	30
Pyrene	ND		2.00	1.39		ug/L		70	57 - 150	8	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	95		10 - 150
Nitrobenzene-d5	98		55 - 150
2-Fluorobiphenyl	102		10 - 150

Lab Sample ID: MB 410-587243/1-A

Matrix: Water

Analysis Batch: 587424

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 587243

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Acenaphthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 03:53		1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 03:53		1
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 03:53		1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 03:53		1
Naphthalene	ND		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 03:53		1
Phenanthrene	ND		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 03:53		1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 03:53		1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil	Fac
Benzo(a)pyrene-d12 (Surr)	77		10 - 136	12/17/24 15:20	12/18/24 03:53		1
1-Methylnaphthalene-d10 (Surr)	79		20 - 144	12/17/24 15:20	12/18/24 03:53		1
Fluoranthene-d10 (Surr)	73		29 - 153	12/17/24 15:20	12/18/24 03:53		1

QC Association Summary

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

Job ID: 410-200485-1

GC/MS VOA

Analysis Batch: 586685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	8260D	
410-200485-2	MW-12S-20241210	Total/NA	Water	8260D	
410-200485-3	MW-12D-20241210	Total/NA	Water	8260D	
410-200485-4	MW-11S-20241210	Total/NA	Water	8260D	
410-200485-5	MW-1-20241211	Total/NA	Water	8260D	
410-200485-6	MW-7S-20241211	Total/NA	Water	8260D	
410-200485-7	MW-10S-20241211	Total/NA	Water	8260D	
410-200485-8	MW-14S-20241211	Total/NA	Water	8260D	
410-200485-9	MW-13S-20241211	Total/NA	Water	8260D	
410-200485-10	MW-3-20241211	Total/NA	Water	8260D	
410-200485-11	DUP-20241211	Total/NA	Water	8260D	
410-200485-12	MW-13D-20241212	Total/NA	Water	8260D	
410-200485-13	MW-4S-20241212	Total/NA	Water	8260D	
410-200485-14	FB-20241212	Total/NA	Water	8260D	
410-200485-15	TB-20241212	Total/NA	Water	8260D	
MB 410-586685/7	Method Blank	Total/NA	Water	8260D	
LCS 410-586685/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-586685/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	8260D	
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 587243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	3510C	
410-200485-2	MW-12S-20241210	Total/NA	Water	3510C	
410-200485-3	MW-12D-20241210	Total/NA	Water	3510C	
410-200485-4	MW-11S-20241210	Total/NA	Water	3510C	
MB 410-587243/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 587424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	8270E SIM	587243
410-200485-2	MW-12S-20241210	Total/NA	Water	8270E SIM	587243
410-200485-3	MW-12D-20241210	Total/NA	Water	8270E SIM	587243
410-200485-4	MW-11S-20241210	Total/NA	Water	8270E SIM	587243
MB 410-587243/1-A	Method Blank	Total/NA	Water	8270E SIM	587243

Prep Batch: 1012723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-5	MW-1-20241211	Total/NA	Water	3510C	
410-200485-6	MW-7S-20241211	Total/NA	Water	3510C	
410-200485-7	MW-10S-20241211	Total/NA	Water	3510C	
410-200485-8	MW-14S-20241211	Total/NA	Water	3510C	
410-200485-9	MW-13S-20241211	Total/NA	Water	3510C	
410-200485-10	MW-3-20241211	Total/NA	Water	3510C	
410-200485-11	DUP-20241211	Total/NA	Water	3510C	
410-200485-12	MW-13D-20241212	Total/NA	Water	3510C	
410-200485-13	MW-4S-20241212	Total/NA	Water	3510C	
410-200485-14	FB-20241212	Total/NA	Water	3510C	

QC Association Summary

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

Job ID: 410-200485-1

GC/MS Semi VOA (Continued)

Prep Batch: 1012723 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 460-1012723/1-A	Method Blank	Total/NA	Water	3510C	
LCS 460-1012723/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 460-1012723/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	3510C	
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	3510C	

Analysis Batch: 1012748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-5	MW-1-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-6	MW-7S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-7	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-8	MW-14S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-9	MW-13S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-10	MW-3-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-11	DUP-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-12	MW-13D-20241212	Total/NA	Water	8270E SIM	1012723
410-200485-13	MW-4S-20241212	Total/NA	Water	8270E SIM	1012723
410-200485-14	FB-20241212	Total/NA	Water	8270E SIM	1012723
MB 460-1012723/1-A	Method Blank	Total/NA	Water	8270E SIM	1012723
LCS 460-1012723/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	1012723
LCSD 460-1012723/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	1012723
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

Date Collected: 12/10/24 11:57

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 00:37
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 12:59

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 00:59
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 13:20

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 01:22
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 13:40

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 01:44
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 14:01

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

Date Collected: 12/11/24 10:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:06
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 00:30

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:29

Eurofins Lancaster Laboratories Environment Testing, LLC

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 00:51

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 22:23
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:12

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:51
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:33

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:13
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:54

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Date Collected: 12/11/24 16:05

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:36
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 04:20

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:58

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:14

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 04:20
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:35

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 04:43
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:56

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 21:38
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 03:17

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

Date Collected: 12/12/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 22:00

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

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: 410-200485-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10670	04-01-25

Laboratory: Eurofins Edison

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11452	04-01-25

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Method Summary

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

Job ID: 410-200485-1

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

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

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: 410-200485-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-200485-1	MW-8S-20241210	Water	12/10/24 11:57	12/12/24 19:45
410-200485-2	MW-12S-20241210	Water	12/10/24 12:55	12/12/24 19:45
410-200485-3	MW-12D-20241210	Water	12/10/24 13:48	12/12/24 19:45
410-200485-4	MW-11S-20241210	Water	12/10/24 14:48	12/12/24 19:45
410-200485-5	MW-1-20241211	Water	12/11/24 10:00	12/12/24 19:45
410-200485-6	MW-7S-20241211	Water	12/11/24 10:53	12/12/24 19:45
410-200485-7	MW-10S-20241211	Water	12/11/24 12:06	12/12/24 19:45
410-200485-8	MW-14S-20241211	Water	12/11/24 13:06	12/12/24 19:45
410-200485-9	MW-13S-20241211	Water	12/11/24 15:08	12/12/24 19:45
410-200485-10	MW-3-20241211	Water	12/11/24 16:05	12/12/24 19:45
410-200485-11	DUP-20241211	Water	12/11/24 00:00	12/12/24 19:45
410-200485-12	MW-13D-20241212	Water	12/12/24 09:42	12/12/24 19:45
410-200485-13	MW-4S-20241212	Water	12/12/24 10:48	12/12/24 19:45
410-200485-14	FB-20241212	Water	12/12/24 11:00	12/12/24 19:45
410-200485-15	TB-20241212	Water	12/12/24 00:00	12/12/24 19:45

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Chain of Custody Record

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410-200485 Chain of Custody

Client Client C. Mr. James Marolda	Sampler MCM	Lab PM Weyandt, Barbara A	Carrier Tracking No(s)	COC No 410-137817-5955 1
Company Brown and Caldwell	Phone:	E-Mail Barbara.Weyandt@et.eurofinsus.com	State of Origin NY	Page Page 1 of 2

Address: 500 North Franklin Turnpike Suite 306	Due Date Requested:	Analysis Requested	Job #:	
City: Ramsey	TAT Requested (days): Standard			Preservation Codes: N - None A - HCL
State, Zip N.J. 07446	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Phone: 201-574-4713(Tel)	PO # 153021.805			
Email: jmarolda@brwncald.com	WO #			
Project Name: Patchogue, NY	Project # 41002571	Other:		
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:
					Field Filtered	MS/MSD	Field Filtered	MS/MSD				
MW-8S-20241210	12/10	1157	G	GW	X	X	X	X			5	
MW-12S-20241210	↓	1255			X	X	X	X			↓	
MW-12D-20241210	↓	1348			X	X	X	X			↓	
MW-11S-20241210		1448			X	X	X	X			↓	
MW-1-20241211	12/11	1600			X	X	X	X			↓	
MW-7S-20241211		1053			X	X	X	X			↓	
MW-10S-20241211 (MS/MSD)		1206			X	X	X	X			15	
MW-14S-20241211		1306			X	X	X	X			5	
MW-13S-20241211		1508			X	X	X	X			↓	
MW-3-20241211	↓	1605			X	X	X	X			↓	
DUP-20241211		9999			X	X	X	X			↓	

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) BC Feas, NY State Cont B	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>M. J. Marolda</i>	Date/Time: 12/11/24	Company: ELLE	Received by: <i>RPM</i>
Relinquished by: <i>RPM</i>	Date/Time: 12/24/24 1945	Company: ELLE	Received by: <i>RPM</i>
Relinquished by:	Date/Time:	Company:	Received by: <i>RPM</i>

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2-2.5 / 0.8-2.9
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Chain of Custody Record

Client Information		Sampler:		Lab PM: Weyandt, Barbara A		Carrier Tracking No(s)		COC No: 410-137817-5955.2																																							
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:		Analysis Requested						Job #:																																					
Address: 500 North Franklin Turnpike Suite 306		Due Date Requested:		<table border="1"> <tr> <td rowspan="5">Field Filtered Sample (Yes or No)</td> <td rowspan="5">Perform MS/MSD (Yes or No)</td> <td rowspan="5">8270D_SIM - 16 PAHs</td> <td rowspan="5">8260C - BTEX</td> <td colspan="6"></td> <td rowspan="5">Total Number of containers</td> <td rowspan="5">Other:</td> </tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> <tr><td colspan="6"></td></tr> </table>						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX							Total Number of containers	Other:																									Preservation Codes: N - None A - HCL	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - 16 PAHs	8260C - BTEX																			Total Number of containers	Other:																								
City: Ramsey		TAT Requested (days): STANDARD																																													
State, Zip: NJ, 07446		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No																																													
Phone: 201-574-4713(Tel)		PO #: 153021.805																																													
Email: jmarolda@brwncald.com		WO #:																																													
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:																											
MW-135-20241212		12/12/24		6942		G		GW										5																													
MW-45-20241212		↓		1048		↓		↓										5																													
FB-20241212		↓		1100		↓		DI										5																													
TB-20241212		↓		LAB		↓		↓										2																													

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab File	Carrier Tracking No(s)	COC No:					
Client Contact	N/A	Weyandt, Barbara A	N/A	410-3319105-1					
Shipping/Receiving	N/A	E-Mail	Barbara.Weyandt@eurofins.com	Page 1 of 2					
Company	N/A	Accreditations Required (See note)	NELAP New York	Job #:					
Eurofins Environment Testing Northeast L		Address:	777 New Durham Road	410-200485-1					
City	Edison	State	NJ	Preservation Codes:					
Phone	732-549-3900(Tel) 732-549-3679(Fax)	PO #:	N/A	N None					
Email	N/A	WO #:	N/A						
Project Name:	Patchogue NY	Project #:	41002571						
Site:	N/A	SSOW#:	N/A						
Sample Identification	Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soild, O-waste/oi, Effluent, A-AM)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note
MW-1-20241211 (410-200485-5)		12/11/24	10:00 Eastern	G	Water	X	X	2	
MW 7S-20241211 (410-200485-6)		12/11/24	10:53 Eastern	G	Water	X	X	2	
MW-10S-20241211 (410-200485-7)		12/11/24	12:06 Eastern	G	Water	X	X	2	
MW-10S-20241211 (410-200485-7MS)		12/11/24	12:06 Eastern	G	Water	X	X	2	
MW-10S-20241211 (410-200485-7MSD)		12/11/24	12:06 Eastern	G	Water	X	X	2	
MW-14S-20241211 (410-200485-8)		12/11/24	13:06 Eastern	G	Water	X	X	2	
MW 13S-20241211 (410-200485-9)		12/11/24	15:08 Eastern	G	Water	X	X	2	
MW-3-20241211 (410-200485-10)		12/11/24	16:05 Eastern	G	Water	X	X	2	
DUP-20241211 (410-200485-11)		12/11/24	Eastern	G	Water	X	X	2	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Lancaster Laboratories Environment Testing, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain of custody the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Lancaster Laboratories Environment Testing, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Lancaster Laboratories Environment Testing, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Lancaster Laboratories Environment Testing, LLC.</p>									
Possible Hazard Identification									
Unconfirmed									
Deliverable Requested: I II III IV Other (specify)									
Primary Deliverable Rank: 2									
Special Instructions/QC Requirements:									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months									
Method of Shipment: Fedex									
Received by: ELET									
Date/Time: 12/17/24 15:01									
Company: ELIET									
Received by: P-Roc									
Date/Time: 17/12/24 11:30									
Company:									
Received by:									
Date/Time:									
Company:									
Cooler Temperature(s) °C and Other Remarks:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No									
Custody Seal No. JR 919-21									



Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-200485-1

Login Number: 200485

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Wrye, Shaun

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 ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temp acceptable, where thermal pres is required ($\leq 6^{\circ}\text{C}$, 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?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-200485-1

Login Number: 200485

List Number: 2

Creator: Meyers, Gary

List Source: Eurofins Edison

List Creation: 12/18/24 04:26 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	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. Jeffrey 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. Jeffrey 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. Jeffrey 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: 410-200485-1
Laboratory: Eurofins Lancaster Laboratories Environment Testing, Inc.
Site: Patchogue, NY
Date: January 10, 2025

Client Sample ID	Laboratory Sample ID	Date Collected	Matrix
MW-8S-20241210	410-200485-1	12/10/2024	Water
MW-12S-20241210	410-200485-2	12/10/2024	Water
MW-12D-20241210	410-200485-3	12/10/2024	Water
MW-11S-20241210	410-200485-4	12/10/2024	Water
MW-1-20241211	410-200485-5	12/11/2024	Water
MW-7S-20241211	410-200485-6	12/11/2024	Water
MW-10S-20241211	410-200485-7	12/11/2024	Water
MW-14S-20241211	410-200485-8	12/11/2024	Water
MW-13S-20241211	410-200485-9	12/11/2024	Water
MW-3-20241211	410-200485-10	12/11/2024	Water
DUP-20241211	410-200485-11	12/11/2024	Water
MW-13D-20241212	410-200485-12	12/12/2024	Water
MW-4S-20241212	410-200485-13	12/12/2024	Water
FB-20241212	410-200485-14	12/12/2024	Water
TB-20241212	410-200485-15	12/12/2024	Water

Data validation was performed on the analytical data for fifteen (15) samples collected December 10-12, 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

Semivolatile Organic Compounds (SVOCs)
Volatile Organic Compounds (VOCs)

Method References

USEPA SW-846 8270E-SIM
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 and no data was rejected. Additionally, minor analytical issues were found with the following data quality indicators resulting in qualified results: continuing calibration verification (CCV).

Chain of Custody:

- The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB-20241212(410-200485-15). 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.

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-7S-20241211 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 times 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-20241211 is the sample duplicate for MW-13S-20241211. 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-7S-20241211 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 times 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-20241211 is the sample duplicate for MW-13S-20241211. 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 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-1-20241211 MW-7S-20241211 MW-10S-20241211 MW-14S-20241211 MW-13S-20241211 MW-3-20241211 DUP-20241211 MW-13D-20241212 MW-4S-20241212 FB-20241212	Indeno[1,2,3-cd]pyrene Dibenz(a,h)anthracene	CCV %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.

Please contact the undersigned if you have any questions or need further information.

Signed: 

Dated: January 10, 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

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Mr. James L Marolda
Brown and Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey, New Jersey 07446
Generated 1/9/2025 11:41:47 AM Revision 1

JOB DESCRIPTION

Patchogue, NY

JOB NUMBER

410-200485-1

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



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

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Revision 1

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.

Barb Weyandt



Table of Contents

Cover Page	1
Table of Contents	4
Definitions/Glossary	5
Case Narrative	6
Detection Summary	7
Client Sample Results	10
Surrogate Summary	22
QC Sample Results	24
QC Association Summary	29
Lab Chronicle	31
Certification Summary	34
Method Summary	35
Sample Summary	36
Chain of Custody	37
Receipt Checklists	41

Definitions/Glossary

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

Job ID: 410-200485-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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
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

Case Narrative

Client: Brown and Caldwell
Project: Patchogue, NY

Job ID: 410-200485-1

Job ID: 410-200485-1

Eurofins Lancaster Laboratories Environment

**Job Narrative
410-200485-1**

REVISION

The report being provided is a revision of the original report sent on 12/19/2024. The report (revision 1) is being revised due to adding the missing QC (surrogates, internal standards, etc.) from the SVOC 8270 analysis.

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 12/12/2024 7:45 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 0.8°C and 2.4°C.

Receipt Exceptions

The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): TB-20241212 (410-200485-15).

The laboratory received 4 total containers, while the COC lists 2 total containers.

GC/MS VOA

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) analyzed in batch 460-1012748 was outside the method criteria for the following analyte(s): Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

No Detections.

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

No Detections.

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.010	J	0.050	0.010	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.4		1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	1.1		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthene	0.24		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.75		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Anthracene	3.1		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.70		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.24		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.45		0.050	0.047	ug/L	1		8270E SIM	Total/NA
Benzo[g,h,i]perylene	0.27		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.13		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Chrysene	0.70		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Dibenz(a,h)anthracene	0.055		0.050	0.020	ug/L	1		8270E SIM	Total/NA
Fluoranthene	4.4		0.050	0.023	ug/L	1		8270E SIM	Total/NA
Fluorene	8.9		0.050	0.010	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.21		0.050	0.020	ug/L	1		8270E SIM	Total/NA
Naphthalene	6.1		0.070	0.068	ug/L	1		8270E SIM	Total/NA
Phenanthrene	1.3		0.070	0.030	ug/L	1		8270E SIM	Total/NA
Pyrene	6.5		0.050	0.021	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

No Detections.

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.18		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Anthracene	0.035	J	0.050	0.025	ug/L	1		8270E SIM	Total/NA
Fluorene	0.037	J	0.050	0.012	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

No Detections.

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.15		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Fluorene	0.030	J	0.050	0.012	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.079		0.050	0.022	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Detection Summary

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

Job ID: 410-200485-1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.5		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.16		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	0.24		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.16		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.025	J	0.050	0.024	ug/L	1		8270E SIM	Total/NA
Chrysene	0.12		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.91		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	0.83		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	2.0		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.68		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.1		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.5		1.0	0.40	ug/L	1		8260D	Total/NA
Toluene	0.72	J	1.0	0.30	ug/L	1		8260D	Total/NA
Xylenes, Total	1.1		1.0	0.40	ug/L	1		8260D	Total/NA
Acenaphthene	29		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	3.2		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	1.5		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.34		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Chrysene	0.21		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	9.2		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	7.6		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	50		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	13		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	8.8		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	3.8		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.18		0.050	0.015	ug/L	1		8270E SIM	Total/NA
Anthracene	0.22		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Benzo[a]anthracene	0.16		0.050	0.016	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.027	J	0.050	0.024	ug/L	1		8270E SIM	Total/NA
Chrysene	0.12		0.050	0.030	ug/L	1		8270E SIM	Total/NA
Fluoranthene	0.97		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	0.88		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Naphthalene	2.2		0.20	0.12	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.71		0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.1		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

No Detections.

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	10		0.050	0.014	ug/L	1		8270E SIM	Total/NA
Acenaphthylene	0.18		0.050	0.015	ug/L	1		8270E SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Euofins Lancaster Laboratories Environment Testing, LLC

Detection Summary

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

Job ID: 410-200485-1

Client Sample ID: MW-4S-20241212 (Continued)

Lab Sample ID: 410-200485-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	0.10		0.050	0.025	ug/L	1		8270E SIM	Total/NA
Fluoranthene	1.6		0.050	0.039	ug/L	1		8270E SIM	Total/NA
Fluorene	1.6		0.050	0.012	ug/L	1		8270E SIM	Total/NA
Phenanthrene	0.035	J	0.050	0.022	ug/L	1		8270E SIM	Total/NA
Pyrene	1.7		0.050	0.031	ug/L	1		8270E SIM	Total/NA

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.59	J	1.0	0.30	ug/L	1		8260D	Total/NA

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

Date Collected: 12/10/24 11:57

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 00:37	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 00:37	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 00:37	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 00:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 00:37	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/17/24 00:37	1
Dibromofluoromethane (Surr)	96		80 - 120					12/17/24 00:37	1
Toluene-d8 (Surr)	105		80 - 120					12/17/24 00:37	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		12/17/24 15:20	12/18/24 12:59	1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 12:59	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 12:59	1
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 12:59	1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 12:59	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 12:59	1
Naphthalene	ND		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 12:59	1
Phenanthrene	ND		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 12:59	1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 12:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 136				12/17/24 15:20	12/18/24 12:59	1
1-Methylnaphthalene-d10 (Surr)	91		20 - 144				12/17/24 15:20	12/18/24 12:59	1
Fluoranthene-d10 (Surr)	76		29 - 153				12/17/24 15:20	12/18/24 12:59	1

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 00:59	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 00:59	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 00:59	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 00:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 00:59	1
4-Bromofluorobenzene (Surr)	96		80 - 120					12/17/24 00:59	1
Dibromofluoromethane (Surr)	97		80 - 120					12/17/24 00:59	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 00:59	1

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Acenaphthylene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Anthracene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[a]anthracene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[b]fluoranthene	ND		0.051	0.048	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[g,h,i]perylene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Chrysene	ND		0.051	0.025	ug/L		12/17/24 15:20	12/18/24 13:20	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.051	0.020	ug/L		12/17/24 15:20	12/18/24 13:20	1
Fluoranthene	ND		0.051	0.023	ug/L		12/17/24 15:20	12/18/24 13:20	1
Fluorene	ND		0.051	0.010	ug/L		12/17/24 15:20	12/18/24 13:20	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.051	0.020	ug/L		12/17/24 15:20	12/18/24 13:20	1
Naphthalene	ND		0.071	0.069	ug/L		12/17/24 15:20	12/18/24 13:20	1
Phenanthrene	ND		0.071	0.030	ug/L		12/17/24 15:20	12/18/24 13:20	1
Pyrene	ND		0.051	0.021	ug/L		12/17/24 15:20	12/18/24 13:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	57		10 - 136				12/17/24 15:20	12/18/24 13:20	1
1-Methylnaphthalene-d10 (Surr)	98		20 - 144				12/17/24 15:20	12/18/24 13:20	1
Fluoranthene-d10 (Surr)	87		29 - 153				12/17/24 15:20	12/18/24 13:20	1

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 01:22	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 01:22	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 01:22	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 01:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					12/17/24 01:22	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 01:22	1
Dibromofluoromethane (Surr)	97		80 - 120					12/17/24 01:22	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 01:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[a]anthracene	0.010	J	0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 13:40	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 13:40	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 13:40	1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 13:40	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 13:40	1
Naphthalene	ND		0.071	0.069	ug/L		12/17/24 15:20	12/18/24 13:40	1
Phenanthrene	ND		0.071	0.030	ug/L		12/17/24 15:20	12/18/24 13:40	1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 13:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44		10 - 136	12/17/24 15:20	12/18/24 13:40	1
1-Methylnaphthalene-d10 (Surr)	86		20 - 144	12/17/24 15:20	12/18/24 13:40	1
Fluoranthene-d10 (Surr)	78		29 - 153	12/17/24 15:20	12/18/24 13:40	1

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.4		1.0	0.30	ug/L			12/17/24 01:44	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 01:44	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 01:44	1
Xylenes, Total	1.1		1.0	0.40	ug/L			12/17/24 01:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 01:44	1
4-Bromofluorobenzene (Surr)	96		80 - 120		12/17/24 01:44	1
Dibromofluoromethane (Surr)	98		80 - 120		12/17/24 01:44	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 01:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.24		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Acenaphthylene	0.75		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Anthracene	3.1		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[a]anthracene	0.70		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[a]pyrene	0.24		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[b]fluoranthene	0.45		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[g,h,i]perylene	0.27		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Benzo[k]fluoranthene	0.13		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Chrysene	0.70		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 14:01	1
Dibenz(a,h)anthracene	0.055	J, RC: SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 14:01	1
Fluoranthene	4.4		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 14:01	1
Fluorene	8.9		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 14:01	1
Indeno[1,2,3-cd]pyrene	0.21	J, RC: SL	0.050	0.020	ug/L		12/17/24 15:20	12/18/24 14:01	1
Naphthalene	6.1		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 14:01	1
Phenanthrene	1.3		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 14:01	1
Pyrene	6.5		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	83		10 - 136	12/17/24 15:20	12/18/24 14:01	1
1-Methylnaphthalene-d10 (Surr)	86		20 - 144	12/17/24 15:20	12/18/24 14:01	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Fluoranthene-d10 (Surr)	87		29 - 153	12/17/24 15:20	12/18/24 14:01	1

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

Date Collected: 12/11/24 10:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:06	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:06	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:06	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/17/24 02:06	1
4-Bromofluorobenzene (Surr)	95		80 - 120		12/17/24 02:06	1
Dibromofluoromethane (Surr)	98		80 - 120		12/17/24 02:06	1
Toluene-d8 (Surr)	106		80 - 120		12/17/24 02:06	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:30	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:30	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:30	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:30	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:30	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:30	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:30	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:30	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:30	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:30	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:30	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	85		10 - 150	12/18/24 17:42	12/19/24 00:30	1
Nitrobenzene-d5	82		55 - 150	12/18/24 17:42	12/19/24 00:30	1
2-Fluorobiphenyl	86		10 - 150	12/18/24 17:42	12/19/24 00:30	1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:29	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:29	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:29	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/17/24 02:29	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 02:29	1
Dibromofluoromethane (Surr)	98		80 - 120					12/17/24 02:29	1
Toluene-d8 (Surr)	105		80 - 120					12/17/24 02:29	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.18		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:51	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:51	1
Anthracene	0.035	J	0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:51	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:51	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:51	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:51	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:51	1
Fluorene	0.037	J	0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:51	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:51	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:51	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:51	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		10 - 150				12/18/24 17:42	12/19/24 00:51	1
Nitrobenzene-d5	88		55 - 150				12/18/24 17:42	12/19/24 00:51	1
2-Fluorobiphenyl	89		10 - 150				12/18/24 17:42	12/19/24 00:51	1

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 22:23	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 22:23	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 22:23	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 22:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					12/16/24 22:23	1
4-Bromofluorobenzene (Surr)	92		80 - 120					12/16/24 22:23	1
Dibromofluoromethane (Surr)	98		80 - 120					12/16/24 22:23	1
Toluene-d8 (Surr)	106		80 - 120					12/16/24 22:23	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:12	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:12	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:12	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:12	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:12	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:12	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:12	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:12	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:12	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:12	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:12	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	86		10 - 150	12/18/24 17:42	12/19/24 01:12	1
Nitrobenzene-d5	88		55 - 150	12/18/24 17:42	12/19/24 01:12	1
2-Fluorobiphenyl	90		10 - 150	12/18/24 17:42	12/19/24 01:12	1

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 02:51	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 02:51	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 02:51	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 02:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 02:51	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/17/24 02:51	1
Dibromofluoromethane (Surr)	100		80 - 120		12/17/24 02:51	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 02:51	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.15		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:33	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:33	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:33	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:33	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:33	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:33	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:33	1
Fluorene	0.030	J	0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:33	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:33	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:33	1
Phenanthrene	0.079		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:33	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	87		10 - 150				12/18/24 17:42	12/19/24 01:33	1
Nitrobenzene-d5	90		55 - 150				12/18/24 17:42	12/19/24 01:33	1
2-Fluorobiphenyl	93		10 - 150				12/18/24 17:42	12/19/24 01:33	1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:13	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 03:13	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 03:13	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 03:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120					12/17/24 03:13	1
4-Bromofluorobenzene (Surr)	93		80 - 120					12/17/24 03:13	1
Dibromofluoromethane (Surr)	99		80 - 120					12/17/24 03:13	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 03:13	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3.5		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 01:54	1
Acenaphthylene	0.16		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 01:54	1
Anthracene	0.24		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[a]anthracene	0.16		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[b]fluoranthene	0.025	J	0.050	0.024	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 01:54	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 01:54	1
Chrysene	0.12		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 01:54	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 01:54	1
Fluoranthene	0.91		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 01:54	1
Fluorene	0.83		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 01:54	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 01:54	1
Naphthalene	2.0		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 01:54	1
Phenanthrene	0.68		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 01:54	1
Pyrene	1.1		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 01:54	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		10 - 150	12/18/24 17:42	12/19/24 01:54	1
Nitrobenzene-d5	84		55 - 150	12/18/24 17:42	12/19/24 01:54	1
2-Fluorobiphenyl	83		10 - 150	12/18/24 17:42	12/19/24 01:54	1

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Date Collected: 12/11/24 16:05

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:36	1
Ethylbenzene	1.5		1.0	0.40	ug/L			12/17/24 03:36	1
Toluene	0.72	J	1.0	0.30	ug/L			12/17/24 03:36	1
Xylenes, Total	1.1		1.0	0.40	ug/L			12/17/24 03:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		12/17/24 03:36	1
4-Bromofluorobenzene (Surr)	97		80 - 120		12/17/24 03:36	1
Dibromofluoromethane (Surr)	99		80 - 120		12/17/24 03:36	1
Toluene-d8 (Surr)	105		80 - 120		12/17/24 03:36	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	29		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 04:20	1
Acenaphthylene	3.2		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 04:20	1
Anthracene	1.5		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[a]anthracene	0.34		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 04:20	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 04:20	1
Chrysene	0.21		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 04:20	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 04:20	1
Fluoranthene	9.2		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 04:20	1
Fluorene	7.6		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 04:20	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 04:20	1
Naphthalene	50		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 04:20	1
Phenanthrene	13		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 04:20	1
Pyrene	8.8		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 04:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	88		10 - 150	12/18/24 17:42	12/19/24 04:20	1
Nitrobenzene-d5	78		55 - 150	12/18/24 17:42	12/19/24 04:20	1
2-Fluorobiphenyl	80		10 - 150	12/18/24 17:42	12/19/24 04:20	1

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 03:58	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 03:58	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 03:58	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 03:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					12/17/24 03:58	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/17/24 03:58	1
Dibromofluoromethane (Surr)	96		80 - 120					12/17/24 03:58	1
Toluene-d8 (Surr)	104		80 - 120					12/17/24 03:58	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	3.8		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:14	1
Acenaphthylene	0.18		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:14	1
Anthracene	0.22		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[a]anthracene	0.16		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[b]fluoranthene	0.027	J	0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:14	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:14	1
Chrysene	0.12		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:14	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:14	1
Fluoranthene	0.97		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:14	1
Fluorene	0.88		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:14	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:14	1
Naphthalene	2.2		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:14	1
Phenanthrene	0.71		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:14	1
Pyrene	1.1		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150				12/18/24 17:42	12/19/24 02:14	1
Nitrobenzene-d5	90		55 - 150				12/18/24 17:42	12/19/24 02:14	1
2-Fluorobiphenyl	89		10 - 150				12/18/24 17:42	12/19/24 02:14	1

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 04:20	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 04:20	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 04:20	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 04:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					12/17/24 04:20	1
4-Bromofluorobenzene (Surr)	95		80 - 120					12/17/24 04:20	1
Dibromofluoromethane (Surr)	98		80 - 120					12/17/24 04:20	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		80 - 120		12/17/24 04:20	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:35	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:35	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:35	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:35	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:35	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:35	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:35	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:35	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:35	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:35	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:35	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150	12/18/24 17:42	12/19/24 02:35	1
Nitrobenzene-d5	97		55 - 150	12/18/24 17:42	12/19/24 02:35	1
2-Fluorobiphenyl	97		10 - 150	12/18/24 17:42	12/19/24 02:35	1

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

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			12/17/24 04:43	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/17/24 04:43	1
Toluene	ND		1.0	0.30	ug/L			12/17/24 04:43	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/17/24 04:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/17/24 04:43	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/17/24 04:43	1
Dibromofluoromethane (Surr)	97		80 - 120		12/17/24 04:43	1
Toluene-d8 (Surr)	107		80 - 120		12/17/24 04:43	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	10		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 02:56	1
Acenaphthylene	0.18		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 02:56	1
Anthracene	0.10		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 02:56	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 02:56	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 02:56	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 02:56	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 02:56	1
Fluoranthene	1.6		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 02:56	1
Fluorene	1.6		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 02:56	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 02:56	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 02:56	1
Phenanthrene	0.035	J	0.050	0.022	ug/L		12/18/24 17:42	12/19/24 02:56	1
Pyrene	1.7		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 02:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	90		10 - 150				12/18/24 17:42	12/19/24 02:56	1
Nitrobenzene-d5	96		55 - 150				12/18/24 17:42	12/19/24 02:56	1
2-Fluorobiphenyl	98		10 - 150				12/18/24 17:42	12/19/24 02:56	1

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 21:38	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 21:38	1
Toluene	0.59	J	1.0	0.30	ug/L			12/16/24 21:38	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 21:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					12/16/24 21:38	1
4-Bromofluorobenzene (Surr)	94		80 - 120					12/16/24 21:38	1
Dibromofluoromethane (Surr)	98		80 - 120					12/16/24 21:38	1
Toluene-d8 (Surr)	107		80 - 120					12/16/24 21:38	1

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 03:17	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 03:17	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 03:17	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 03:17	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 03:17	1
Dibenz(a,h)anthracene	ND	UJ, RC:SL	0.050	0.020	ug/L		12/18/24 17:42	12/19/24 03:17	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 03:17	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

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

Job ID: 410-200485-1

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

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

Lab: Eurofins Edison

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 03:17	1
Indeno[1,2,3-cd]pyrene	ND	UJ, RC:SL	0.050	0.036	ug/L		12/18/24 17:42	12/19/24 03:17	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 03:17	1
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 03:17	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 03:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	93		10 - 150	12/18/24 17:42	12/19/24 03:17	1
Nitrobenzene-d5	95		55 - 150	12/18/24 17:42	12/19/24 03:17	1
2-Fluorobiphenyl	96		10 - 150	12/18/24 17:42	12/19/24 03:17	1

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

Date Collected: 12/12/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

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			12/16/24 22:00	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 22:00	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 22:00	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 22:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		12/16/24 22:00	1
4-Bromofluorobenzene (Surr)	94		80 - 120		12/16/24 22:00	1
Dibromofluoromethane (Surr)	99		80 - 120		12/16/24 22:00	1
Toluene-d8 (Surr)	105		80 - 120		12/16/24 22:00	1

Surrogate Summary

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

Job ID: 410-200485-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-200485-1	MW-8S-20241210	98	94	96	105
410-200485-2	MW-12S-20241210	98	96	97	104
410-200485-3	MW-12D-20241210	99	95	97	104
410-200485-4	MW-11S-20241210	102	96	98	105
410-200485-5	MW-1-20241211	100	95	98	106
410-200485-6	MW-7S-20241211	98	95	98	105
410-200485-7	MW-10S-20241211	98	92	98	106
410-200485-7 MS	MW-10S-20241211	99	95	96	106
410-200485-7 MSD	MW-10S-20241211	106	96	97	108
410-200485-8	MW-14S-20241211	102	94	100	105
410-200485-9	MW-13S-20241211	102	93	99	104
410-200485-10	MW-3-20241211	102	97	99	105
410-200485-11	DUP-20241211	95	94	96	104
410-200485-12	MW-13D-20241212	101	95	98	105
410-200485-13	MW-4S-20241212	100	94	97	107
410-200485-14	FB-20241212	101	94	98	107
410-200485-15	TB-20241212	100	94	99	105
LCS 410-586685/4	Lab Control Sample	100	94	96	109
LCS 410-586685/5	Lab Control Sample Dup	99	95	96	109
MB 410-586685/7	Method Blank	95	93	97	108

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-136)	MNPd10 (20-144)	FLN10 (29-153)
410-200485-1	MW-8S-20241210	82	91	76
410-200485-2	MW-12S-20241210	57	98	87
410-200485-3	MW-12D-20241210	44	86	78
410-200485-4	MW-11S-20241210	83	86	87
MB 410-587243/1-A	Method Blank	77	79	73

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		TBP (10-150)	NBZ (55-150)	FBP (10-150)
410-200485-5	MW-1-20241211	85	82	86

Eurofins Lancaster Laboratories Environment Testing, LLC

Surrogate Summary

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

Job ID: 410-200485-1

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	TBP	NBZ	FBP
		(10-150)	(55-150)	(10-150)
410-200485-6	MW-7S-20241211	87	88	89
410-200485-7	MW-10S-20241211	86	88	90
410-200485-7 MS	MW-10S-20241211	98	95	100
410-200485-7 MSD	MW-10S-20241211	95	98	102
410-200485-8	MW-14S-20241211	87	90	93
410-200485-9	MW-13S-20241211	88	84	83
410-200485-10	MW-3-20241211	88	78	80
410-200485-11	DUP-20241211	89	90	89
410-200485-12	MW-13D-20241212	89	97	97
410-200485-13	MW-4S-20241212	90	96	98
410-200485-14	FB-20241212	93	95	96
LCS 460-1012723/2-A	Lab Control Sample	93	85	87
LCSD 460-1012723/3-A	Lab Control Sample Dup	95	84	92
MB 460-1012723/1-A	Method Blank	89	87	91

Surrogate Legend

TBP = 2,4,6-Tribromophenol

NBZ = Nitrobenzene-d5

FBP = 2-Fluorobiphenyl

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: MB 410-586685/7
Matrix: Water
Analysis Batch: 586685

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			12/16/24 21:13	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/16/24 21:13	1
Toluene	ND		1.0	0.30	ug/L			12/16/24 21:13	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/16/24 21:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		12/16/24 21:13	1
4-Bromofluorobenzene (Surr)	93		80 - 120		12/16/24 21:13	1
Dibromofluoromethane (Surr)	97		80 - 120		12/16/24 21:13	1
Toluene-d8 (Surr)	108		80 - 120		12/16/24 21:13	1

Lab Sample ID: LCS 410-586685/4
Matrix: Water
Analysis Batch: 586685

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	19.0		ug/L		95	80 - 120
Ethylbenzene	20.0	19.6		ug/L		98	80 - 120
Toluene	20.0	20.9		ug/L		104	80 - 120
Xylenes, Total	60.0	58.6		ug/L		98	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	109		80 - 120

Lab Sample ID: LCSD 410-586685/5
Matrix: Water
Analysis Batch: 586685

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	18.5		ug/L		93	80 - 120	3	30
Ethylbenzene	20.0	19.8		ug/L		99	80 - 120	1	30
Toluene	20.0	20.5		ug/L		103	80 - 120	2	30
Xylenes, Total	60.0	58.6		ug/L		98	80 - 120	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	109		80 - 120

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: 410-200485-7 MS
Matrix: Water
Analysis Batch: 586685

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	22.0		ug/L		110	81 - 120
Ethylbenzene	ND		20.0	22.8		ug/L		114	78 - 120
Toluene	ND		20.0	23.8		ug/L		119	79 - 120
Xylenes, Total	ND		60.0	66.8		ug/L		111	78 - 120

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: 410-200485-7 MSD
Matrix: Water
Analysis Batch: 586685

Client Sample ID: MW-10S-20241211
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	22.0		ug/L		110	81 - 120	0	30
Ethylbenzene	ND		20.0	23.0		ug/L		115	78 - 120	1	30
Toluene	ND		20.0	23.9		ug/L		120	79 - 120	0	30
Xylenes, Total	ND		60.0	66.8		ug/L		111	78 - 120	0	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
1,2-Dichloroethane-d4 (Surr)	106		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	108		80 - 120

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

Lab Sample ID: MB 460-1012723/1-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.050	0.014	ug/L		12/18/24 17:42	12/19/24 00:09	1
Acenaphthylene	ND		0.050	0.015	ug/L		12/18/24 17:42	12/19/24 00:09	1
Anthracene	ND		0.050	0.025	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[a]anthracene	ND		0.050	0.016	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[a]pyrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[b]fluoranthene	ND		0.050	0.024	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[g,h,i]perylene	ND		0.050	0.035	ug/L		12/18/24 17:42	12/19/24 00:09	1
Benzo[k]fluoranthene	ND		0.050	0.028	ug/L		12/18/24 17:42	12/19/24 00:09	1
Chrysene	ND		0.050	0.030	ug/L		12/18/24 17:42	12/19/24 00:09	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/18/24 17:42	12/19/24 00:09	1
Fluoranthene	ND		0.050	0.039	ug/L		12/18/24 17:42	12/19/24 00:09	1
Fluorene	ND		0.050	0.012	ug/L		12/18/24 17:42	12/19/24 00:09	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.036	ug/L		12/18/24 17:42	12/19/24 00:09	1
Naphthalene	ND		0.20	0.12	ug/L		12/18/24 17:42	12/19/24 00:09	1

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: MB 460-1012723/1-A

Matrix: Water

Analysis Batch: 1012748

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1012723

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		0.050	0.022	ug/L		12/18/24 17:42	12/19/24 00:09	1
Pyrene	ND		0.050	0.031	ug/L		12/18/24 17:42	12/19/24 00:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	89		10 - 150	12/18/24 17:42	12/19/24 00:09	1
Nitrobenzene-d5	87		55 - 150	12/18/24 17:42	12/19/24 00:09	1
2-Fluorobiphenyl	91		10 - 150	12/18/24 17:42	12/19/24 00:09	1

Lab Sample ID: LCS 460-1012723/2-A

Matrix: Water

Analysis Batch: 1012748

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1012723

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	2.00	1.43		ug/L		71	57 - 138
Acenaphthylene	2.00	1.41		ug/L		71	36 - 150
Anthracene	2.00	1.51		ug/L		76	40 - 150
Benzo[a]anthracene	2.00	1.47		ug/L		73	56 - 150
Benzo[a]pyrene	2.00	1.39		ug/L		69	48 - 150
Benzo[b]fluoranthene	2.00	1.41		ug/L		71	39 - 150
Benzo[g,h,i]perylene	2.00	1.43		ug/L		72	13 - 150
Benzo[k]fluoranthene	2.00	1.47		ug/L		74	38 - 150
Chrysene	2.00	1.41		ug/L		70	61 - 146
Dibenz(a,h)anthracene	2.00	1.28		ug/L		64	10 - 150
Fluoranthene	2.00	1.52		ug/L		76	45 - 150
Fluorene	2.00	1.48		ug/L		74	40 - 150
Indeno[1,2,3-cd]pyrene	2.00	1.47		ug/L		74	10 - 150
Naphthalene	2.00	1.48		ug/L		74	61 - 134
Phenanthrene	2.00	1.47		ug/L		73	27 - 150
Pyrene	2.00	1.30		ug/L		65	57 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	93		10 - 150
Nitrobenzene-d5	85		55 - 150
2-Fluorobiphenyl	87		10 - 150

Lab Sample ID: LCSD 460-1012723/3-A

Matrix: Water

Analysis Batch: 1012748

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1012723

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	2.00	1.42		ug/L		71	57 - 138	1	30
Acenaphthylene	2.00	1.43		ug/L		72	36 - 150	1	30
Anthracene	2.00	1.55		ug/L		77	40 - 150	2	30
Benzo[a]anthracene	2.00	1.45		ug/L		73	56 - 150	1	30
Benzo[a]pyrene	2.00	1.40		ug/L		70	48 - 150	1	30
Benzo[b]fluoranthene	2.00	1.44		ug/L		72	39 - 150	2	30
Benzo[g,h,i]perylene	2.00	1.44		ug/L		72	13 - 150	1	30
Benzo[k]fluoranthene	2.00	1.37		ug/L		68	38 - 150	7	30

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: LCSD 460-1012723/3-A
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Chrysene	2.00	1.38		ug/L		69	61 - 146	2	30	
Dibenz(a,h)anthracene	2.00	1.28		ug/L		64	10 - 150	0	30	
Fluoranthene	2.00	1.56		ug/L		78	45 - 150	3	30	
Fluorene	2.00	1.49		ug/L		74	40 - 150	1	30	
Indeno[1,2,3-cd]pyrene	2.00	1.46		ug/L		73	10 - 150	1	30	
Naphthalene	2.00	1.47		ug/L		74	61 - 134	1	30	
Phenanthrene	2.00	1.51		ug/L		75	27 - 150	3	30	
Pyrene	2.00	1.30		ug/L		65	57 - 150	0	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	95		10 - 150
Nitrobenzene-d5	84		55 - 150
2-Fluorobiphenyl	92		10 - 150

Lab Sample ID: 410-200485-7 MS
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Acenaphthene	ND		2.00	1.68		ug/L		84	57 - 138		30	
Acenaphthylene	ND		2.00	1.70		ug/L		85	36 - 150		30	
Anthracene	ND		2.00	1.81		ug/L		91	40 - 150		30	
Benzo[a]anthracene	ND		2.00	1.66		ug/L		83	56 - 150		30	
Benzo[a]pyrene	ND		2.00	1.61		ug/L		81	48 - 150		30	
Benzo[b]fluoranthene	ND		2.00	1.62		ug/L		81	39 - 150		30	
Benzo[g,h,i]perylene	ND		2.00	1.60		ug/L		80	13 - 150		30	
Benzo[k]fluoranthene	ND		2.00	1.53		ug/L		76	38 - 150		30	
Chrysene	ND		2.00	1.55		ug/L		78	61 - 146		30	
Dibenz(a,h)anthracene	ND		2.00	1.45		ug/L		73	10 - 150		30	
Fluoranthene	ND		2.00	1.75		ug/L		87	45 - 150		30	
Fluorene	ND		2.00	1.78		ug/L		89	40 - 150		30	
Indeno[1,2,3-cd]pyrene	ND		2.00	1.65		ug/L		82	10 - 150		30	
Naphthalene	ND		2.00	1.73		ug/L		87	61 - 134		30	
Phenanthrene	ND		2.00	1.71		ug/L		86	27 - 150		30	
Pyrene	ND		2.00	1.51		ug/L		75	57 - 150		30	

Surrogate	MS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	98		10 - 150
Nitrobenzene-d5	95		55 - 150
2-Fluorobiphenyl	100		10 - 150

Lab Sample ID: 410-200485-7 MSD
Matrix: Water
Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211
Prep Type: Total/NA
Prep Batch: 1012723

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Acenaphthene	ND		2.00	1.60		ug/L		80	57 - 138	5	30	
Acenaphthylene	ND		2.00	1.60		ug/L		80	36 - 150	6	30	

Eurofins Lancaster Laboratories Environment Testing, LLC

QC Sample Results

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

Job ID: 410-200485-1

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

Lab Sample ID: 410-200485-7 MSD

Matrix: Water

Analysis Batch: 1012748

Client Sample ID: MW-10S-20241211

Prep Type: Total/NA

Prep Batch: 1012723

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Anthracene	ND		2.00	1.69		ug/L		85	40 - 150	7	30
Benzo[a]anthracene	ND		2.00	1.58		ug/L		79	56 - 150	4	30
Benzo[a]pyrene	ND		2.00	1.46		ug/L		73	48 - 150	10	30
Benzo[b]fluoranthene	ND		2.00	1.41		ug/L		71	39 - 150	14	30
Benzo[g,h,i]perylene	ND		2.00	1.47		ug/L		74	13 - 150	8	30
Benzo[k]fluoranthene	ND		2.00	1.51		ug/L		75	38 - 150	1	30
Chrysene	ND		2.00	1.47		ug/L		73	61 - 146	6	30
Dibenz(a,h)anthracene	ND		2.00	1.31		ug/L		65	10 - 150	10	30
Fluoranthene	ND		2.00	1.65		ug/L		83	45 - 150	6	30
Fluorene	ND		2.00	1.68		ug/L		84	40 - 150	6	30
Indeno[1,2,3-cd]pyrene	ND		2.00	1.50		ug/L		75	10 - 150	9	30
Naphthalene	ND		2.00	1.69		ug/L		84	61 - 134	3	30
Phenanthrene	ND		2.00	1.62		ug/L		81	27 - 150	6	30
Pyrene	ND		2.00	1.39		ug/L		70	57 - 150	8	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol	95		10 - 150
Nitrobenzene-d5	98		55 - 150
2-Fluorobiphenyl	102		10 - 150

Lab Sample ID: MB 410-587243/1-A

Matrix: Water

Analysis Batch: 587424

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 587243

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Acenaphthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Acenaphthylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[a]anthracene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[b]fluoranthene	ND		0.050	0.047	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[g,h,i]perylene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Chrysene	ND		0.050	0.025	ug/L		12/17/24 15:20	12/18/24 03:53		1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 03:53		1
Fluoranthene	ND		0.050	0.023	ug/L		12/17/24 15:20	12/18/24 03:53		1
Fluorene	ND		0.050	0.010	ug/L		12/17/24 15:20	12/18/24 03:53		1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		12/17/24 15:20	12/18/24 03:53		1
Naphthalene	ND		0.070	0.068	ug/L		12/17/24 15:20	12/18/24 03:53		1
Phenanthrene	ND		0.070	0.030	ug/L		12/17/24 15:20	12/18/24 03:53		1
Pyrene	ND		0.050	0.021	ug/L		12/17/24 15:20	12/18/24 03:53		1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil	Fac
Benzo(a)pyrene-d12 (Surr)	77		10 - 136	12/17/24 15:20	12/18/24 03:53		1
1-Methylnaphthalene-d10 (Surr)	79		20 - 144	12/17/24 15:20	12/18/24 03:53		1
Fluoranthene-d10 (Surr)	73		29 - 153	12/17/24 15:20	12/18/24 03:53		1

QC Association Summary

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

Job ID: 410-200485-1

GC/MS VOA

Analysis Batch: 586685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	8260D	
410-200485-2	MW-12S-20241210	Total/NA	Water	8260D	
410-200485-3	MW-12D-20241210	Total/NA	Water	8260D	
410-200485-4	MW-11S-20241210	Total/NA	Water	8260D	
410-200485-5	MW-1-20241211	Total/NA	Water	8260D	
410-200485-6	MW-7S-20241211	Total/NA	Water	8260D	
410-200485-7	MW-10S-20241211	Total/NA	Water	8260D	
410-200485-8	MW-14S-20241211	Total/NA	Water	8260D	
410-200485-9	MW-13S-20241211	Total/NA	Water	8260D	
410-200485-10	MW-3-20241211	Total/NA	Water	8260D	
410-200485-11	DUP-20241211	Total/NA	Water	8260D	
410-200485-12	MW-13D-20241212	Total/NA	Water	8260D	
410-200485-13	MW-4S-20241212	Total/NA	Water	8260D	
410-200485-14	FB-20241212	Total/NA	Water	8260D	
410-200485-15	TB-20241212	Total/NA	Water	8260D	
MB 410-586685/7	Method Blank	Total/NA	Water	8260D	
LCS 410-586685/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-586685/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	8260D	
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 587243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	3510C	
410-200485-2	MW-12S-20241210	Total/NA	Water	3510C	
410-200485-3	MW-12D-20241210	Total/NA	Water	3510C	
410-200485-4	MW-11S-20241210	Total/NA	Water	3510C	
MB 410-587243/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 587424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-1	MW-8S-20241210	Total/NA	Water	8270E SIM	587243
410-200485-2	MW-12S-20241210	Total/NA	Water	8270E SIM	587243
410-200485-3	MW-12D-20241210	Total/NA	Water	8270E SIM	587243
410-200485-4	MW-11S-20241210	Total/NA	Water	8270E SIM	587243
MB 410-587243/1-A	Method Blank	Total/NA	Water	8270E SIM	587243

Prep Batch: 1012723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-5	MW-1-20241211	Total/NA	Water	3510C	
410-200485-6	MW-7S-20241211	Total/NA	Water	3510C	
410-200485-7	MW-10S-20241211	Total/NA	Water	3510C	
410-200485-8	MW-14S-20241211	Total/NA	Water	3510C	
410-200485-9	MW-13S-20241211	Total/NA	Water	3510C	
410-200485-10	MW-3-20241211	Total/NA	Water	3510C	
410-200485-11	DUP-20241211	Total/NA	Water	3510C	
410-200485-12	MW-13D-20241212	Total/NA	Water	3510C	
410-200485-13	MW-4S-20241212	Total/NA	Water	3510C	
410-200485-14	FB-20241212	Total/NA	Water	3510C	

QC Association Summary

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

Job ID: 410-200485-1

GC/MS Semi VOA (Continued)

Prep Batch: 1012723 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 460-1012723/1-A	Method Blank	Total/NA	Water	3510C	
LCS 460-1012723/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 460-1012723/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	3510C	
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	3510C	

Analysis Batch: 1012748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-200485-5	MW-1-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-6	MW-7S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-7	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-8	MW-14S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-9	MW-13S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-10	MW-3-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-11	DUP-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-12	MW-13D-20241212	Total/NA	Water	8270E SIM	1012723
410-200485-13	MW-4S-20241212	Total/NA	Water	8270E SIM	1012723
410-200485-14	FB-20241212	Total/NA	Water	8270E SIM	1012723
MB 460-1012723/1-A	Method Blank	Total/NA	Water	8270E SIM	1012723
LCS 460-1012723/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	1012723
LCSD 460-1012723/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	1012723
410-200485-7 MS	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723
410-200485-7 MSD	MW-10S-20241211	Total/NA	Water	8270E SIM	1012723

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: MW-8S-20241210

Lab Sample ID: 410-200485-1

Date Collected: 12/10/24 11:57

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 00:37
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 12:59

Client Sample ID: MW-12S-20241210

Lab Sample ID: 410-200485-2

Date Collected: 12/10/24 12:55

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 00:59
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 13:20

Client Sample ID: MW-12D-20241210

Lab Sample ID: 410-200485-3

Date Collected: 12/10/24 13:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 01:22
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 13:40

Client Sample ID: MW-11S-20241210

Lab Sample ID: 410-200485-4

Date Collected: 12/10/24 14:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 01:44
Total/NA	Prep	3510C			587243	QJZ6	ELLE	12/17/24 15:20
Total/NA	Analysis	8270E SIM		1	587424	TB8M	ELLE	12/18/24 14:01

Client Sample ID: MW-1-20241211

Lab Sample ID: 410-200485-5

Date Collected: 12/11/24 10:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:06
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 00:30

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:29

Eurofins Lancaster Laboratories Environment Testing, LLC

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: MW-7S-20241211

Lab Sample ID: 410-200485-6

Date Collected: 12/11/24 10:53

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 00:51

Client Sample ID: MW-10S-20241211

Lab Sample ID: 410-200485-7

Date Collected: 12/11/24 12:06

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 22:23
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:12

Client Sample ID: MW-14S-20241211

Lab Sample ID: 410-200485-8

Date Collected: 12/11/24 13:06

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 02:51
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:33

Client Sample ID: MW-13S-20241211

Lab Sample ID: 410-200485-9

Date Collected: 12/11/24 15:08

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:13
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 01:54

Client Sample ID: MW-3-20241211

Lab Sample ID: 410-200485-10

Date Collected: 12/11/24 16:05

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:36
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 04:20

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 03:58

Lab Chronicle

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

Job ID: 410-200485-1

Client Sample ID: DUP-20241211

Lab Sample ID: 410-200485-11

Date Collected: 12/11/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:14

Client Sample ID: MW-13D-20241212

Lab Sample ID: 410-200485-12

Date Collected: 12/12/24 09:42

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 04:20
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:35

Client Sample ID: MW-4S-20241212

Lab Sample ID: 410-200485-13

Date Collected: 12/12/24 10:48

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/17/24 04:43
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 02:56

Client Sample ID: FB-20241212

Lab Sample ID: 410-200485-14

Date Collected: 12/12/24 11:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 21:38
Total/NA	Prep	3510C			1012723	ARA	EET EDI	12/18/24 17:42
Total/NA	Analysis	8270E SIM		1	1012748	MME	EET EDI	12/19/24 03:17

Client Sample ID: TB-20241212

Lab Sample ID: 410-200485-15

Date Collected: 12/12/24 00:00

Matrix: Water

Date Received: 12/12/24 19:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	586685	Z6YX	ELLE	12/16/24 22:00

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

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: 410-200485-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10670	04-01-25

Laboratory: Eurofins Edison

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11452	04-01-25

- 1
- 2
- 3
- 4
- 5
- 6
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- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Method Summary

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

Job ID: 410-200485-1

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

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

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: 410-200485-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-200485-1	MW-8S-20241210	Water	12/10/24 11:57	12/12/24 19:45
410-200485-2	MW-12S-20241210	Water	12/10/24 12:55	12/12/24 19:45
410-200485-3	MW-12D-20241210	Water	12/10/24 13:48	12/12/24 19:45
410-200485-4	MW-11S-20241210	Water	12/10/24 14:48	12/12/24 19:45
410-200485-5	MW-1-20241211	Water	12/11/24 10:00	12/12/24 19:45
410-200485-6	MW-7S-20241211	Water	12/11/24 10:53	12/12/24 19:45
410-200485-7	MW-10S-20241211	Water	12/11/24 12:06	12/12/24 19:45
410-200485-8	MW-14S-20241211	Water	12/11/24 13:06	12/12/24 19:45
410-200485-9	MW-13S-20241211	Water	12/11/24 15:08	12/12/24 19:45
410-200485-10	MW-3-20241211	Water	12/11/24 16:05	12/12/24 19:45
410-200485-11	DUP-20241211	Water	12/11/24 00:00	12/12/24 19:45
410-200485-12	MW-13D-20241212	Water	12/12/24 09:42	12/12/24 19:45
410-200485-13	MW-4S-20241212	Water	12/12/24 10:48	12/12/24 19:45
410-200485-14	FB-20241212	Water	12/12/24 11:00	12/12/24 19:45
410-200485-15	TB-20241212	Water	12/12/24 00:00	12/12/24 19:45

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab File	Carrier Tracking No(s)	COC No:
Client Contact	N/A	Weyandt, Barbara A	N/A	410-3319105-1
Shipping/Receiving	N/A	E-Mail Barbara.Weyandt@eurofins.com	State of Origin New York	Page Page 1 of 2
Company	N/A	Accreditations Required (See note) NELAP New York	Job #	410-200485-1
Eurofins Environment Testing Northeast L		Preservation Codes: N None		
Address: 777 New Durham Road		Analysis Requested		
City	N/A	Total Number of Containers		
State, Zip	N/A	Perform MS/MSD (Yes or No)		
Phone	732-549-3900(Tel) 732-549-3679(Fax)	Field Filtered Sample (Yes or No)		
Email	N/A	8270E_SIM\3510C_LV1 16 PAHs		
Project Name:	Patchogue NY	Matrix		
Site:	N/A	Sample Type (C=Comp, G=grab)		
Due Date Requested: 12/30/2024		Sample Date		
TAT Requested (days): N/A		Sample Time		
PO #	N/A	Preservation Code		
WO #	N/A	Sample Matrix		
Project #	41002571	Sample Type		
SSOW#	N/A	Sample Date		
Sample Identification Client ID (Lab ID)		Sample Time		
MW-1-20241211 (410-200485-5)	12/11/24	10:00 Eastern	G	Water
MW 7S-20241211 (410-200485-6)	12/11/24	10:53 Eastern	G	Water
MW-10S-20241211 (410-200485-7)	12/11/24	12:06 Eastern	G	Water
MW-10S-20241211 (410-200485-7MS)	12/11/24	12:06 Eastern	G	Water
MW-10S-20241211 (410-200485-7MSD)	12/11/24	12:06 Eastern	G	Water
MW-14S-20241211 (410-200485-8)	12/11/24	13:06 Eastern	G	Water
MW 13S-20241211 (410-200485-9)	12/11/24	15:08 Eastern	G	Water
MW-3-20241211 (410-200485-10)	12/11/24	16:05 Eastern	G	Water
DUP-20241211 (410-200485-11)	12/11/24	Eastern	G	Water
Note: Since laboratory accreditations are subject to change, Eurofins Lancaster Laboratories Environment Testing, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain of custody the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Lancaster Laboratories Environment Testing, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Lancaster Laboratories Environment Testing, LLC attention immediately. If all requested accreditations are current to date return, the signed Chain of Custody attesting to said compliance to Eurofins Lancaster Laboratories Environment Testing, LLC.				
Possible Hazard Identification				
Unconfirmed				
Deliverable Requested: I II III IV Other (specify)				
Primary Deliverable Rank: 2				
Special Instructions/QC Requirements:				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months				
Method of Shipment: Fedex				
Received by: ELET				
Date/Time: 12/17/24 15:01				
Company: ELIET				
Received by: P-Roc				
Date/Time: 17/12/24 11:30				
Company:				
Received by:				
Date/Time:				
Company:				
Cooler Temperature(s) °C and Other Remarks:				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				
Custody Seal No. JR 919-21				



Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-200485-1

Login Number: 200485

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Wrye, Shaun

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 ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temp acceptable, where thermal pres is required ($\leq 6^{\circ}\text{C}$, 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?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

Login Sample Receipt Checklist

Client: Brown and Caldwell

Job Number: 410-200485-1

Login Number: 200485

List Number: 2

Creator: Meyers, Gary

List Source: Eurofins Edison

List Creation: 12/18/24 04:26 PM

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

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the constituent ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

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 $\mu\text{g}/\text{sec}$) 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 ($\mu\text{g}/\text{L}$)

mf_{sgw} = Mass flux to the river from shallow groundwater ($\mu\text{g}/\text{s}$)

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

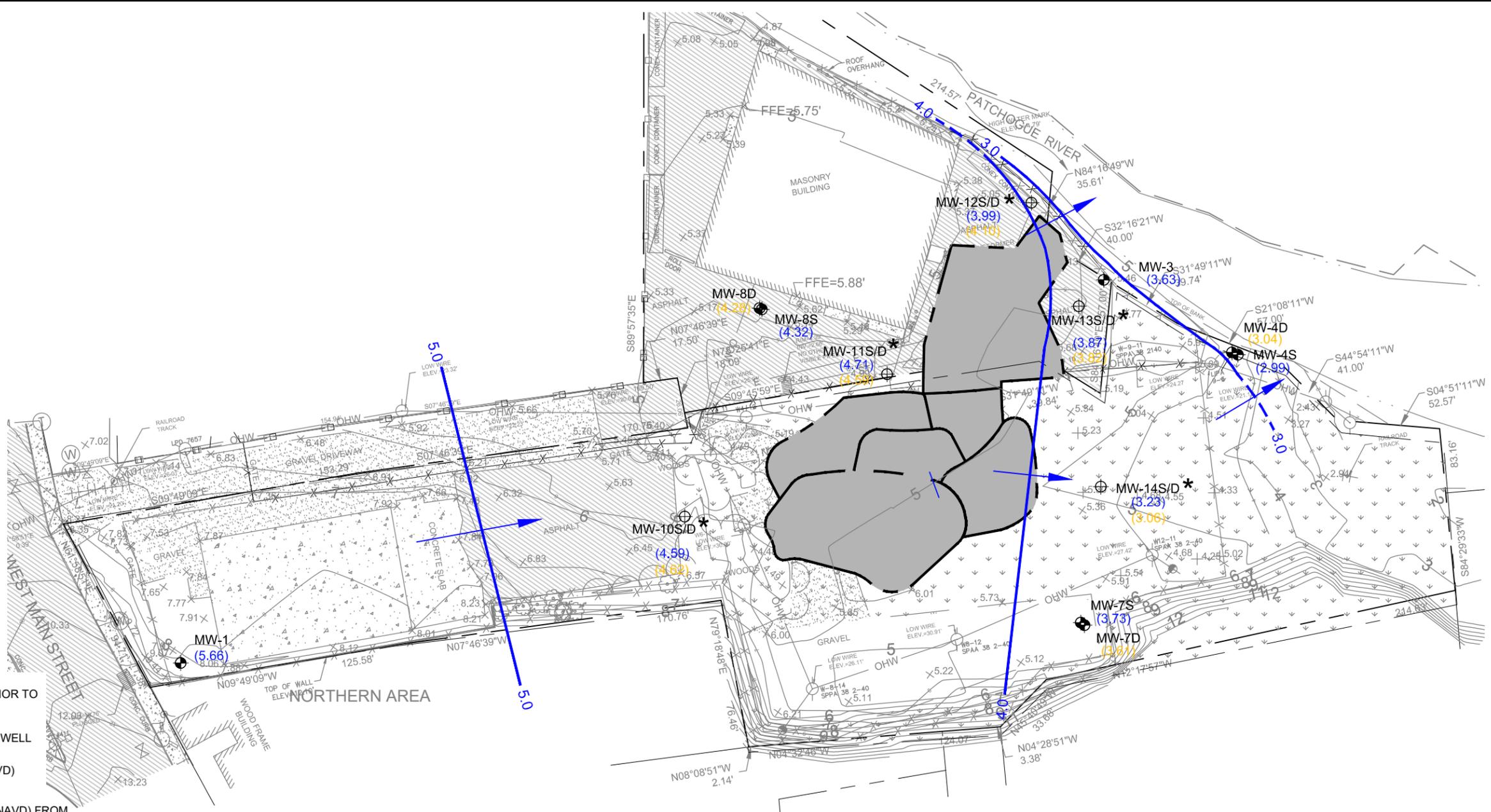
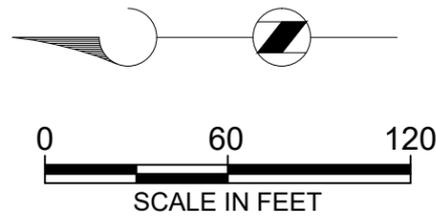
Notes:

(1) - 7Q10 flow (ft³/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.

ft³/s - cubic feet per second

Figures





- 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)
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.

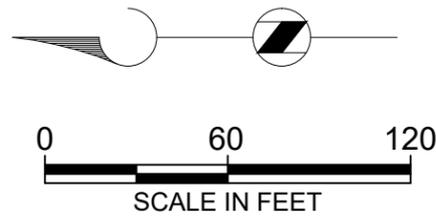


SCALE: 1" = 60'
 153021
 DATE: May 6, 2020

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

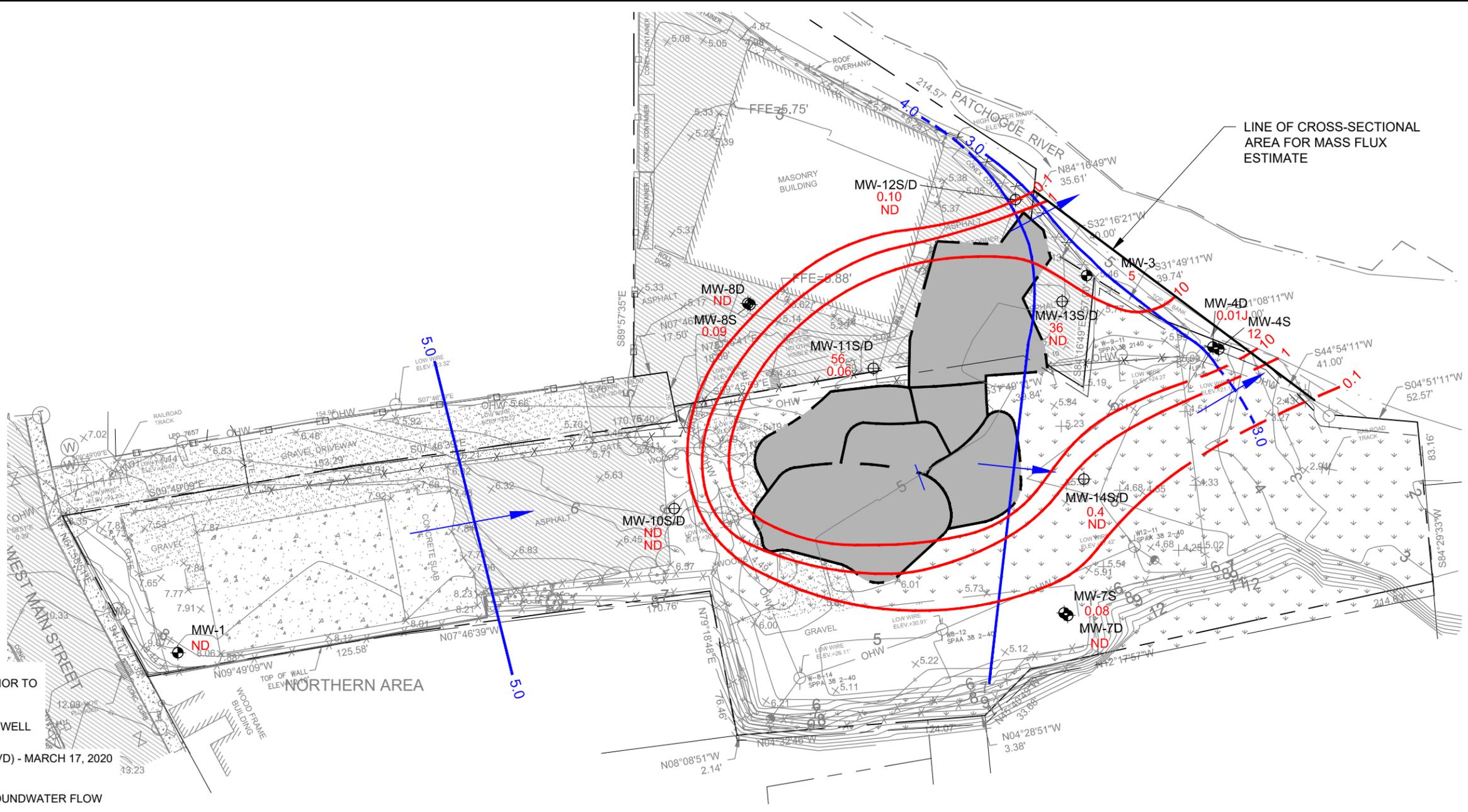
WATER TABLE ELEVATION CONTOUR MAP
 MARCH 17, 2020

FIGURE
F-1



- LEGEND:**
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMIEDIATION 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.

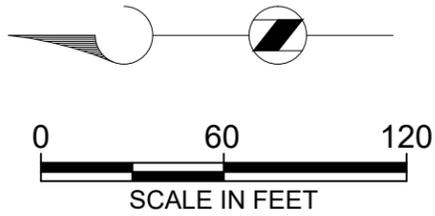


SCALE: 1" = 60'
 153021
 DATE: May 6, 2020

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

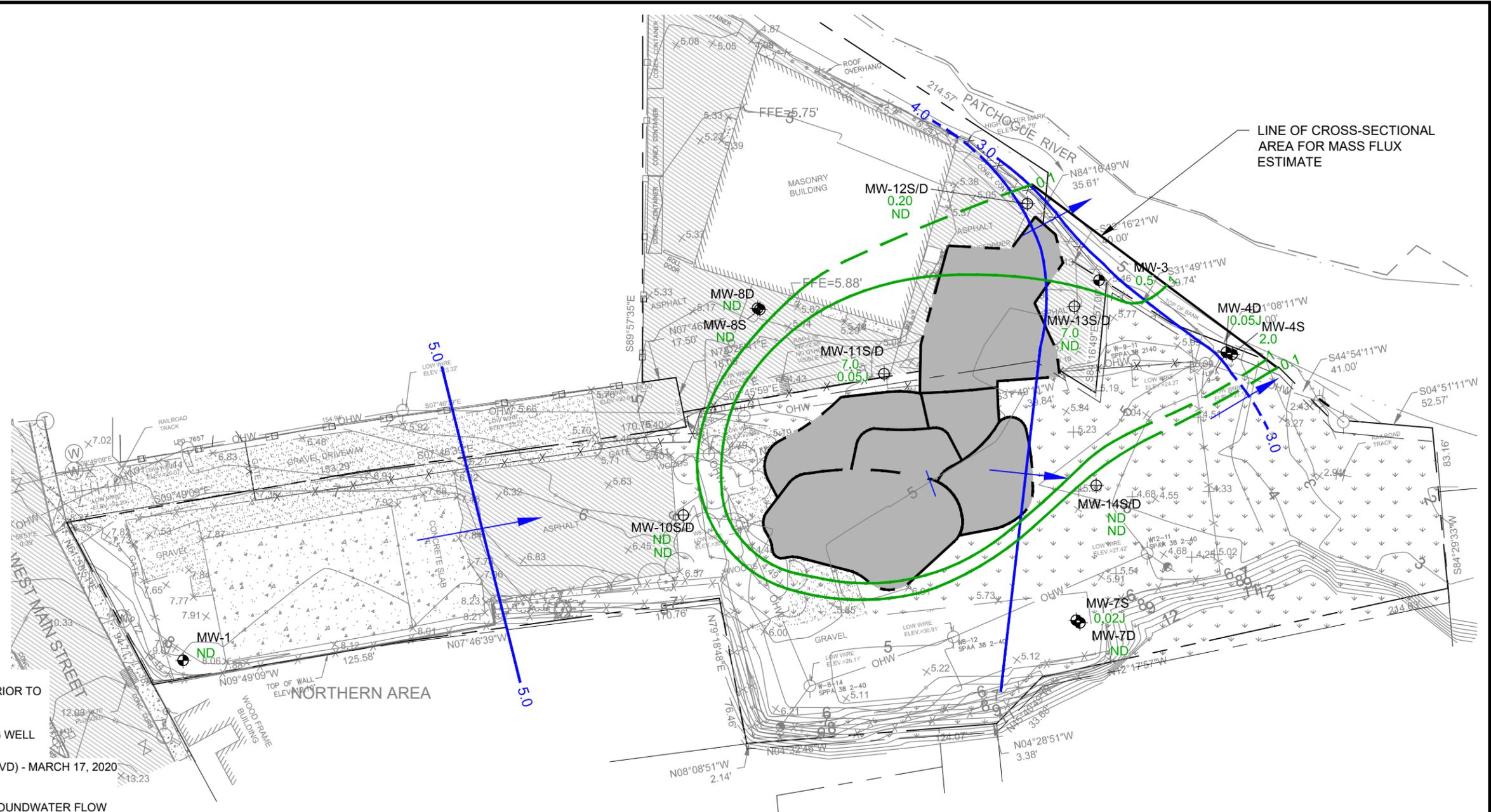
ACENAPHTHENE IN GROUNDWATER
 MARCH 2020

FIGURE
F-2



- LEGEND:**
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIAION 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)
 - 0.5 FLUORENE CONCENTRATION IN GROUNDWATER (µg/L) -
MARCH 2020
 - J ESTIMATED CONCENTRATION
 - ND NOT DETECTED

- NOTES:**
- BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.

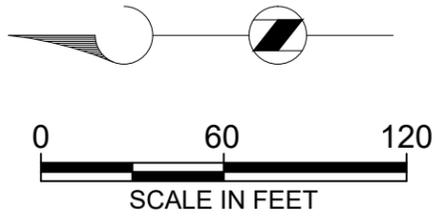


SCALE: 1" = 60'
153021
DATE: May 6, 2020

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

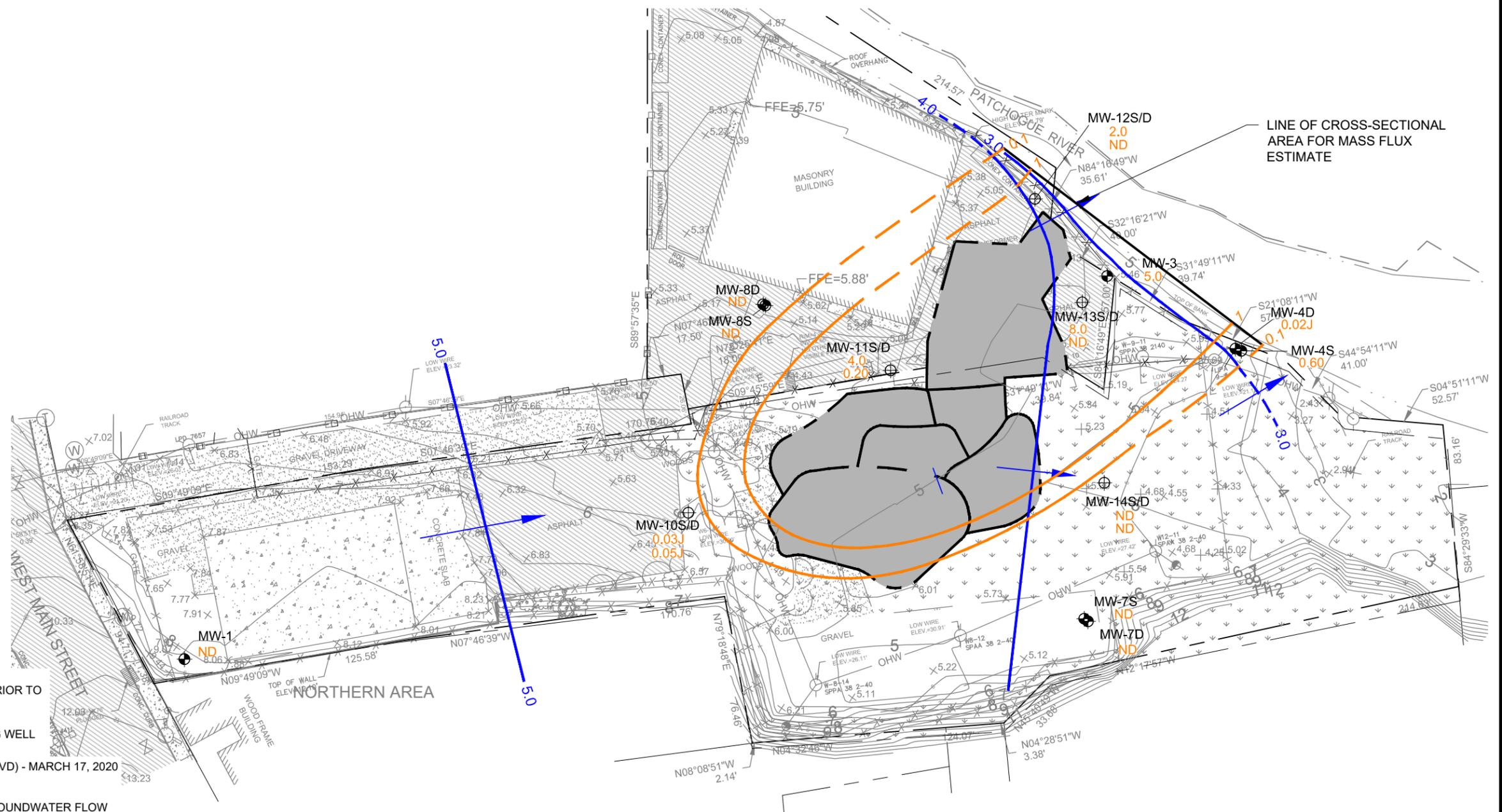
FLUORENE IN GROUNDWATER
MARCH 2020

FIGURE
F-3



- 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)
 - 5.0 PYRENE 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.



SCALE: 1" = 60'
 153021
 DATE: May 6, 2020

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

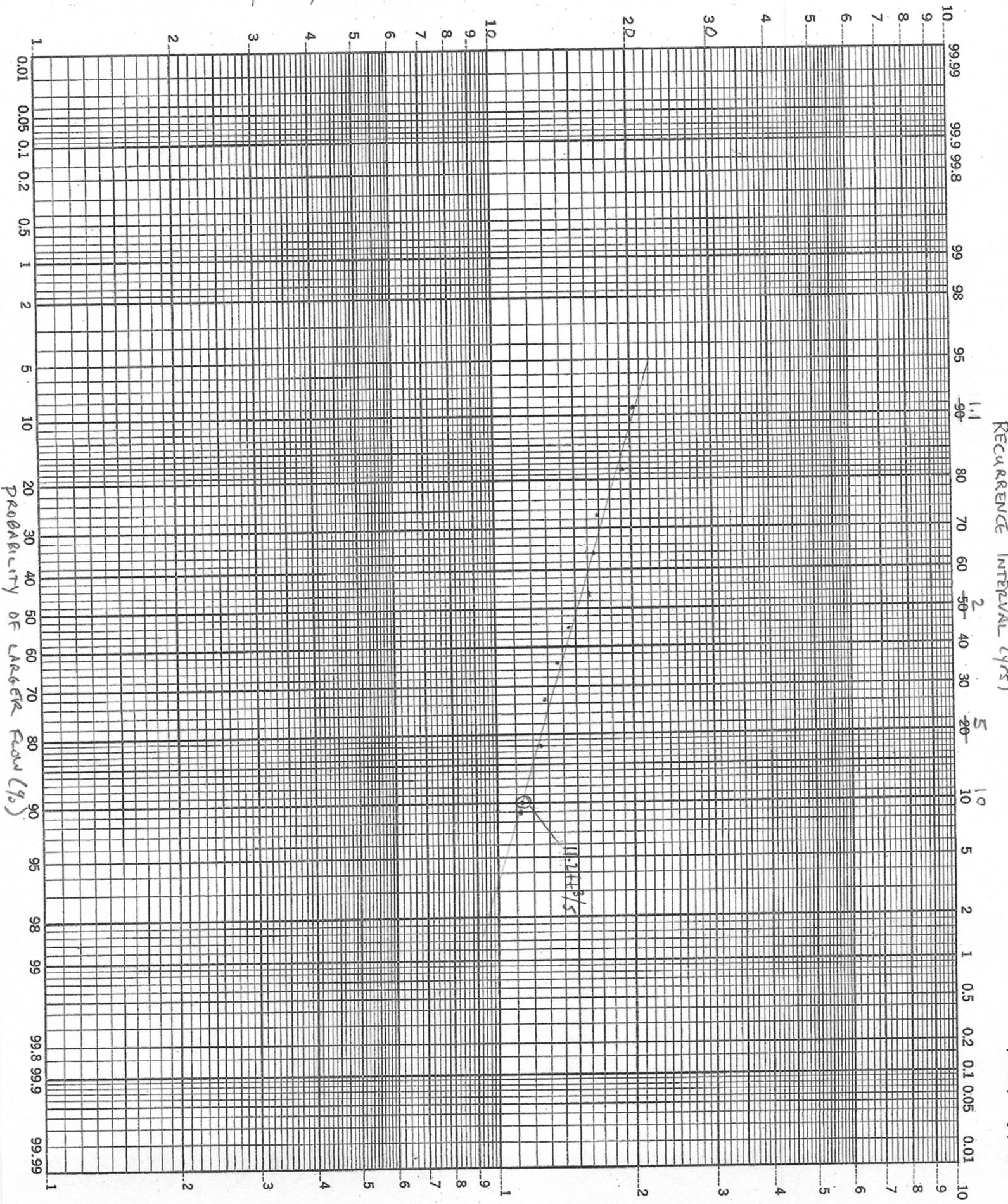
PYRENE IN GROUNDWATER
 MARCH 2020

FIGURE
F-4

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



**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, $\mu\text{g/s}$
k = hydraulic conductivity, cm/s
i = hydraulic gradient, dimensionless
A = cross-sectional area, $\text{cm}^2 (l * b)$
C = $(\mu\text{g/L})/1000 = \mu\text{g/cm}^3$

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	<table border="1"> <thead> <tr> <th rowspan="2">Contour Interval</th> <th rowspan="2">Geomean</th> <th colspan="2">Segment</th> </tr> <tr> <th>Length</th> <th>Thickness</th> </tr> </thead> <tbody> <tr> <td>0.1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>0.32</td> <td>36</td> <td>18</td> </tr> <tr> <td>10</td> <td>3.16</td> <td>90</td> <td>18</td> </tr> <tr> <td>12</td> <td>10.95</td> <td>45</td> <td>18</td> </tr> </tbody> </table>	Contour Interval	Geomean	Segment		Length	Thickness	0.1				1	0.32	36	18	10	3.16	90	18	12	10.95	45	18
Contour Interval	Geomean	Segment																								
		Length	Thickness																							
0.1																										
1	0.32	36	18																							
10	3.16	90	18																							
12	10.95	45	18																							
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours																							
C =	0.316227766 $\mu\text{g/L}$ =	0.000316228 $\mu\text{g/cm}^3$	Geometric mean concentration between selected contours																							
L =	36 ft =	1097.28 cm	Length of segment between selected contours [C]																							
b =	18 ft =	548.64 cm	Saturated thickness																							
mf =	1.5E-02 $\mu\text{g/s}$	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 $\mu\text{g/L}$ =	0.003162278 $\mu\text{g/cm}^3$	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 $\mu\text{g/s}$	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 $\mu\text{g/L}$ =	0.010954451 $\mu\text{g/cm}^3$	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 $\mu\text{g/s}$	2.1E+01 g/yr	0.045 lbs/yr
mf _{sgw} =	1 $\mu\text{g/s}$	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 PATCHOGUENY), 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	$\mu\text{g/L}$	

**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, $\mu\text{g/s}$
- k = hydraulic conductivity, cm/s
- i = hydraulic gradient, dimensionless
- A = cross-sectional area, $\text{cm}^2 (l * b)$
- C = $(\mu\text{g/L})/1000 = \mu\text{g/cm}^3$

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	Segment	
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours			0.1	
C =	0.316227766	$\mu\text{g/L} = 0.000316228 \mu\text{g/cm}^3$	Geometric mean concentration between selected contours	1	0.32	90	18
L =	90 ft =	2743.2 cm	Length of segment between selected contours [C]	2	1.41	65	18
b =	18 ft =	548.64 cm	Saturated thickness				
mf =	3.8E-02	$\mu\text{g/s}$	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	$\mu\text{g/L} = 0.001414214 \mu\text{g/cm}^3$	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	$\mu\text{g/s}$	3.8E+00 g/yr
			0.0085 lbs/yr
mf _{sgw} =	0	$\mu\text{g/s}$	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
	mf _{sgw} =	Shallow groundwater flux	See above 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
	D _R =	11.2 ft ³ /s =	317 L/s
C _R =	0.00050	$\mu\text{g/L}$	

**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, $\mu\text{g/s}$
- k = hydraulic conductivity, cm/s
- i = hydraulic gradient, dimensionless
- A = cross-sectional area, $\text{cm}^2 (l * b)$
- C = $(\mu\text{g/L})/1000 = \mu\text{g/cm}^3$

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	Segment	
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours			0.1	
C =	0.316227766	$\mu\text{g/L} = 0.000316228 \mu\text{g/cm}^3$	Geometric mean concentration between selected contours	1	0.32	38	18
L =	38 ft =	1158.24 cm	Length of segment between selected contours [C]	5	2.24	130	18
b =	18 ft =	548.64 cm	Saturated thickness				
mf =	1.6E-02 $\mu\text{g/s}$	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 $\mu\text{g/L} = 0.002236068 \mu\text{g/cm}^3$		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 $\mu\text{g/s}$	1.2E+01 g/yr	0.0268 lbs/yr
mf _{sgw} =	0 $\mu\text{g/s}$	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	$\mu\text{g/L}$		

the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion (United Nations 1998). The number of people aged 65 and over is expected to increase from 200 million to 500 million (United Nations 1998).

There are a number of reasons why the world population is expected to increase. One of the main reasons is the increase in life expectancy. In 1990, the average life expectancy at birth was 47 years. By 2050, it is expected to be 75 years (United Nations 1998). This increase in life expectancy is due to a number of factors, including improvements in medical care, better nutrition, and a decrease in infant mortality.

Another reason for the increase in world population is the increase in the number of people who are surviving to old age. In 1990, there were 200 million people aged 65 and over. By 2050, there are expected to be 500 million people aged 65 and over (United Nations 1998). This increase is due to a number of factors, including improvements in medical care, better nutrition, and a decrease in infant mortality.

The increase in world population is expected to have a number of consequences. One of the main consequences is the increase in the number of people who are dependent on others. In 1990, there were 1.1 billion people under 15 years of age. By 2050, there are expected to be 1.5 billion people under 15 years of age (United Nations 1998). This increase in the number of people who are dependent on others is expected to have a number of consequences, including an increase in the number of people who are dependent on others for their care and support.

Another consequence of the increase in world population is the increase in the number of people who are dependent on others for their care and support. In 1990, there were 200 million people aged 65 and over. By 2050, there are expected to be 500 million people aged 65 and over (United Nations 1998). This increase in the number of people who are dependent on others for their care and support is expected to have a number of consequences, including an increase in the number of people who are dependent on others for their care and support.

The increase in world population is expected to have a number of consequences. One of the main consequences is the increase in the number of people who are dependent on others. In 1990, there were 1.1 billion people under 15 years of age. By 2050, there are expected to be 1.5 billion people under 15 years of age (United Nations 1998). This increase in the number of people who are dependent on others is expected to have a number of consequences, including an increase in the number of people who are dependent on others for their care and support.

Another consequence of the increase in world population is the increase in the number of people who are dependent on others for their care and support. In 1990, there were 200 million people aged 65 and over. By 2050, there are expected to be 500 million people aged 65 and over (United Nations 1998). This increase in the number of people who are dependent on others for their care and support is expected to have a number of consequences, including an increase in the number of people who are dependent on others for their care and support.

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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:

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the constituent ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

q_i = specific discharge through the flow area (cm/sec)

where: $q_i = K_i i$, with K = hydraulic conductivity (cm/sec) and i = hydraulic gradient (cm/cm)



A_i = flow area perpendicular to flow (figure cm²)

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 ft³/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 ft³/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

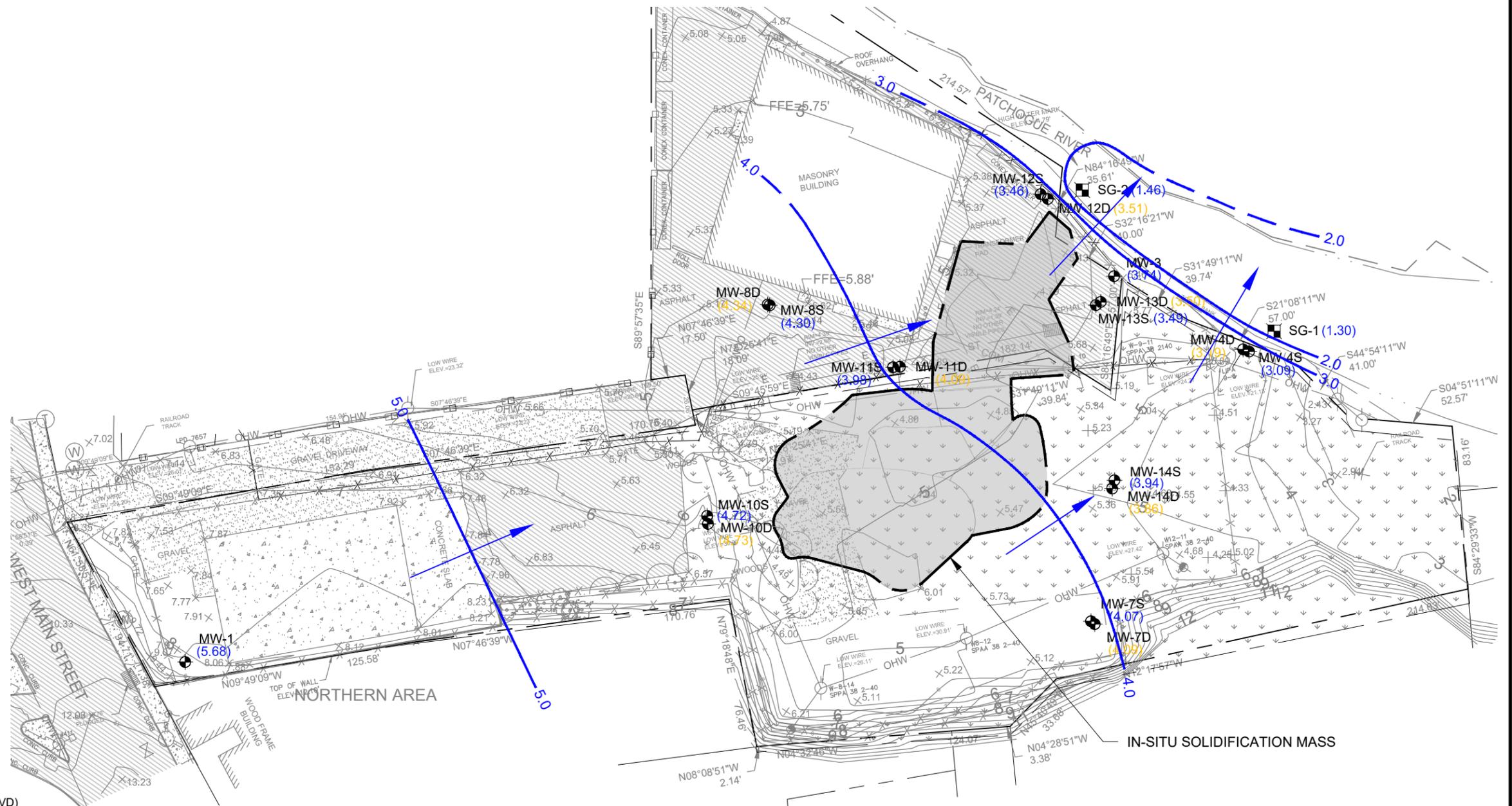
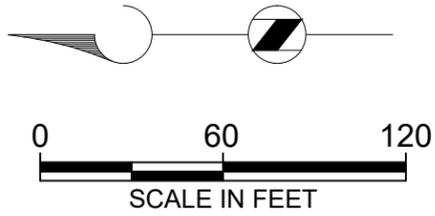
Notes:

(1) - 7Q10 flow (ft³/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.

ft³/s - cubic feet per second

Figures





- LEGEND:**
- PROPERTY LINE
 - x x 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

NOTES:
 1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.



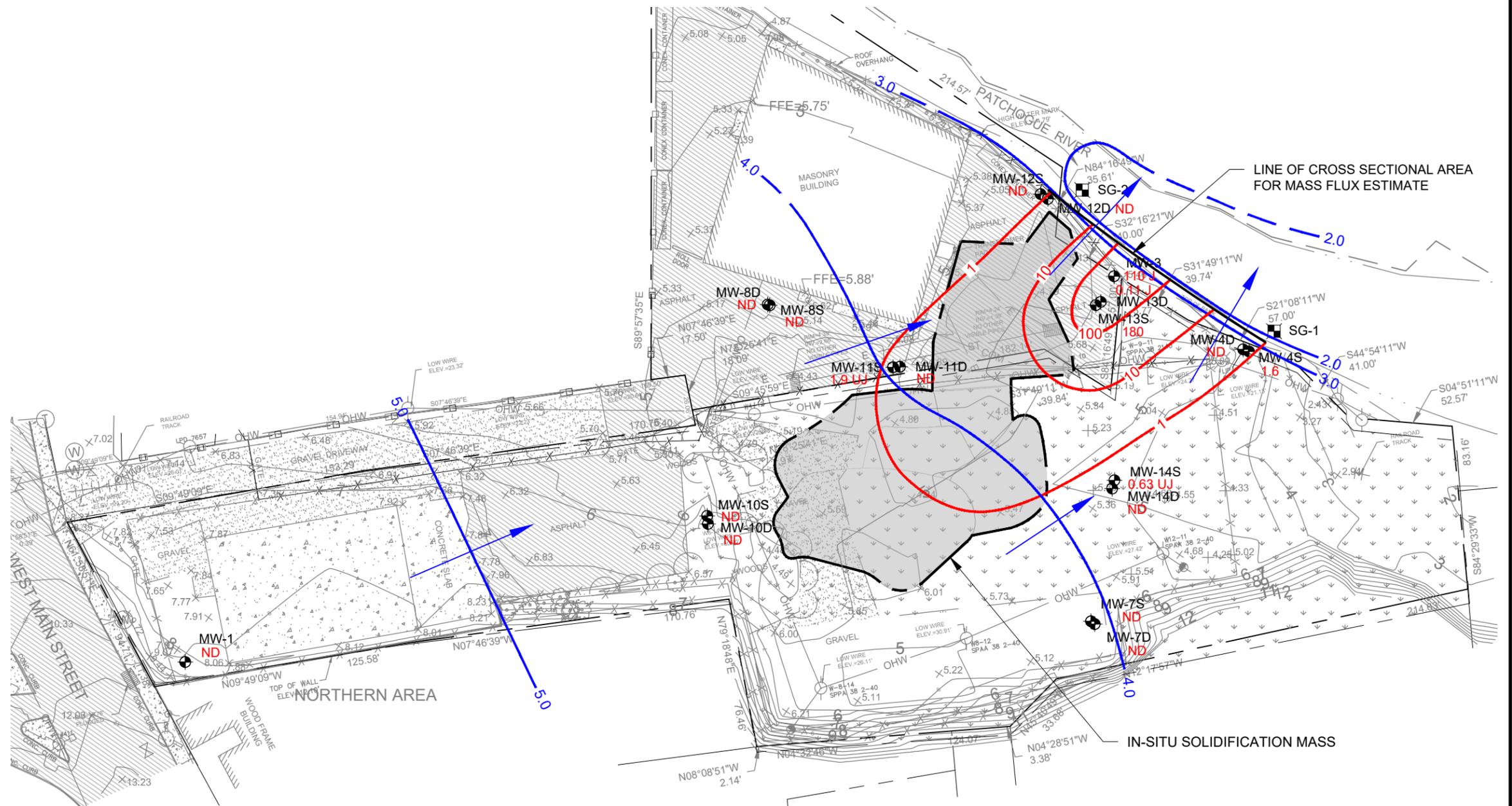
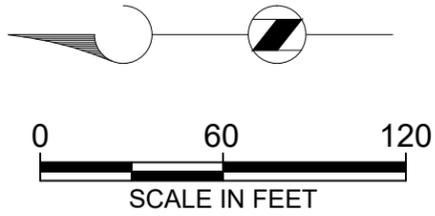
SCALE: 1" = 60'
 153021
 DATE: July 29, 2020

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

WATER TABLE ELEVATION CONTOUR MAP
 JUNE 29, 2020

FIGURE

G-1



- LEGEND:**
- — — — — PROPERTY LINE
 - x — x — FENCE
 - 10 — 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.



SCALE: 1" = 60'
 153021
 DATE: September 11, 2020

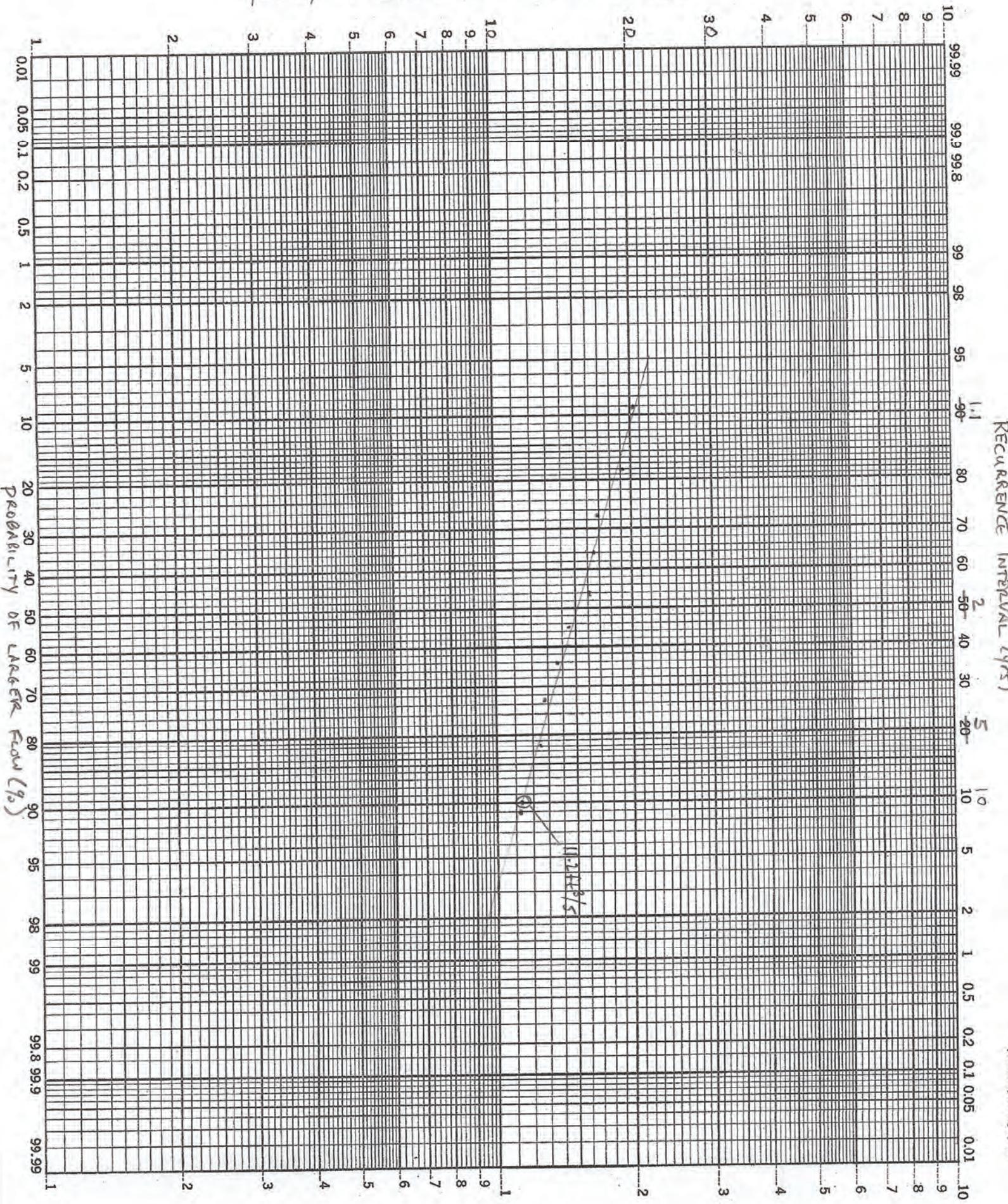
NATIONAL GRID
 PATCHOGUE FORMER MGP SITE
 VILLAGE OF PATCHOGUE, NEW YORK

NAPHTHALENE IN GROUNDWATER
 JUNE 2020

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



RECUARENCE INTERVAL (yrs)

PROBABILITY OF EXCEEDER FLOW (%)

probability x z log years

**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, cm² (l * b)
C = (µg/L)/1000=µg/cm³

Shallow Groundwater Flux

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells	<table border="1"> <thead> <tr> <th>Contour Interval</th> <th>Geomean</th> <th>Segment Length</th> <th>Thickness</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>3.16</td> <td>66</td> <td>18</td> </tr> <tr> <td>100</td> <td>31.62</td> <td>32</td> <td>18</td> </tr> <tr> <td>110</td> <td>104.88</td> <td>30</td> <td>18</td> </tr> </tbody> </table>	Contour Interval	Geomean	Segment Length	Thickness	1				10	3.16	66	18	100	31.62	32	18	110	104.88	30	18
Contour Interval	Geomean	Segment Length	Thickness																					
1																								
10	3.16	66	18																					
100	31.62	32	18																					
110	104.88	30	18																					
i =	0.014	hydraulic gradient, dimensionless	Measured in vicinity of selected contours																					
C =	3.16 µg/L =	0.00316 µg/cm ³	Geometric mean concentration between selected contours																					
L =	66 ft =	2011.68 cm	Length of segment between selected contours [C]																					
b =	18 ft =	548.64 cm	Saturated thickness																					
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 PATCHOGUENY), 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	

the 1990s, the number of people with a mental health problem has increased in the UK (Mental Health Act 1983).

There is a growing awareness of the need to improve the lives of people with mental health problems. The Department of Health (1999) has set out a strategy for mental health care, which includes a commitment to improve the lives of people with mental health problems. This strategy is based on the following principles:

- People with mental health problems should be treated as individuals, with their own needs and wishes.
- People with mental health problems should be given the opportunity to participate in decisions about their care.
- People with mental health problems should be given the opportunity to live in the community.

The Department of Health (1999) has also set out a number of key objectives for mental health care, which include:

- To reduce the number of people with mental health problems who are admitted to hospital.
- To improve the quality of care for people with mental health problems.
- To improve the lives of people with mental health problems.

The Department of Health (1999) has also set out a number of key actions for mental health care, which include:

- To develop a national strategy for mental health care.
- To improve the quality of care for people with mental health problems.
- To improve the lives of people with mental health problems.

The Department of Health (1999) has also set out a number of key indicators for mental health care, which include:

- The number of people with mental health problems who are admitted to hospital.
- The quality of care for people with mental health problems.
- The lives of people with mental health problems.

The Department of Health (1999) has also set out a number of key challenges for mental health care, which include:

- To reduce the number of people with mental health problems who are admitted to hospital.
- To improve the quality of care for people with mental health problems.
- To improve the lives of people with mental health problems.

The Department of Health (1999) has also set out a number of key opportunities for mental health care, which include:

- To develop a national strategy for mental health care.
- To improve the quality of care for people with mental health problems.
- To improve the lives of people with mental health problems.

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:

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the constituent ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

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 (cm²)

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 $\mu\text{g}/\text{sec}$) 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 ($\mu\text{g}/\text{L}$)

mf_{sgw} = Mass flux to the river from shallow groundwater ($\mu\text{g}/\text{s}$)

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 ft³/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 ft³/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 ($\mu\text{g/l}$)	Guidance Value ($\mu\text{g/l}$)	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 $\mu\text{g/L}$
- Fluorene = 0.003 $\mu\text{g/L}$
- Phenanthrene = 0.001 $\mu\text{g/L}$
- Pyrene = 0.007 $\mu\text{g/L}$

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
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1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
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1966	11.1	10	0.909

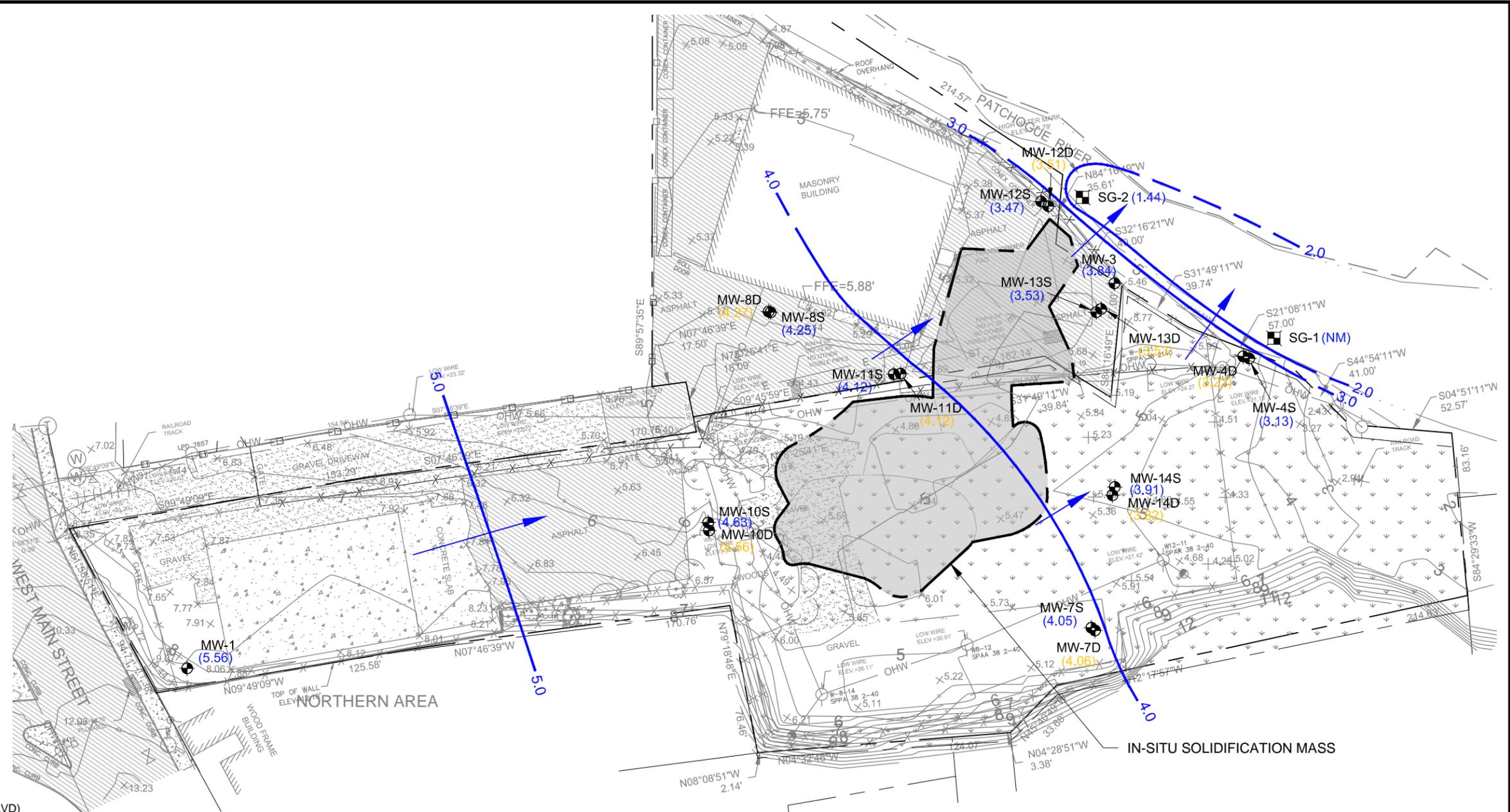
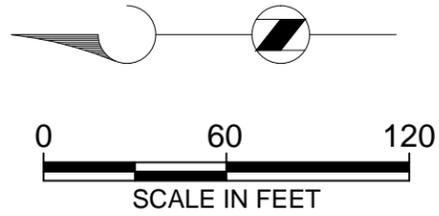
Notes:

(1) - 7Q10 flow (ft³/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.

ft³/s - cubic feet per second

Figures





- LEGEND:**
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL LOCATION
 - ⊞ STAFF GAGE LOCATION
 - 4.0 WATER TABLE CONTOUR (FT., NAVD)
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 - ➔ GENERALIZED DIRECTION OF GROUNDWATER FLOW

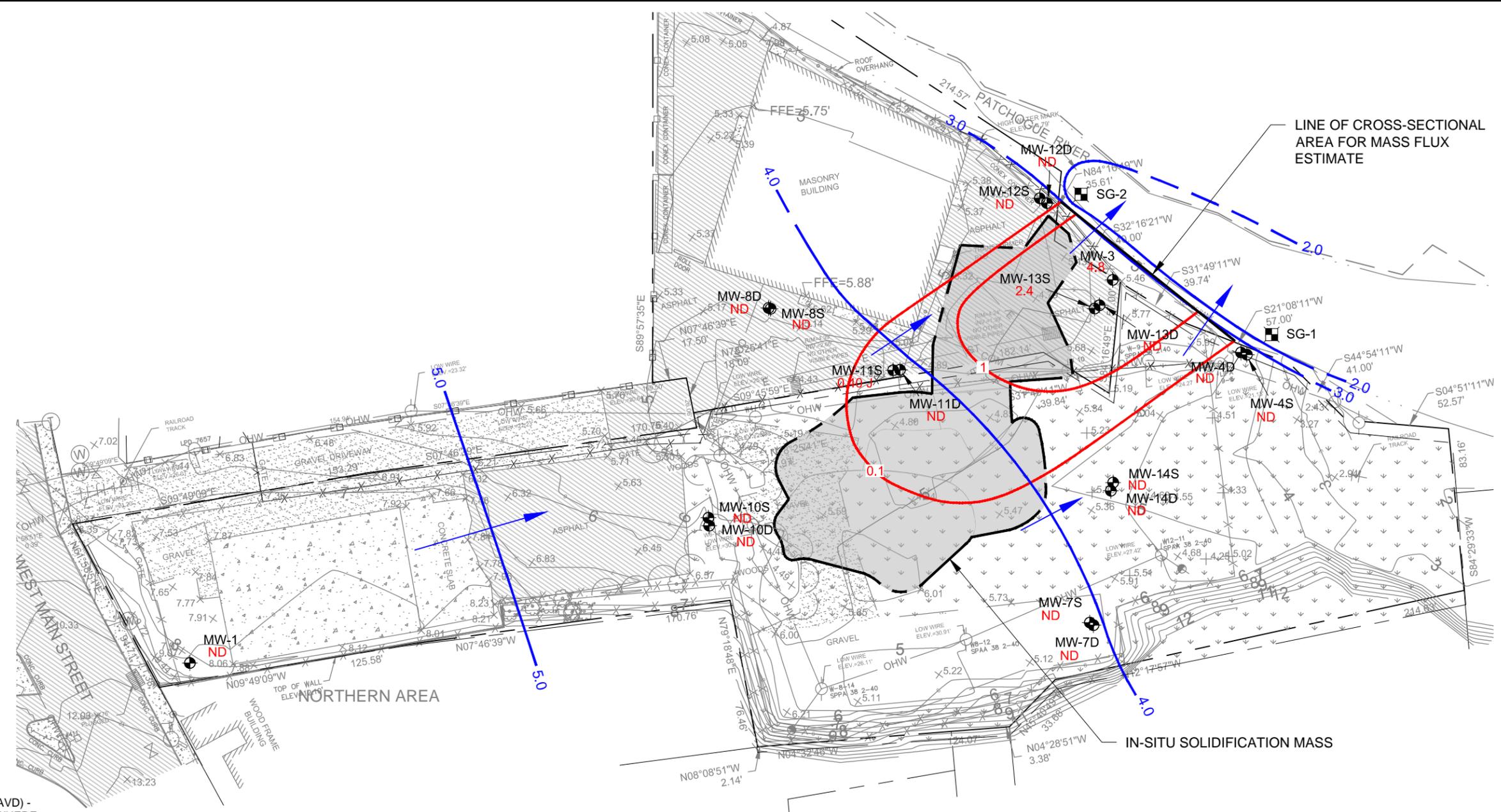
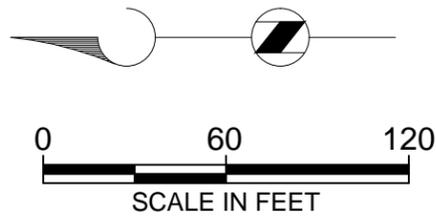
NOTES:
 1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.



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



- LEGEND:**
- PROPERTY LINE
 - x — FENCE
 - 10 — 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.

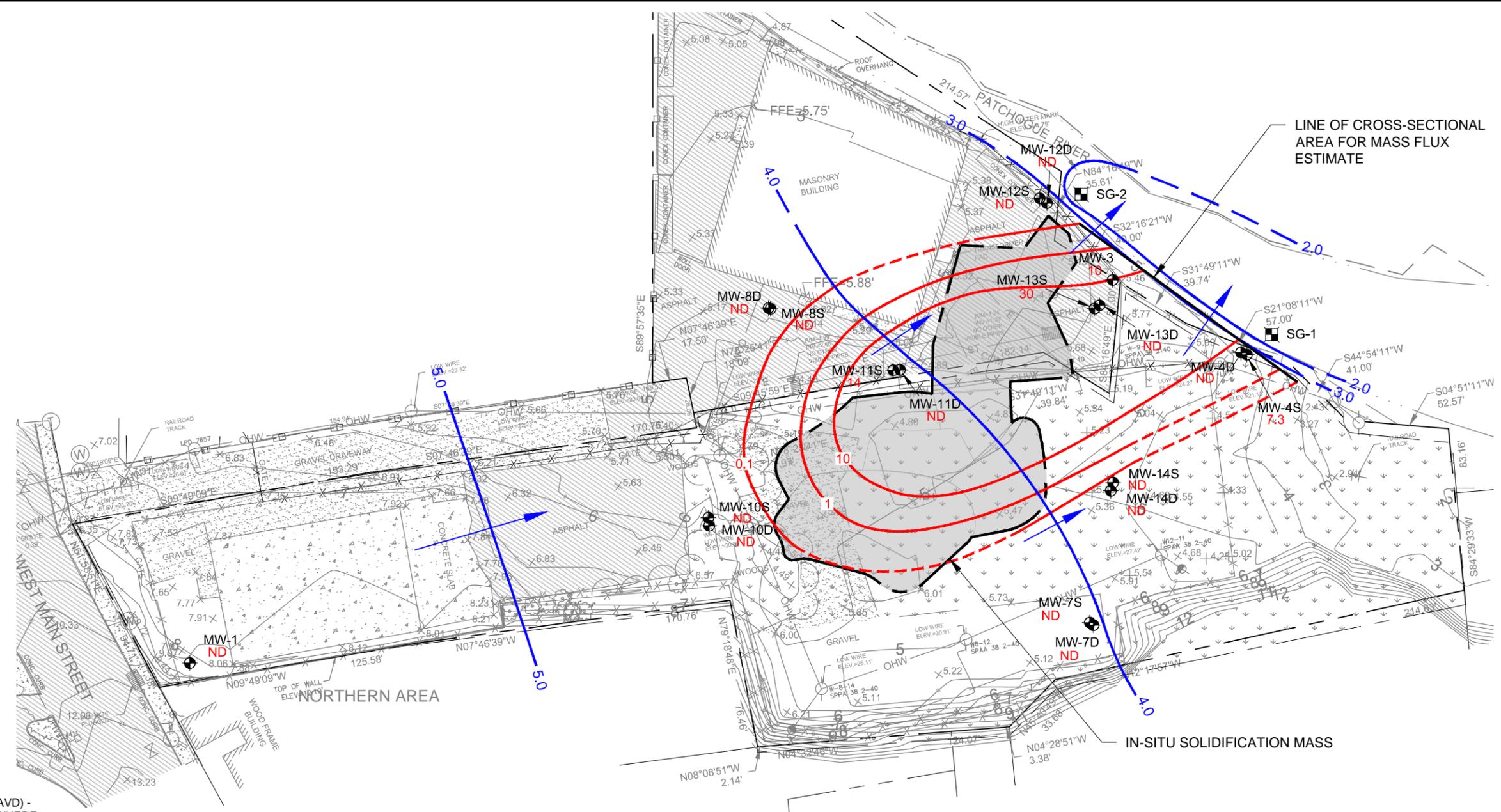
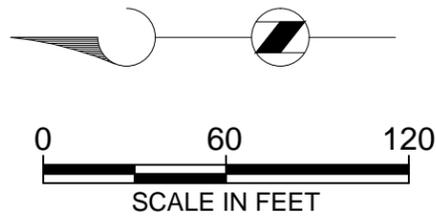


SCALE: 1" = 60'
 153021
 DATE: November 17, 2020

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

BENZO(a)ANTHRACENE IN GROUNDWATER (µg/L)
 SEPTEMBER 2020

FIGURE
E-2



- LEGEND:**
- PROPERTY LINE
 - x x FENCE
 - 10 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.

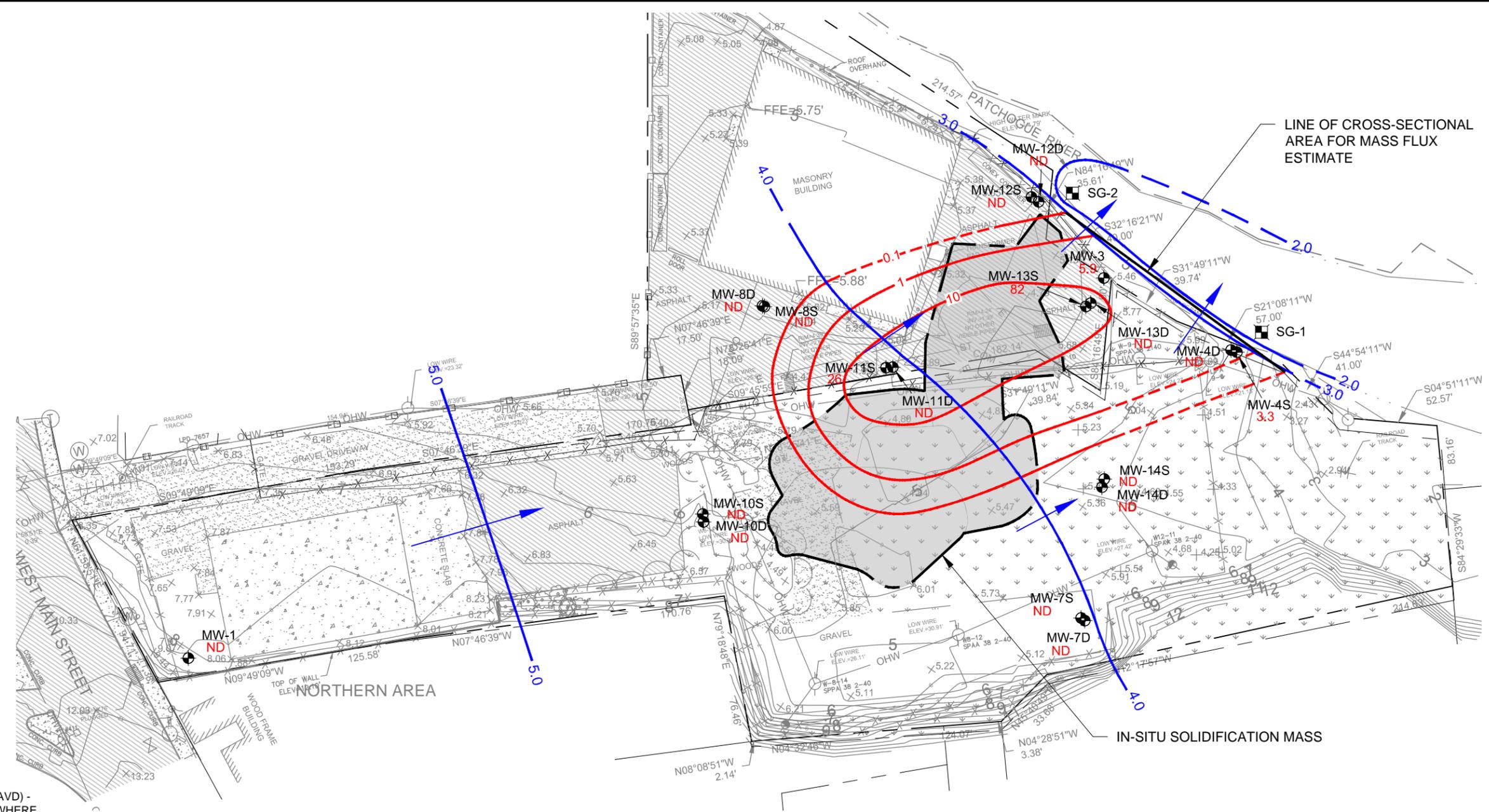
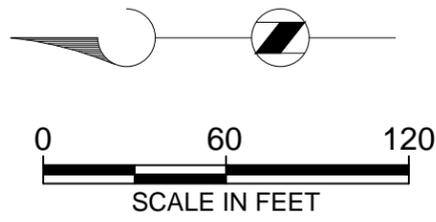


SCALE: 1" = 60'
 153021
 DATE: November 17, 2020

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

FLUORENE IN GROUNDWATER (µg/L)
 SEPTEMBER 2020

FIGURE
E-3



- LEGEND:**
- — — — — PROPERTY LINE
 - x x x x x FENCE
 - 10 — — — — — 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.

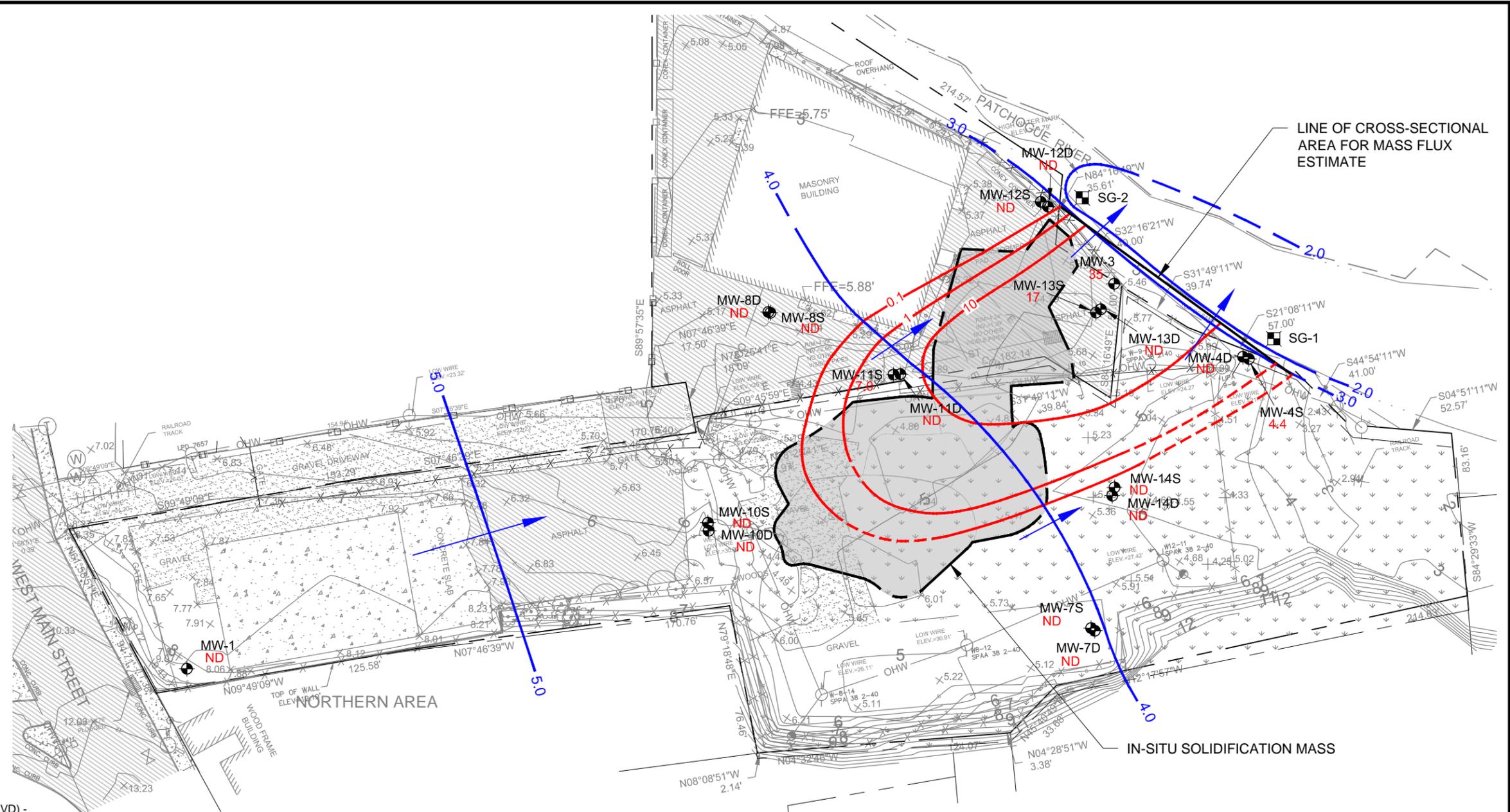
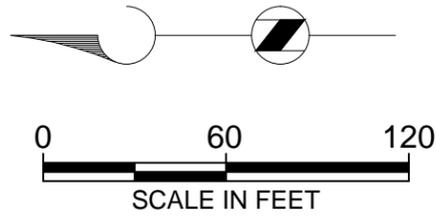


SCALE: 1" = 60'
 153021
 DATE: November 17, 2020

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

PHENANTHRENE IN GROUNDWATER (µg/L)
 SEPTEMBER 2020

FIGURE
E-4



- LEGEND:**
- PROPERTY LINE
 - x x FENCE
 - 10 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.



SCALE: 1" = 60'
 153021
 DATE: November 17, 2020

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

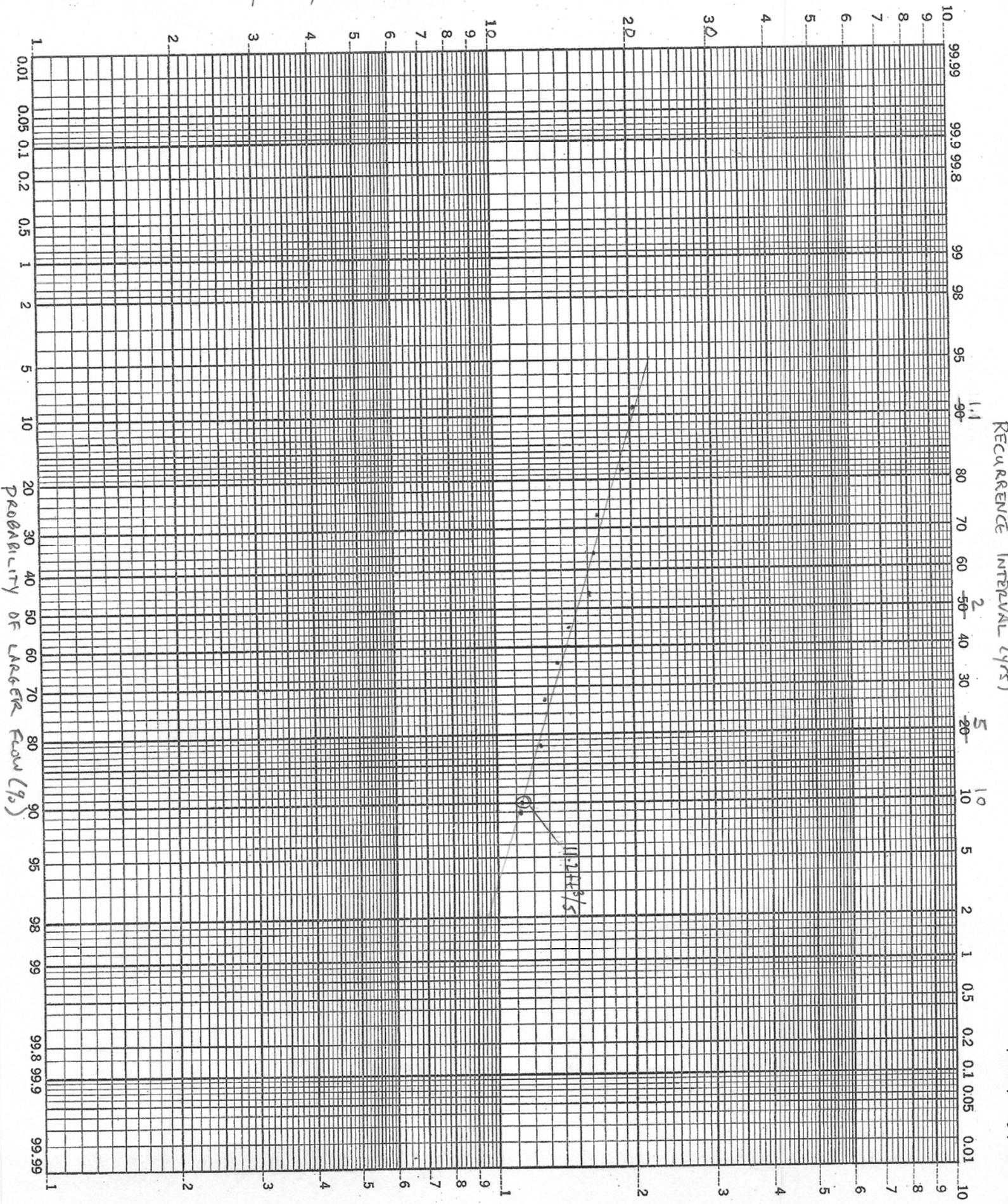
PYRENE IN GROUNDWATER (μg/L)
 SEPTEMBER 2020

FIGURE
E-5

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



RECUARENCE INTERVAL (YRS)

PROBABILITY OF EXCEEDANCE FLOW (%)

PROBABILITY OF EXCEEDANCE FLOW (%)

**ATTACHMENT E-2
 MASS FLUX CALCULATIONS - BENZO(A)ANTHRACENE
 PATCHOGUE RIVER**

Mass Flux Calculation

Enter site data in yellow highlighted cells

Benzo(a)anthracene (September 2020) **Figure No.** **See Figure E-2**

mf = kiA * C
 Where: mf = mass flux, µg/s
 k = hydraulic conductivity, cm/s
 l = hydraulic gradient, dimensionless
 A = cross-sectional area, cm² (l * b)
 C = (µg/L)/1000=µg/cm³

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	Segment Length Thickness	
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours	0.1			
C =	0.316227766	µg/L =	0.000316228 µg/cm ³	1	0.32	34	18
L =	34	ft =	1036.32 cm	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/cm³ 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 (ft³/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUENY), for period 4/1/1958 through
 mf_{sgw} = Shallow groundwater flux See above
 D_R = 11.2 ft³/s = 317 L/s
 C_R = 0.0008 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
 l = hydraulic gradient, dimensionless
 A = cross-sectional area, cm² (l * b)
 C = (µg/L)/1000=µg/cm³

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	Segment Length Thickness	
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	38	18
L =	38 ft =	1158.24 cm	Length of segment between selected contours [C]	5.9	2.43	107	18
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 PATCHOGUENY), 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, cm² (l * b)
C = (µg/L)/1000 = µg/cm³

Shallow Groundwater Flux

0.1-1 Contour

k = 6.1E-03 hydraulic conductivity, cm/s
i = 0.013 hydraulic gradient, dimensionless
C = 0.316227766 µg/L = 0.000316228 µg/cm³
L = 19 ft = 579.12 cm
b = 18 ft = 548.64 cm
mf = 8.0E-03 µg/s = 2.5E-01 g/yr = 0.00055 lbs/yr

Geometric mean of PDI slug tests for shallow water table wells
Measured in vicinity of selected contours
Geometric mean concentration between selected contours
Length of segment between selected contours [C]
Saturated thickness

Contour Interval	Geomean	Segment	
		Length	Thickness
0.1			
1	0.32	19	18
10	3.16	45	18
35	18.71	85	18

1-10 Contour

k = 6.1E-03 hydraulic conductivity, cm/s
i = 0.013 hydraulic gradient, dimensionless
C = 3.16 µg/L = 0.003162278 µg/cm³
L = 45 ft = 1371.6 cm
b = 18 ft = 548.64 cm
mf = 1.9E-01 µg/s = 6.0E+00 g/yr = 0.0131 lbs/yr

Geometric mean of PDI slug tests for shallow water table wells
Measured in vicinity of selected contours
Geometric mean concentration between selected contours
Length of segment between selected contours [C]
Saturated thickness

1-35 Contour

k = 6.1E-03 hydraulic conductivity, cm/s
i = 0.013 hydraulic gradient, dimensionless
C = 18.71 µg/L = 0.018708287 µg/cm³
L = 85 ft = 2590.8 cm
b = 18 ft = 548.64 cm
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

Geometric mean of PDI slug tests for shallow water table wells
Measured in vicinity of selected contours
Geometric mean concentration between selected contours
Length of segment between selected contours [C]
Saturated thickness

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where: D_R = Patchogue River flow, L/s = 11.2 7Q10 flow (ft³/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUENY), for period 4/1/1958 through
mf_{sgw} = Shallow groundwater flux See above
D_R = 11.2 ft³/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:

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the constituent ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

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 $\mu\text{g}/\text{sec}$) 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 ($\mu\text{g}/\text{L}$)

mf_{sgw} = Mass flux to the river from shallow groundwater ($\mu\text{g}/\text{s}$)

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 ($11.2 \text{ ft}^3/\text{s}$ or $317 \text{ L}/\text{s}$) 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 $20.4 \text{ ft}^3/\text{s}$ ($579 \text{ L}/\text{s}$). 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

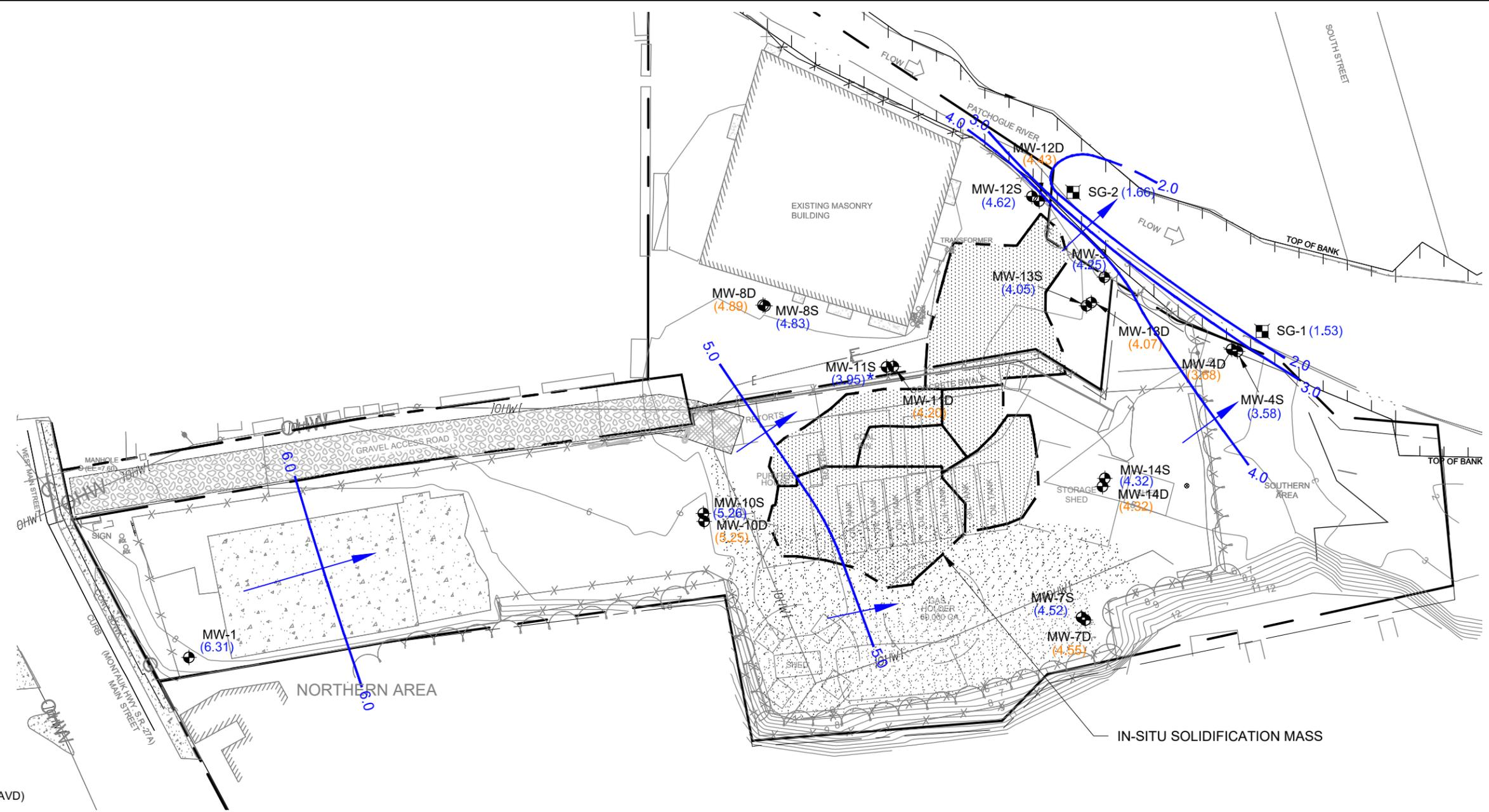
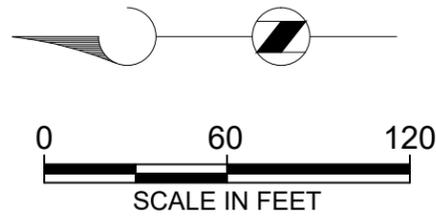
Notes:

(1) - 7Q10 flow (ft³/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.

ft³/s - cubic feet per second

Figures





- LEGEND:**
- PROPERTY LINE
 - x — 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

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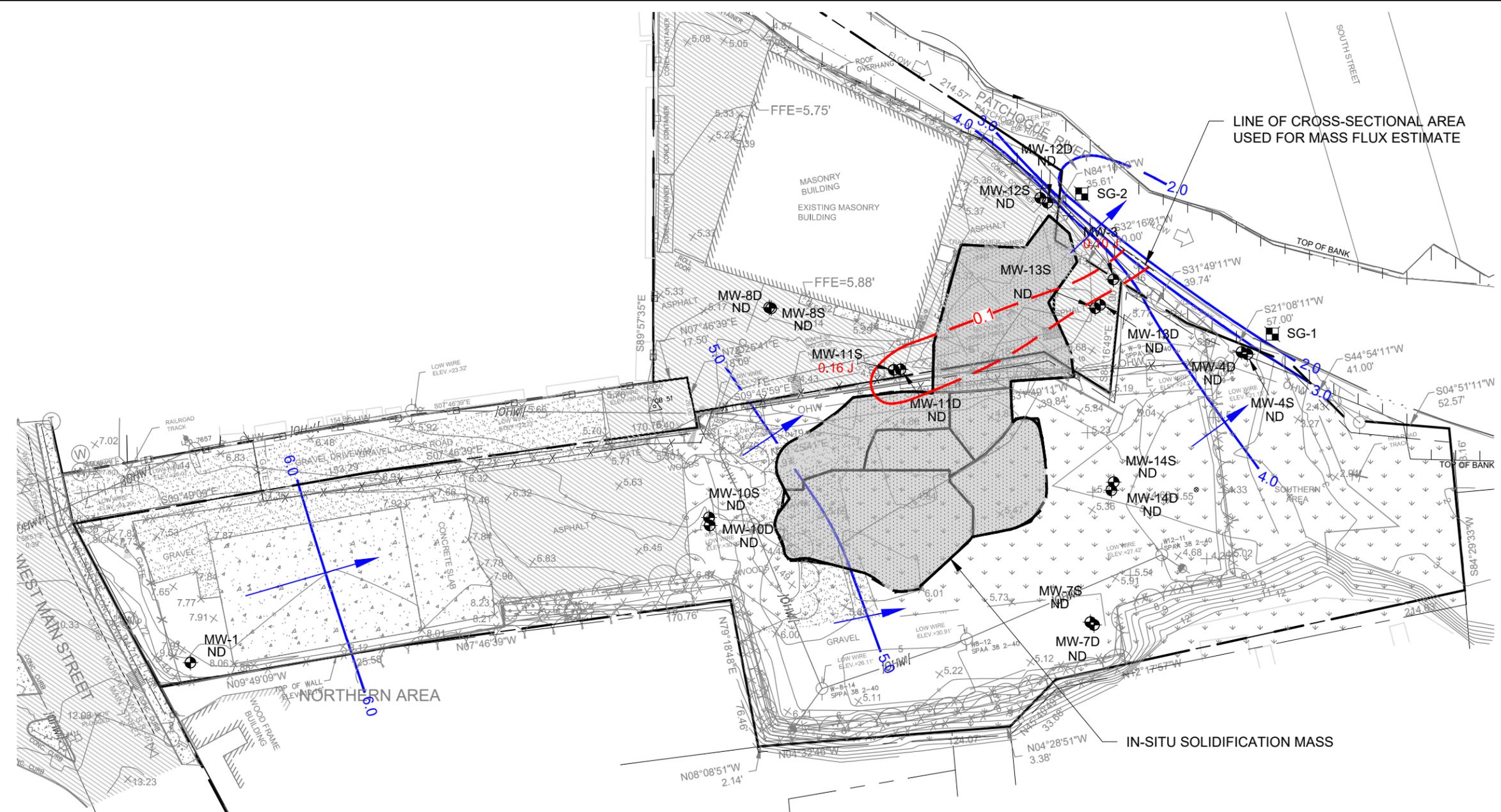
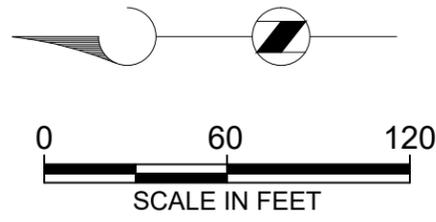


SCALE: 1" = 60'
153021
DATE: February 2021

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

WATER TABLE ELEVATION CONTOUR MAP
DECEMBER 28, 2020

FIGURE
E-1



- LEGEND:**
- — — — — PROPERTY LINE
 - x — — — — — 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

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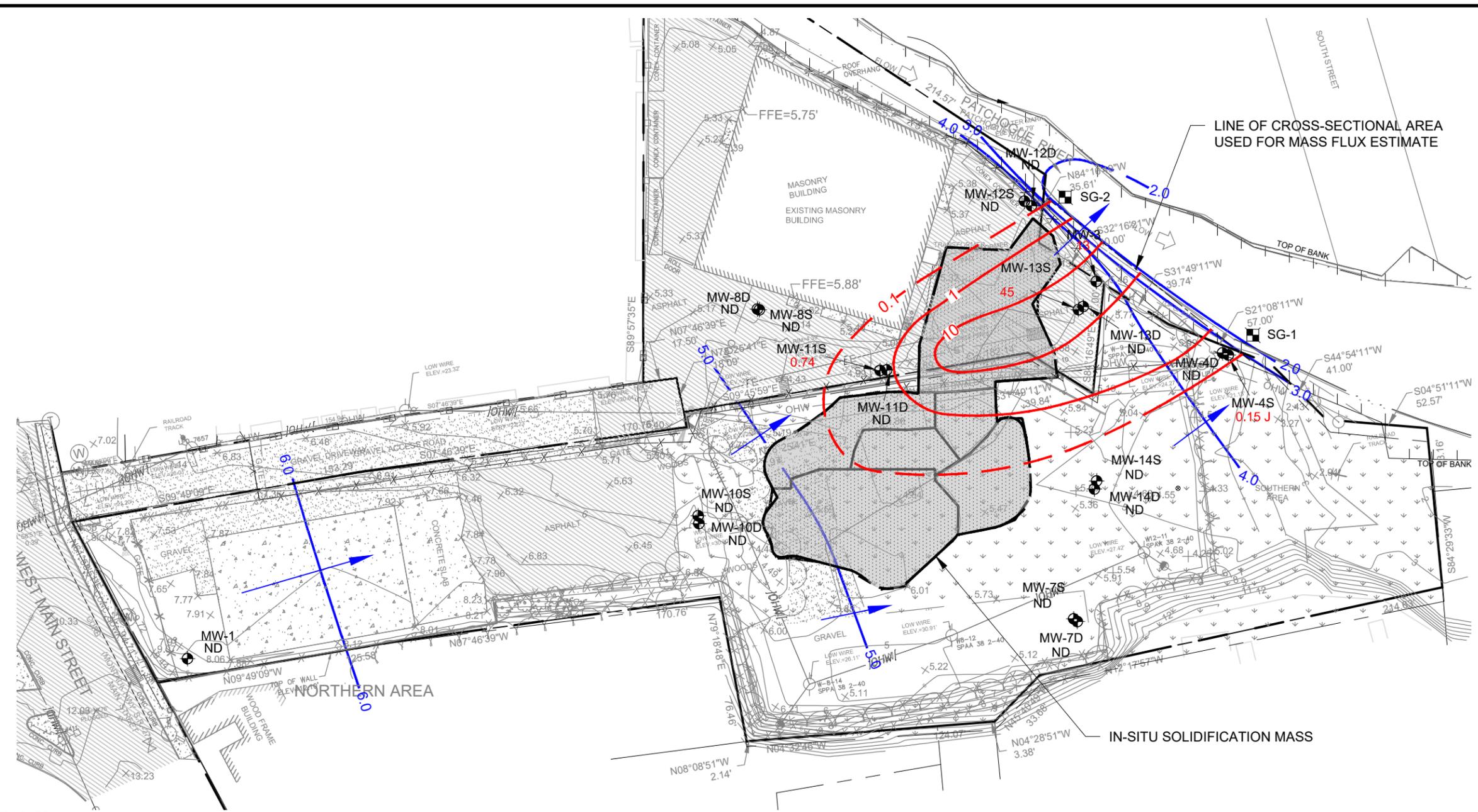
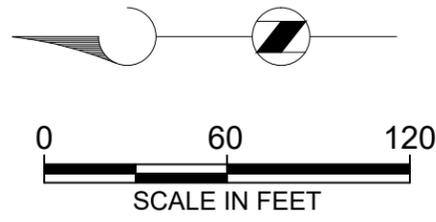


SCALE: 1" = 60'
 153021
 DATE: January 2021

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

BENZO(A)PYRENE IN GROUNDWATER
 DECEMBER, 2020

FIGURE
E-2



- LEGEND:**
- PROPERTY LINE
 - x x 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

Path: C:\users\asantiago\pcpw\d0901435 File Name: Phenanthrene_December2020 Plot Date: February 8, 2021 12:33 PM Cadd User: Alan Santiago



SCALE: 1" = 60'
 153021
 DATE: January 2021

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

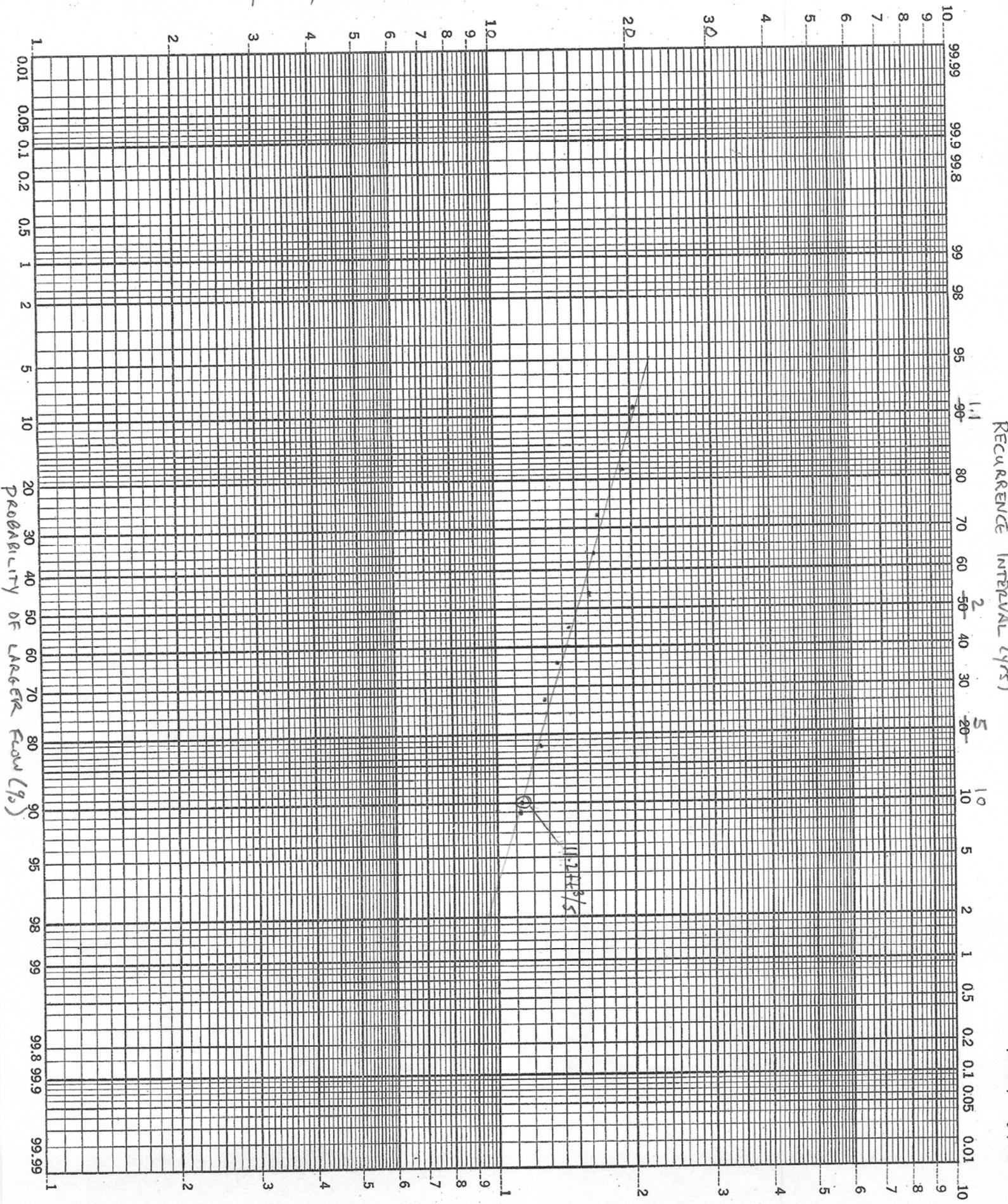
PHENANTHRENE IN GROUNDWATER (µg/L)
 DECEMBER, 2020

FIGURE
E-3

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



RECUARENCE INTERVAL (YRS)

PROBABILITY OF EXCEEDANCE FLOW (CFS)

**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
 l = hydraulic gradient, dimensionless
 A = cross-sectional area, cm² (l * b)
 C = (µg/L)/1000=µg/cm³

Shallow Groundwater Flux

0.1-0.1 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells	Contour Interval	Geomean	Segment Length Thickness	
i =	0.15	hydraulic gradient, dimensionless	Measured in vicinity of selected contours	0.1			
C =	0.1 µg/L =	0.0001 µg/cm ³	Geometric mean concentration between selected contours	0.1	0.10	16	18
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 (ft³/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 ft³/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, $\mu\text{g/s}$
 k = hydraulic conductivity, cm/s
 i = hydraulic gradient, dimensionless
 A = cross-sectional area, $\text{cm}^2 (L * b)$
 C = $(\mu\text{g/L})/1000 = \mu\text{g/cm}^3$

Shallow Groundwater Flux

				Contour		Segment	
				Interval	Geomean	Length	Thickness
0.1-1 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 =	0.316227766	$\mu\text{g/L} = 0.000316228 \mu\text{g/cm}^3$	Geometric mean concentration between selected contours			
	L =	35 ft =	1066.8 cm	Length of segment between selected contours [C]			
	b =	18 ft =	548.64 cm	Saturated thickness			
	mf =	1.7E-01	$\mu\text{g/s} = 5.3E+00 \text{ g/yr} = 0.01176 \text{ lbs/yr}$	0.1			
				1	0.32	35	18
				10	3.16	67	18
				13	11.40	26	18
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	$\mu\text{g/L} = 0.003162278 \mu\text{g/cm}^3$	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	$\mu\text{g/s} = 1.0E+02 \text{ g/yr} = 0.2251 \text{ lbs/yr}$				
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	$\mu\text{g/L} = 0.011401754 \mu\text{g/cm}^3$	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	$\mu\text{g/s} = 1.4E+02 \text{ g/yr} = 0.3150 \text{ lbs/yr}$				
	mf _{sgw} =	7.95	$\mu\text{g/s} = 251 \text{ g/yr} = 0.552 \text{ lbs/yr}$				

River Concentration

$$C_R = \frac{mf_{sgw}}{D_R}$$

Where: D_R = Patchogue River flow, L/s **11.2** 7010 flow (ft³/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 ft³/s = 317 L/s
 C_R = 0.025 $\mu\text{g/L}$

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:

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved hydroxide from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the hydroxide ion ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

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 $\mu\text{g}/\text{sec}$) 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 ($\mu\text{g/L}$)

mf_{sgw} = Mass flux to the river from shallow groundwater ($\mu\text{g/s}$)

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 ft³/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 ft³/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 $\mu\text{g/L}$, 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 $\mu\text{g/L}$ 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

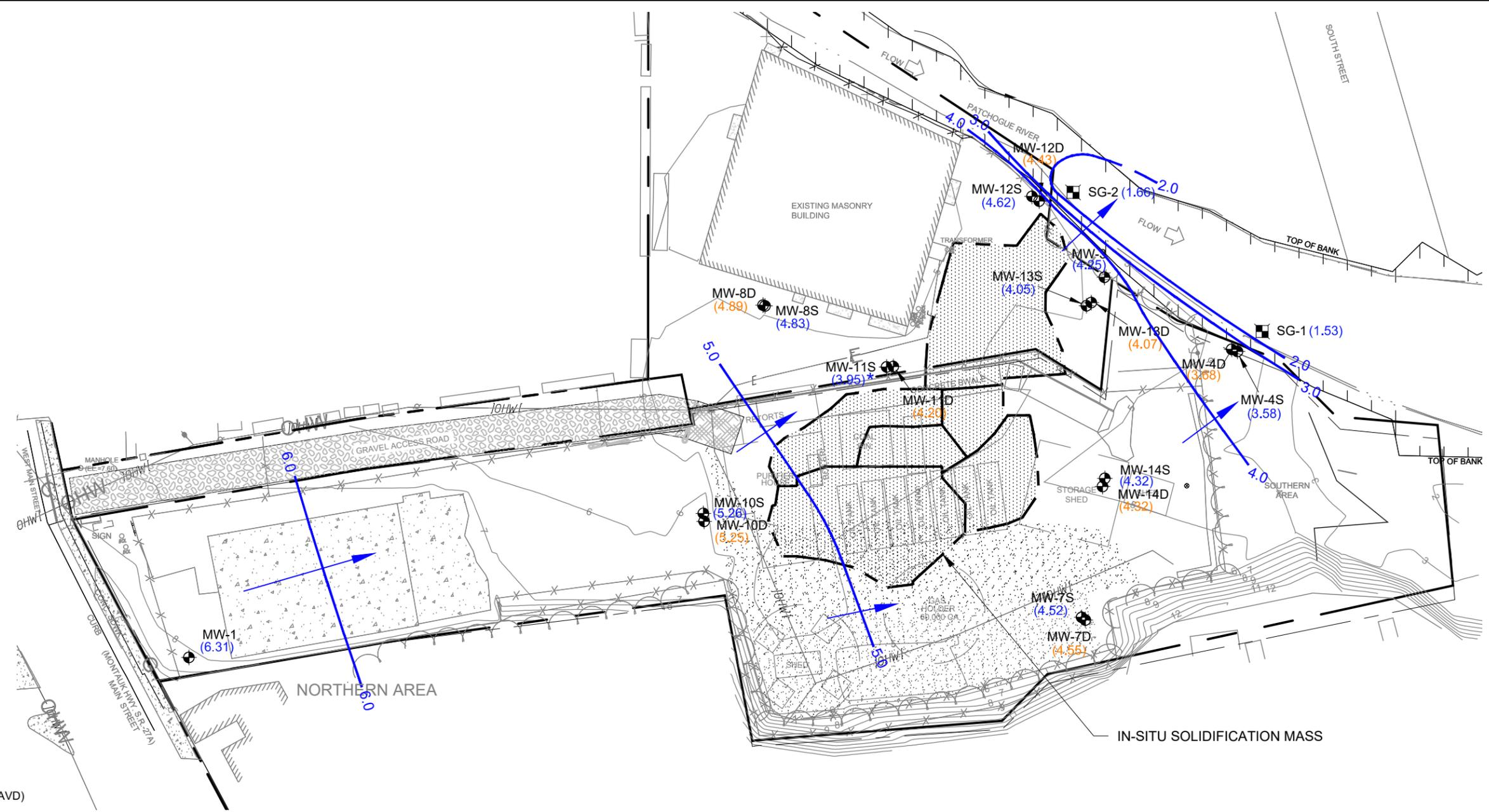
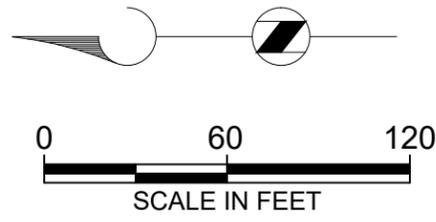
Notes:

(1) - 7Q10 flow (ft³/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.

ft³/s - cubic feet per second

Figures





- LEGEND:**
- PROPERTY LINE
 - x — 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

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SCALE: 1" = 60'
153021
DATE: February 2021

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

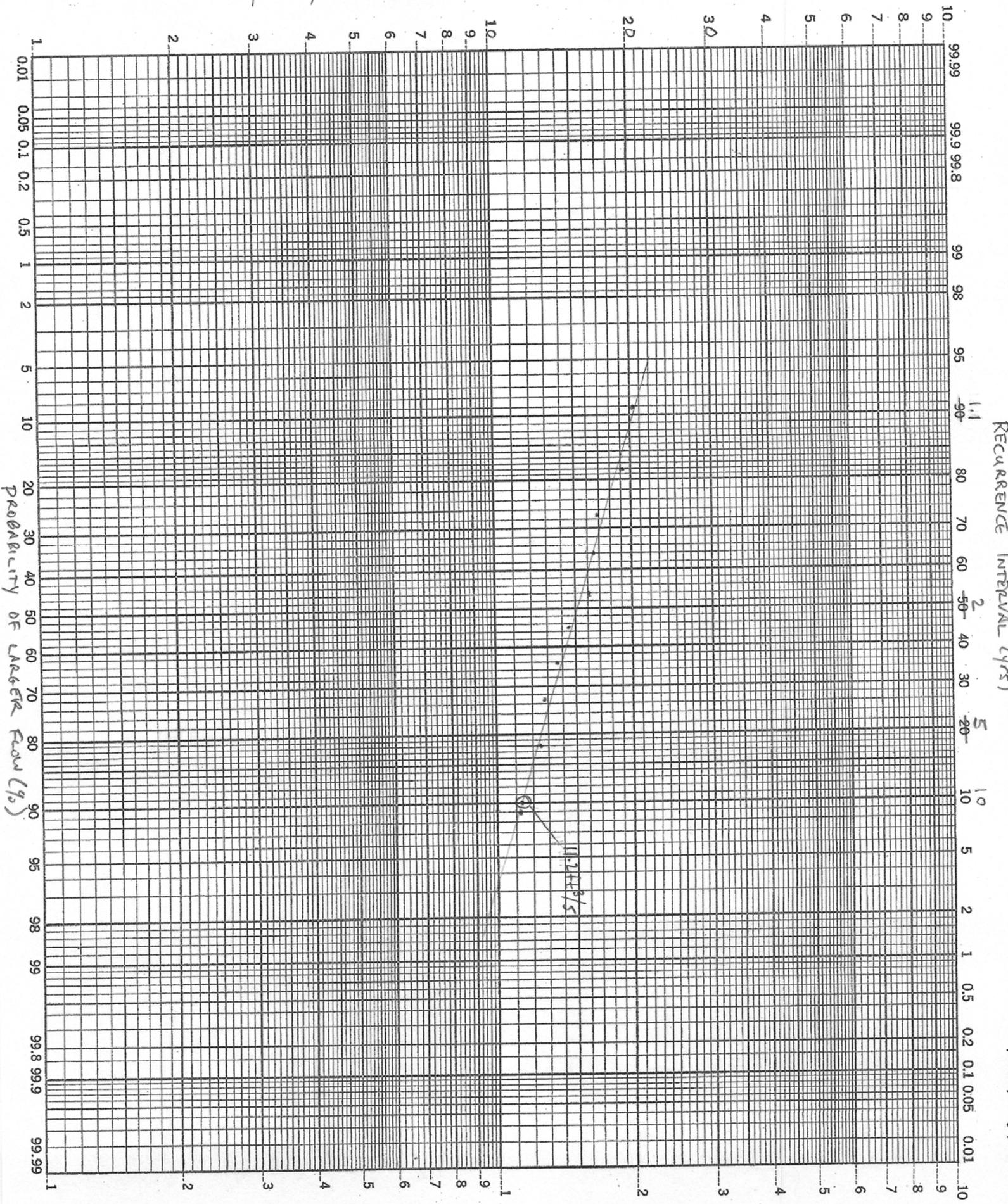
WATER TABLE ELEVATION CONTOUR MAP
DECEMBER 28, 2020

FIGURE
G-1

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



**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, cm² (l * b)
C = (µg/L)/1000 = µg/cm³

Shallow Groundwater Flux

10-100 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells	Contour		Segment	
i =	0.15	hydraulic gradient, dimensionless	Measured in vicinity of selected contours	Interval	Geomean	Length	Thickness
C =	31.6227766	µg/L = 0.0316227777 µg/cm ³	Geometric mean concentration between selected contours	10			
L =	23	ft = 701.04 cm	Length of segment between selected contours [C]	100	31.62	23	18
b =	18	ft = 548.64 cm	Saturated thickness	1000	316.23	63	18
mf =	1.1E+01	µg/s 3.5E+02 g/yr	0.77275 lbs/yr	4905	2214.72	25	18

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** 7010 flow (ft³/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 ft³/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