



Quarterly Groundwater Monitoring Report – Fourth Quarter 2021 NYSDEC Spill #95-00846

39-04 Northern Boulevard
Long Island City, New York 11101

January 31, 2022

Prepared for:
GIC Queens LLC

Prepared by:
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1. Introduction

On behalf of GIC Queens LLC (GIC Queens), Roux Environmental Engineering and Geology, D.P.C. (Roux) has prepared this Quarterly Groundwater Monitoring Report to summarize the groundwater monitoring activities completed during the 4th Quarter of 2021 at the Site located at 39-04 Northern Boulevard, Long Island City, New York (Site) for New York State Department of Environmental Conservation (NYSDEC) Spill #95-00846. The Site is currently owned by GIC Queens, who acquired the Site in late 2021.

This report for the 4th Quarter 2021 monitoring period provides a brief description of Site background information, a description of the field activities and methodologies, and a discussion of the groundwater analytical results and conclusions. The report is organized as follows:

- Section 1: Introduction.
- Section 2: Site Overview.
- Section 3: Quarterly Groundwater Sampling Methods and Results.
- Section 4: Conclusions and Schedule for Future Monitoring Activities.

2. Site Overview

This section includes a brief description of the Site and its history.

2.1 Site Description and History

The Site consists of one parcel located at 39-04 Northern Boulevard, Long Island City, New York and is identified as Block 183, Lot 12 on the New York City Tax Map (see Site Location Map provided as Figure 1).

The Site is a former retail gasoline fueling station, whose operations ceased in October 2018. The property measures approximately 38,917 square feet in total and is improved with one single-story commercial building measuring approximately 2,520 square feet, one storage unit measuring approximately 720 square feet, a pump island canopy, and an asphalt-paved parking area. The Site was first developed in approximately 1936 and was used as a fueling station from the late 1930s until 2018.

Impacted soils were encountered during an underground storage tank (UST) upgrade project in April 1995. As part of the UST upgrade, four (4) 4,000-gallon, two (2) 2,000-gallon, and thirty-eight (38) 550-gallon steel gasoline USTs and one (1) 1,000-gallon steel fuel-oil UST were removed from the Site, and two (2) 550-gallon USTs were abandoned in place in the central portion of the Site. The UST upgrade included the installation of four (4) 4,000-gallon gasoline USTs, one (1) 4,000-gallon diesel UST, and one (1) 550-gallon wastewater UST. During this UST upgrade project, approximately 846 tons of impacted soil was removed off-Site for disposal. NYSDEC Spill number 95-00846 was subsequently opened following the discovery of impacted Site soil and groundwater. As part of the remediation and monitoring effort related to the Spill, nine (9) groundwater monitoring wells were installed, which have been periodically monitored since their installation.

Quarterly groundwater monitoring at the Site was conducted by Envirotrac LTD. (Envirotrac) from June 2013 through August 2018 (22 monitoring events). The property's ownership changed in November 2018 and P.W. Grosser Consulting, Inc. (PWGC) was retained to continue groundwater monitoring through September 2021 (12 monitoring events). In late 2021, ownership of the Site changed again and Roux was retained in January 2022 to take over groundwater monitoring for the Site. This report documents the first monitoring event performed by Roux for the Site.

A geophysical survey conducted by PWGC in September 2018 identified the presence of four (4) 550-gallon out of service gasoline USTs in the northwest corner of the property and two (2) out of service 2,000-gallon USTs in the southern portion of the property.

In October 2018, four (4) 4,000-gallon gasoline USTs, one (1) 4,000-gallon diesel UST, one (1) 550-gallon wastewater UST, and four (4) 550-gallon out of service gasoline USTs were closed and removed from the Site. UST closure activities were documented in a UST Closure Report (Envirotrac, 2018). During the October 2018 UST removal activities, monitoring well MW-9, which was located at the central portion of the property, was destroyed.

Two (2) abandoned 550-gallon USTs and two (2) out of service 2,000-gallon USTs remain at the Site and are expected to be removed during future Site redevelopment/remediation activities.

3. Quarterly Groundwater Monitoring and Sampling

This section details the groundwater gauging and sampling activities implemented at the Site as part of the 4th Quarter 2021 monitoring event. Roux mobilized to the Site on Wednesday, January 12, 2022, to perform quarterly monitoring activities. Note that the fourth quarter sampling event was slightly delayed due to the change of ownership. Going forward, quarterly sampling will be conducted on a quarterly schedule starting in March for the first quarter of 2022, with subsequent events in June, September, and December 2022.

3.1 Groundwater Gauging

In accordance with the NYSDEC Guidance, Roux conducted a water level gauging round to determine the depth to water (DTW) and the current depth to bottom (DTB) in the three (3) monitoring wells to be sampled, MW-2, MW-7, and MW-8, in the central and downgradient portion of the Site. Gauging activities were completed in each well prior to initiating purging or sampling activities in any wells. All measurements were collected from a consistent measuring point elevation on the well casing. The DTW and DTB in each well was measured using an electronic water level meter with an accuracy of +/- 0.01 feet. Groundwater monitoring data was recorded on the Well Sampling Data Sheets included in Attachment A, and groundwater gauging data is summarized in Table 1. All gauging data prior to January 2022 was collected by the previous consultant, PWGC. The locations of the three (3) monitoring wells sampled are as follows:

- MW-2: Located in the western portion of the Site, downgradient from the former UST locations.
- MW-7: Located in the south-central portion of the Site, south of the former UST locations.
- MW-8: Located in the southwest corner of the Site, downgradient of the former UST locations.

A Site plan illustrating the location of the monitoring wells and the former UST locations is included as Figure 2.

3.2 Groundwater Sampling

Following the completion of the groundwater gauging activities, Roux collected groundwater samples from three (3) groundwater monitoring wells, MW-2, MW-7, and MW-8. Each monitoring well was purged and sampled with new dedicated tubing that was disposed of following sample collection. All wells were purged and sampled using a peristaltic pump, in accordance with USEPA low-flow sampling requirements (as detailed in the NYSDEC Guidance). Field parameters (i.e., pH, temperature, dissolved oxygen, oxidation-reduction potential (ORP), conductivity, and turbidity) were collected while purging each well using a water quality meter with a flow-through cell until parameters stabilized. The Well Sampling Data Forms detailing field parameter measurements, field observations, and sample information are included as Attachment A. Once the groundwater parameters stabilized, one groundwater sample was collected from each of the monitoring wells. Groundwater samples were collected directly into laboratory-supplied sample bottles (which contained the proper preservative), which were then sealed, labeled with all relevant information, and immediately placed in an ice-filled cooler. All samples were then sent via courier under chain-of-custody procedures to Alpha Analytical, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program-certified laboratory located at 8 Walkup Drive Westborough, Massachusetts (Alpha Analytical).

Following sample collection at each well, the sampling equipment was properly decontaminated, and the procedures were documented in the Site-specific field book.

3.2.1 Quality Assurance/Quality Control (QA/QC)

Field and laboratory QA/QC procedures were used to ensure field sampling and analytical procedures were consistent and to evaluate the usability of the data. One trip blank and one duplicate sample were collected and analyzed.

3.2.2 Laboratory Analysis

Groundwater samples were analyzed for the NYSDEC CP-51 list of Volatile Organic Compounds via USEPA Method 8260 by Alpha Analytical. The deliverables were completed in accordance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation.

3.2.3 Analytical Results

Groundwater sample results were compared to the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs). Analytical results are presented in Table 2. Complete analytical data packages provided by Alpha Analytical are included as Attachment B.

3.2.3.1 Volatile Organic Compounds (VOCs)

During this sampling event, eleven (11) of the fifteen (15) VOCs analyzed were detected at concentrations above AWQSGVs in at least one of the groundwater samples. A summary of VOC exceedances is included on Figure 3.

- 1,2,4-Trimethylbenzene was detected at a concentration exceeding its AWQSGV (5 micrograms per liter ($\mu\text{g/L}$)) in one groundwater sample (MW-7) with a concentration of 24 $\mu\text{g/L}$.
- Benzene was detected at concentrations exceeding its AWQSGV (1 $\mu\text{g/L}$) in one groundwater sample (MW-2) and its duplicate sample (MW-2(DUP)). The highest concentration of benzene detected was 670 $\mu\text{g/L}$ in sample MW-2(DUP).
- Ethylbenzene was detected at concentrations exceeding its AWQSGV (5 $\mu\text{g/L}$) in all three groundwater samples and the duplicate. The highest concentration of ethylbenzene detected was 34 $\mu\text{g/L}$ in samples MW-2(DUP).
- Isopropylbenzene (also known as cumene) was detected at concentrations exceeding its AWQSGV (5 $\mu\text{g/L}$) in two groundwater samples and the duplicate. The highest concentration of isopropylbenzene detected was 120 $\mu\text{g/L}$ in sample MW-8.
- m,p-Xylene was detected at concentrations exceeding its AWQSGV (5 $\mu\text{g/L}$) in two groundwater samples and the duplicate. The highest concentration of m,p-xylene detected was 99 $\mu\text{g/L}$ in sample MW-2(DUP).
- Naphthalene was detected at concentrations exceeding its AWQSGV (10 $\mu\text{g/L}$) in one groundwater sample and the duplicate (it was not detected in the parent sample MW-2). The highest concentration detected was 550 $\mu\text{g/L}$ in sample MW-8.
- N-Butylbenzene was detected at concentrations exceeding its AWQSGV (5 $\mu\text{g/L}$) in two groundwater samples and the duplicate. The highest concentration detected was 22 $\mu\text{g/L}$ in sample MW-8.
- N-Propylbenzene was detected at concentrations exceeding its AWQSGV (5 $\mu\text{g/L}$) in all three groundwater samples and the duplicate. The highest concentration of n-propylbenzene detected was 400 $\mu\text{g/L}$ in sample MW-8.

- O-Xylene (also known as 1,2-Dimethylbenzene) was detected at concentrations exceeding its AWQSGV (5 µg/L) in one groundwater sample and the duplicate. The highest concentration of O-Xylene detected was 6.9 µg/L (estimated) in sample MW-2(DUP).
- Sec-Butylbenzene was detected at concentrations exceeding its AWQSGC (5 µg/L) in two groundwater samples and the duplicate. The highest concentration of sec-butylbenzene detected was 9 µg/L (estimated) in sample MW-2 (DUP).
- Toluene was detected at concentrations exceeding its AWQSGV (5 µg/L) in two groundwater samples and the duplicate. The highest concentration of toluene was 58 µg/L in sample MW-2(DUP).

4. Conclusions and Schedule for Future Monitoring Activities

The following sections present conclusions from the 4th Quarter 2021 monitoring activities, and a description of planned work for the 1st Quarter of 2022.

4.1 Conclusions

Based on these results, the highest degree of residual impact appears to be located downgradient of the former UST locations in the western portion of the property. Petroleum VOC concentrations have remained generally consistent since 2017 with seasonal fluctuations that appear to be associated with changes in groundwater elevation. These findings are consistent with the findings of previous monitoring events performed at the Site.

4.2 Schedule

The next quarterly groundwater sampling event will occur in March 2022 and a summary report and data deliverable will be submitted to the NYSDEC within 45 days of the end of the quarter (by no later than May 15, 2022).

As requested by the previous consultant via email on September 21, 2021, based on the past several years of data establishing a stabilization of residual spill impacts with seasonal fluctuations, it is requested that routine groundwater monitoring (of the same three monitoring wells) be reduced from quarterly to twice per year. No changes to the sampling frequency will be made unless approved by NYSDEC.

Respectfully submitted,

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.

Emily Butler
Project Geologist

Noelle Clarke, P.E.
Principal Engineer

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TABLES

1. Summary of Water Level Measurements
2. Summary of Volatile Organic Compounds by USEPA Method 8260 (CP-51 List) in Groundwater

**Table 1. Summary of Water Level Measurements,
GIC Queens LLC, 39-04 Northern Boulevard, Long Island City, New York**

Groundwater Elevation (ft.)			
Measurement Date	MW-2	MW-7	MW-8
1/12/2022	17.31	17.27	17.28
9/8/2021	23.33	18.06	18.25
6/7/2021	17.74	17.71	17.70
3/31/2021	17.74	17.50	17.71
12/29/2020	16.78	17.2	17.73

Note: All gauging data prior to 2022 was collected by the previous consultant, PWGC.

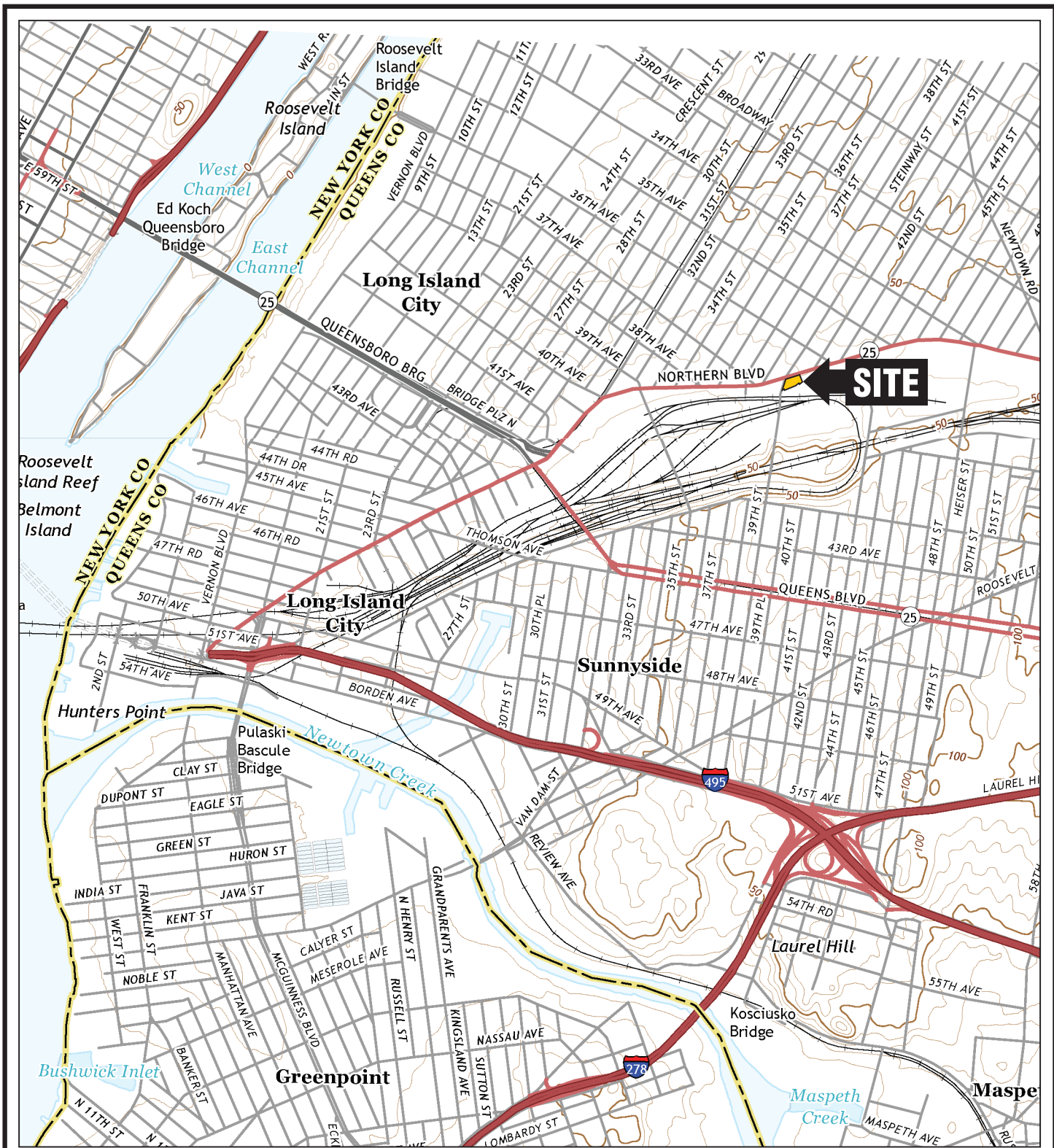
Table 2. Summary of Volatile Organic Compounds by USEPA Method 8260 (CP-51 List) in Groundwater, 39-04 Northern Boulevard, Long Island City, New York

Sample Designation:		MW-2	MW-2	MW-7	MW-8	
Sample Date:		01/12/2022	01/12/2022	01/12/2022	01/12/2022	
Normal Sample or Field Duplicate:		N	FD	N	N	
Parameter	NYSDEC Ambient Water Quality Standards and Guidance	Units				
1,2,4-Trimethylbenzene	5	UG/L	12 U	12 U	24	12 U
1,3,5-Trimethylbenzene (Mesitylene)	5	UG/L	3.8 J	4 J	2.5 U	12 U
Benzene	1	UG/L	660	670	0.5 U	0.84 J
Cymene	5	UG/L	12 U	12 U	2.5 U	12 U
Ethylbenzene	5	UG/L	32	34	18	33
Isopropylbenzene (Cumene)	5	UG/L	76	95	3	120
m,p-Xylene	5	UG/L	94	99	2.5 U	9.5 J
Naphthalene	10	UG/L	8.7 J	38	4.4	550
N-Butylbenzene	5	UG/L	14	15	2.5 U	22
N-Propylbenzene	5	UG/L	250	270	11	400
O-Xylene (1,2-Dimethylbenzene)	5	UG/L	6.4 J	6.9 J	2.5 U	12 U
Sec-Butylbenzene	5	UG/L	8.9 J	9 J	1.1 J	15
T-Butylbenzene	5	UG/L	12 U	12 U	2.5 U	12 U
Tert-Butyl Methyl Ether	10	UG/L	12 U	12 U	2.5 U	12 U
Toluene	5	UG/L	53	58	2.5 U	10 J

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FIGURES

1. Site Location Map
2. Site Plan
3. VOC Exceedances in Groundwater



QUADRANGLE LOCATION

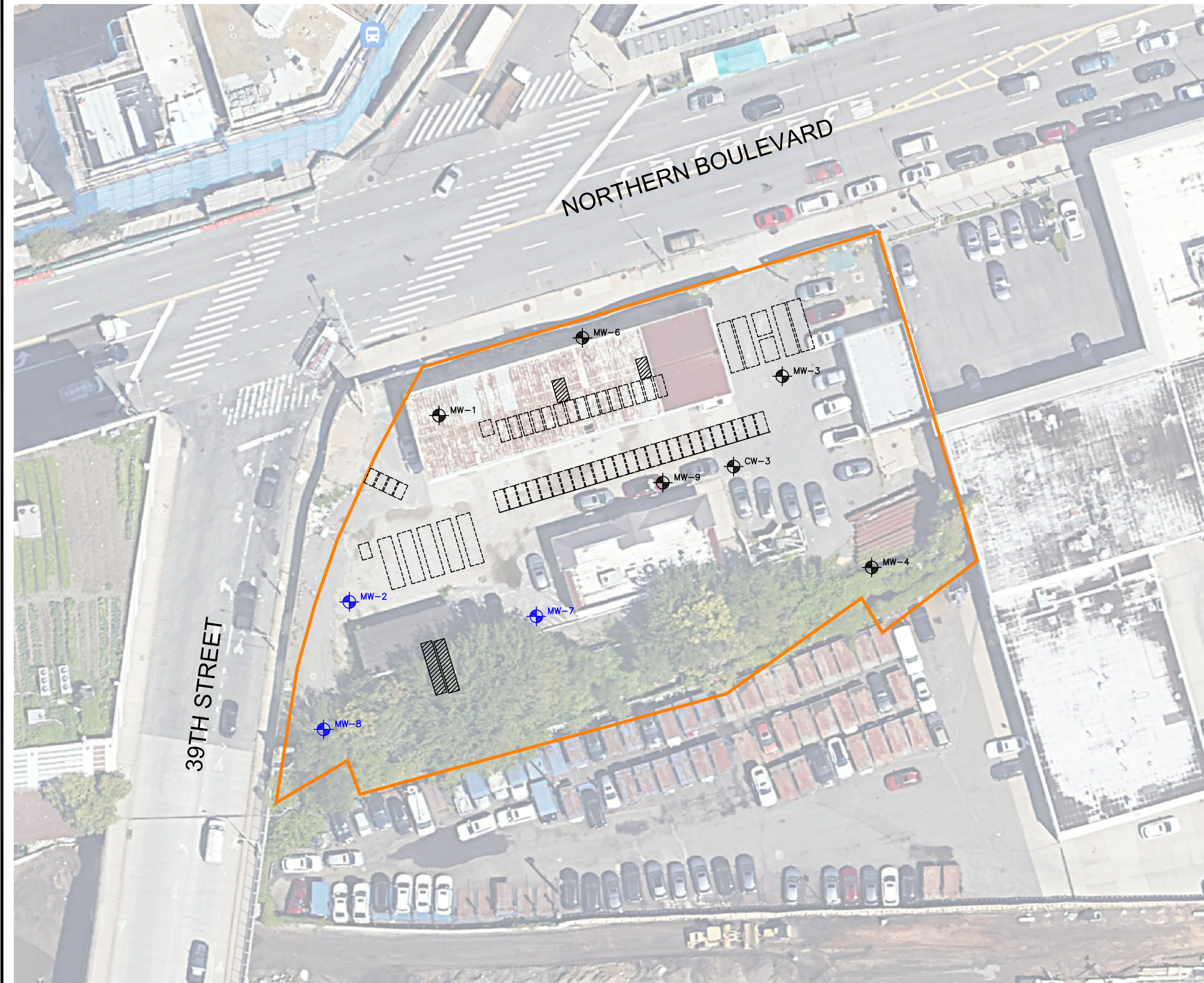


SOURCE:
USGS; Central Park, NY, NJ (2019)
and Brooklyn, NY (2019)
7.5-Minute Topographic Quadrangles


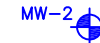
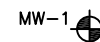




Title:			SITE LOCATION MAP
39-09 NORTHERN BOULEVARD LONG ISLAND CITY, NEW YORK			
Prepared for:		GIC QUEENS LLC	
ROUX	Compiled by: E.B.	Date: 25JAN22	FIGURE 1
	Prepared by: B.H.C.	Scale: AS SHOWN	
	Project Mgr: E.B.	Project: 3883.0002Y000	
	File: 3883.0002Y102.01.CDR		

3883Y.0002Y102.01.CDR

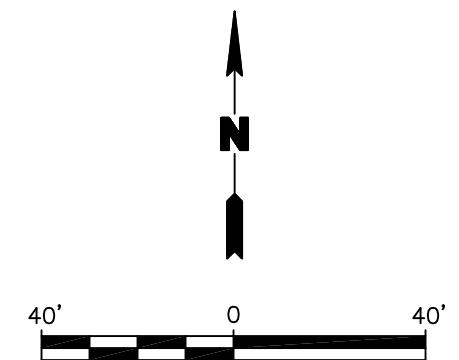



LEGEND

-  SITE BOUNDARY
-  MW-2 LOCATION AND DESIGNATION OF MONITORING WELL
-  MW-1 LOCATION AND DESIGNATION OF MONITORING WELL REMOVED FROM SAMPLING ITINERARY
-  ABANDONED IN PLACE UST
-  FORMER UST LOCATION

NOTE

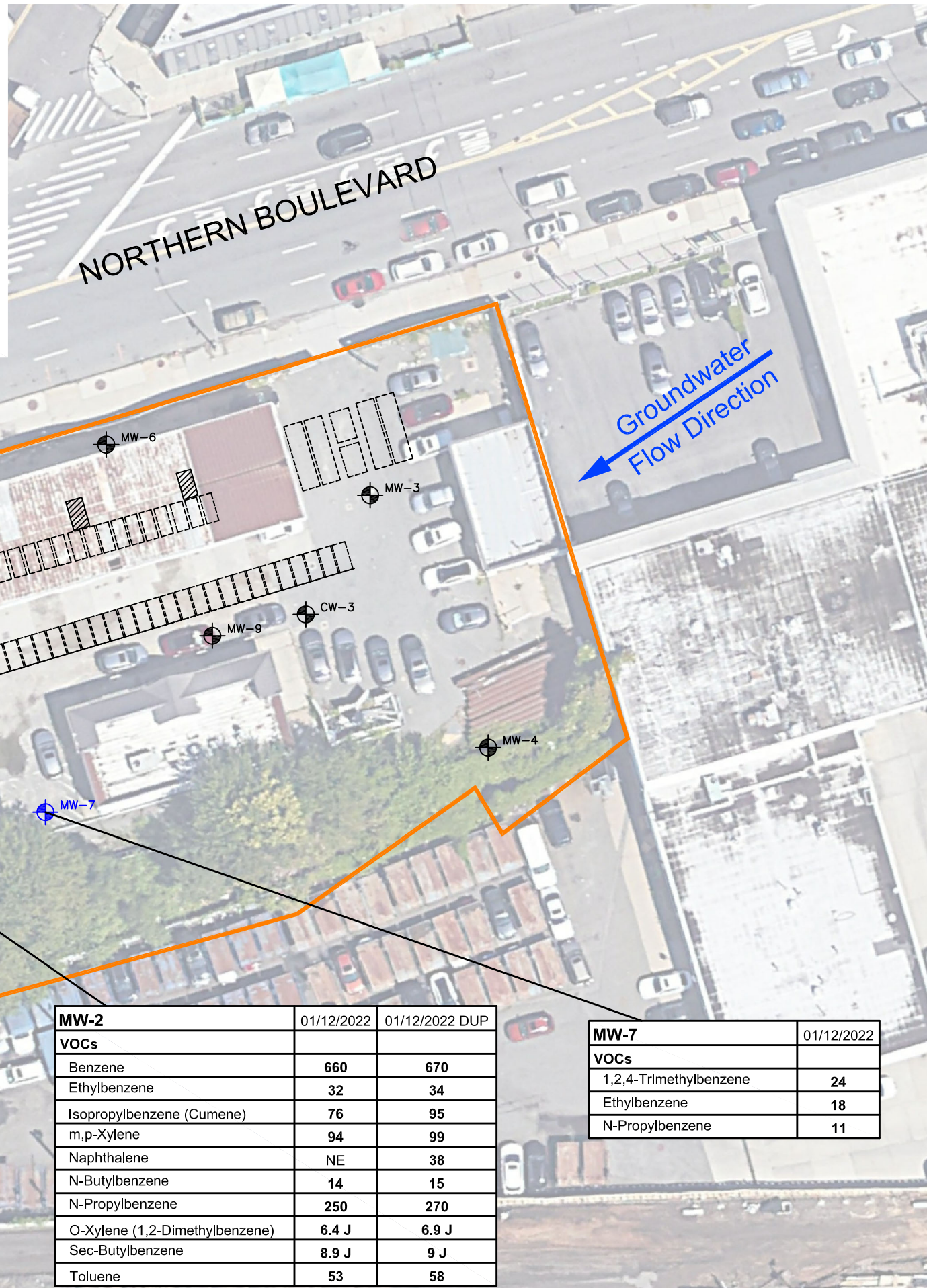
LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND BASED ON FIGURE 2 FROM PWGC QUARTERLY GROUNDWATER MONITORING REPORT FOR THIRD QUARTER 2021, DATED SEPTEMBER 2021.



Title:			
SITE PLAN			
39-09 NORTHERN BOULEVARD LONG ISLAND CITY, NEW YORK			
Prepared for:			
GIC QUEENS LLC			
	Compiled by: E.B.	Date: 1/25/2022	FIGURE 2
	Prepared by: B.H.C.	Scale: AS SHOWN	
	Project Mgr: E.B.	Project: 3883.0002Y000	
	File: 3883.0002Y102.02.DWG		

Parameter	NYSDEC AWQSGV
VOCs	
1,2,4-Trimethylbenzene	5
Benzene	1
Ethylbenzene	5
Isopropylbenzene (Cumene)	5
m,p-Xylene	5
Naphthalene	10
N-Butylbenzene	5
N-Propylbenzene	5
O-Xylene (1,2-Dimethylbenzene)	5
Sec-Butylbenzene	5
Toluene	5

Concentrations in µg/L
 µg/L - Micrograms per liter
 NYSDEC - New York State Department of Environmental Conservation
 AWQSGVs - Ambient Water-Quality Standards and Guidance Values
 -- Not detected above NYSDEC AWQSGV
 J - Estimated value
 DUP - Duplicate Sample
 VOCs - Volatile Organic Compounds
 NE - No exceedances
 ND - No detection



LEGEND

- SITE BOUNDARY
- MW-2 LOCATION AND DESIGNATION OF MONITORING WELL
- MW-1 LOCATION AND DESIGNATION OF MONITORING WELL REMOVED FROM SAMPLING ITINERARY
- ABANDONED IN PLACE UST
- FORMER UST LOCATION

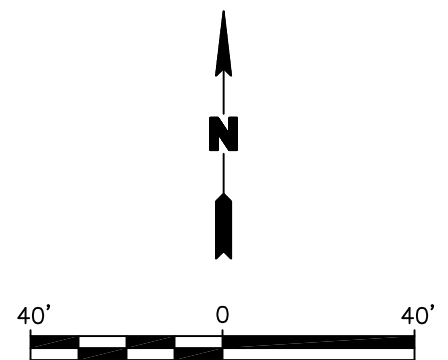
TYPICAL DATA BOX INFORMATION

SAMPLE ID#	MW-7	01/12/2022	SAMPLE DATE
ANALYTES	VOCs		
	1,2,4-Trimethylbenzene	24	
	Ethylbenzene	18	
	N-Propylbenzene	11	

CONCENTRATION (µg/L)

NOTE

LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND BASED ON FIGURE 2 FROM PWGC QUARTERLY GROUNDWATER MONITORING REPORT FOR THIRD QUARTER 2021, DATED SEPTEMBER 2021.



MW-8	01/12/2022
VOCs	
Ethylbenzene	33
Isopropylbenzene (Cumene)	120
m,p-Xylene	9.5 J
Naphthalene	550
N-Butylbenzene	22
N-Propylbenzene	400
Sec-Butylbenzene	15
Toluene	10 J

MW-2	01/12/2022	01/12/2022 DUP
VOCs		
Benzene	660	670
Ethylbenzene	32	34
Isopropylbenzene (Cumene)	76	95
m,p-Xylene	94	99
Naphthalene	NE	38
N-Butylbenzene	14	15
N-Propylbenzene	250	270
O-Xylene (1,2-Dimethylbenzene)	6.4 J	6.9 J
Sec-Butylbenzene	8.9 J	9 J
Toluene	53	58

MW-7	01/12/2022
VOCs	
1,2,4-Trimethylbenzene	24
Ethylbenzene	18
N-Propylbenzene	11

Title: **VOC EXCEEDANCES IN GROUNDWATER**
 39-09 NORTHERN BOULEVARD
 LONG ISLAND CITY, NEW YORK

Prepared for: **GIC QUEENS LLC**

	Compiled by: E.B.	Date: 1/28/2022	FIGURE 3
	Prepared by: B.H.C.	Scale: AS SHOWN	
	Project Mgr: E.B.	Project: 3883.0002Y000	
	File: 3883.0002Y102.02.DWG		

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APPENDICES

- A. Well Sampling Data Sheets
- B. Laboratory Analytical Results

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APPENDIX A

Well Sampling Data Sheets

Well Sampling Data Form

Client: GIC Queens LLC **Project Number:** 3883.0002Y000

Site Location: 39-04 Northern Boulevard, Long Island City, New York

Well No: MW-8 Weather: 30° F, Sunny

Date: 1/12/2022 Purge Water Disposal: Drum

Sampled By: M.S. Well Diameter / Type: 4" PVC

Depth of Well (ft): 28.02 Water Column (ft): 8.26

Depth to Water(ft): 19.76 Volume of Water in Well (gal): 5.39

Depth to Product (ft): - Volume of Water to Remove (gal):

well diameter:	1 in	2 in	4 in	6 in	8 in
gallons per foot:	0.041	0.163	0.653	1.469	2.611

Start Purging: 10:41 Purge Rate: 0.1025 gallons/min

End Purging: 11:20 Volume of Water Removed (gal): 4 gallons

Method of Purge: peristaltic pump Method of Sampling: low-flow

Physical Appearance/
Comments: clear

Samples Collected: NYCP 51-8260, 3 Voas (HCl)
(analyses / no. bottles)

Time: 11:25 Laboratory : Alpha Analytical

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O ₂ mg/L (w/in 10%)
10:45	19.79		-14	1.47	21.5	6.48	12.28	0.74
10:50	19.8		-45	1.40	20.3	6.88	13.16	0.00
10:55	19.82		-55	1.39	26.3	6.98	12.13	0.00
11:00	19.84		-60	1.38	30.1	7.03	11.90	0.00
11:05	19.85		-61	1.37	29.4	7.06	11.94	0.00
11:10	19.85		-65	1.37	27.3	7.08	11.98	0.00
11:15	19.85		-66	1.36	28.2	7.08	12.01	0.00
11:20	19.85		-66	1.36	26.9	7.08	11.99	0.00

Well Sampling Data Form

Client: GIC Queens LLC **Project Number:** 3883.0002Y000

Site Location: 39-04 Northern Boulevard, Long Island City, New York

Well No: MW-7 Weather: 30° F, Sunny

Date: 1/12/2022 Purge Water Disposal: Drum

Sampled By: M.S. Well Diameter / Type: 4" PVC

Depth of Well (ft): 24.90 Water Column (ft): 6.64

Depth to Water(ft): 18.26 Volume of Water in Well (gal): 4.34

Depth to Product (ft): - Volume of Water to Remove (gal):

well diameter:	1 in	2 in	4 in	6 in	8 in
gallons per foot:	0.041	0.163	0.653	1.469	2.611

Start Purging: 9:36 Purge Rate: 0.0925 gallons/min

End Purging: 10:30 Volume of Water Removed (gal): 5 gallons

Method of Purge: peristaltic pump Method of Sampling: low-flow

Physical Appearance/
Comments: clear

Samples Collected: NYCP 51-8260, 3 Voas (HCl)
(analyses / no. bottles)

Time: 10:30 Laboratory : Alpha Analytical

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP mV (+/- 10 mV)	Conductivity mS/m - S/m (w/in 3%)	Turbidity NTU (w/in %10)	pH SU (+/- 0.1)	Temperature C° - F° (w/in 3%)	Dissolved O ₂ mg/L (w/in 10%)
9:40	18.28		80	2.20	342	6.57	8.70	1.43
9:45	18.29		-77	2.52	313	6.86	9.13	2.74
9:50	18.31		-92	2.52	244	7.04	10.19	1.83
9:55	18.31		-94	2.48	61.9	7.08	11.04	1.41
10:00	18.3		-83	2.44	28.4	7.05	11.39	0.00
10:05	18.3		-47	2.33	31.1	6.91	12.07	0.00
10:10	18.3		36	2.11	2.3	6.54	12.33	0.11
10:15	18.3		65	2.02	0.0	6.35	12.60	1.90
10:20	18.3		77	1.93	0.0	6.21	12.79	1.99
10:25	18.3		79	1.86	0.0	6.20	12.81	1.85
10:30	18.3		80	1.85	0.0	6.20	12.82	1.83

Well Sampling Data Form

Client: GIC Queens LLC **Project Number:** 3883.0002Y000

Site Location: 39-04 Northern Boulevard, Long Island City, New York

Well No: MW-2 Weather: 30° F, Sunny

Date: 1/12/2022 Purge Water Disposal: Drum

Sampled By: M.S. Well Diameter / Type: 4" PVC

Depth of Well (ft): 24.45 Water Column (ft): 6.38

Depth to Water(ft): 18.07 Volume of Water in Well (gal): 4.1

Depth to Product (ft): - Volume of Water to Remove (gal):

well diameter:	1 in	2 in	4 in	6 in	8 in
gallons per foot:	0.041	0.163	0.653	1.469	2.611

Start Purging: 8:46 Purge Rate: 0.0714 gallons/min

End Purging: 9:21 Volume of Water Removed (gal): 2.5 gallons

Method of Purge: peristaltic pumo Method of Sampling: low-flow

Physical Appearance/
Comments: clear

Samples Collected: NYCP51-8260, 3 Voas (HCl)
(analyses / no. bottles) w/ DUP-20220112 @12:00

Time: 9:20 Laboratory: Alpha Analytical

Field Measurements:

Time	DTW ft	Flow Rate ml/min	ORP	Conductivity	Turbidity	pH	Temperature	Dissolved O ₂
			mV (+/- 10 mV)	mS/m - S/m (w/in 3%)	NTU (w/in %10)	SU (+/- 0.1)	C° - F° (w/in 3%)	mg/L (w/in 10%)
8:50	18.26		0	1.37	141	6.05	8.07	2.57
8:55	18.28		-45	1.23	222	6.09	13.74	0.58
9:00	18.28		-57	1.20	121	6.20	14.95	0.46
9:05	18.31		-63	1.20	65.8	6.23	15.32	0.06
9:10	18.34		-69	1.20	40.8	6.31	14.73	0.00
9:15	18.35		-70	1.22	33.2	6.29	14.66	0.00
9:20	18.35		-70	1.23	32.9	6.30	14.64	0.00

Quarterly Groundwater Monitoring Report – Fourth Quarter 2021
39-04 Northern Boulevard
Long Island City, New York 11101

APPENDIX B

Laboratory Analytical Results



ANALYTICAL REPORT

Lab Number:	L2201739
Client:	Roux Env. Eng. & Geology, DPC 209 Shafter Street Islandia, NY 11749-5074
ATTN:	Emily Butler
Phone:	(631) 630-2432
Project Name:	GOODMAN
Project Number:	3883.0002Y000
Report Date:	01/18/22

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2201739-01	MW-2	WATER	39-04 NORTHERN BLVD., LIC, NY	01/12/22 09:25	01/12/22
L2201739-02	MW-7	WATER	39-04 NORTHERN BLVD., LIC, NY	01/12/22 10:30	01/12/22
L2201739-03	MW-8	WATER	39-04 NORTHERN BLVD., LIC, NY	01/12/22 11:25	01/12/22
L2201739-04	DUP-20220112	WATER	39-04 NORTHERN BLVD., LIC, NY	01/12/22 12:00	01/12/22
L2201739-05	TRIP BLANK	WATER	39-04 NORTHERN BLVD., LIC, NY	01/11/22 00:00	01/12/22

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2201739-01: The collection date and time on the chain of custody was 12-JAN-22 09:20; however, the collection date/time on the container label was 12-JAN-22 09:25. At the client's request, the collection date/time is reported as 12-JAN-22 09:25.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 01/18/22

ORGANICS

VOLATILES

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2201739-01 D
 Client ID: MW-2
 Sample Location: 39-04 NORTHERN BLVD., LIC, NY

Date Collected: 01/12/22 09:25
 Date Received: 01/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 01/14/22 14:47
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	660		ug/l	2.5	0.80	5
Toluene	53		ug/l	12	3.5	5
Ethylbenzene	32		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	94		ug/l	12	3.5	5
o-Xylene	6.4	J	ug/l	12	3.5	5
n-Butylbenzene	14		ug/l	12	3.5	5
sec-Butylbenzene	8.9	J	ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
Isopropylbenzene	76		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	8.7	J	ug/l	12	3.5	5
n-Propylbenzene	250		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	3.8	J	ug/l	12	3.5	5
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	86		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2201739-02
Client ID: MW-7
Sample Location: 39-04 NORTHERN BLVD., LIC, NY

Date Collected: 01/12/22 10:30
Date Received: 01/12/22
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/15/22 02:15
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	18		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	1.1	J	ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	3.0		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	4.4		ug/l	2.5	0.70	1
n-Propylbenzene	11		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	24		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2201739-03 D
 Client ID: MW-8
 Sample Location: 39-04 NORTHERN BLVD., LIC, NY

Date Collected: 01/12/22 11:25
 Date Received: 01/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 01/14/22 15:13
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	0.84	J	ug/l	2.5	0.80	5
Toluene	10	J	ug/l	12	3.5	5
Ethylbenzene	33		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	9.5	J	ug/l	12	3.5	5
o-Xylene	ND		ug/l	12	3.5	5
n-Butylbenzene	22		ug/l	12	3.5	5
sec-Butylbenzene	15		ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
Isopropylbenzene	120		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	550		ug/l	12	3.5	5
n-Propylbenzene	400		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	ND		ug/l	12	3.5	5
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2201739-04 D
 Client ID: DUP-20220112
 Sample Location: 39-04 NORTHERN BLVD., LIC, NY

Date Collected: 01/12/22 12:00
 Date Received: 01/12/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 01/15/22 01:52
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	670		ug/l	2.5	0.80	5
Toluene	58		ug/l	12	3.5	5
Ethylbenzene	34		ug/l	12	3.5	5
Methyl tert butyl ether	ND		ug/l	12	3.5	5
p/m-Xylene	99		ug/l	12	3.5	5
o-Xylene	6.9	J	ug/l	12	3.5	5
n-Butylbenzene	15		ug/l	12	3.5	5
sec-Butylbenzene	9.0	J	ug/l	12	3.5	5
tert-Butylbenzene	ND		ug/l	12	3.5	5
Isopropylbenzene	95		ug/l	12	3.5	5
p-Isopropyltoluene	ND		ug/l	12	3.5	5
Naphthalene	38		ug/l	12	3.5	5
n-Propylbenzene	270		ug/l	12	3.5	5
1,3,5-Trimethylbenzene	4.0	J	ug/l	12	3.5	5
1,2,4-Trimethylbenzene	ND		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	83		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

SAMPLE RESULTS

Lab ID: L2201739-05
Client ID: TRIP BLANK
Sample Location: 39-04 NORTHERN BLVD., LIC, NY

Date Collected: 01/11/22 00:00
Date Received: 01/12/22
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/13/22 13:28
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	2.1	J	ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/13/22 09:13
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1594118-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/14/22 09:15
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1595060-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8260C
Analytical Date: 01/14/22 19:22
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02,04 Batch: WG1595172-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	115		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1594118-3 WG1594118-4								
Benzene	96		110		70-130	14		20
Toluene	94		100		70-130	6		20
Ethylbenzene	97		100		70-130	3		20
Methyl tert butyl ether	90		110		63-130	20		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	100		105		70-130	5		20
n-Butylbenzene	91		98		53-136	7		20
sec-Butylbenzene	83		90		70-130	8		20
tert-Butylbenzene	86		91		70-130	6		20
Isopropylbenzene	82		89		70-130	8		20
p-Isopropyltoluene	84		90		70-130	7		20
Naphthalene	67	Q	82		70-130	20		20
n-Propylbenzene	91		97		69-130	6		20
1,3,5-Trimethylbenzene	93		100		64-130	7		20
1,2,4-Trimethylbenzene	87		92		70-130	6		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	119		121		70-130
Toluene-d8	98		96		70-130
4-Bromofluorobenzene	99		94		70-130
Dibromofluoromethane	105		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1595060-3 WG1595060-4									
Benzene	100		100		70-130		0		20
Toluene	100		100		70-130		0		20
Ethylbenzene	100		100		70-130		0		20
Methyl tert butyl ether	100		94		63-130		6		20
p/m-Xylene	100		100		70-130		0		20
o-Xylene	105		105		70-130		0		20
n-Butylbenzene	100		98		53-136		2		20
sec-Butylbenzene	93		91		70-130		2		20
tert-Butylbenzene	95		92		70-130		3		20
Isopropylbenzene	92		89		70-130		3		20
p-Isopropyltoluene	93		90		70-130		3		20
Naphthalene	82		76		70-130		8		20
n-Propylbenzene	100		97		69-130		3		20
1,3,5-Trimethylbenzene	100		100		64-130		0		20
1,2,4-Trimethylbenzene	95		91		70-130		4		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	118		116		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	104		102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: GOODMAN
Project Number: 3883.0002Y000

Lab Number: L2201739
Report Date: 01/18/22

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02,04 Batch: WG1595172-3 WG1595172-4								
Benzene	98		100		70-130	2		20
Toluene	97		100		70-130	3		20
Ethylbenzene	100		100		70-130	0		20
Methyl tert butyl ether	86		88		63-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
n-Butylbenzene	97		98		53-136	1		20
sec-Butylbenzene	96		98		70-130	2		20
tert-Butylbenzene	92		95		70-130	3		20
Isopropylbenzene	98		100		70-130	2		20
p-Isopropyltoluene	93		94		70-130	1		20
Naphthalene	120		98		70-130	20		20
n-Propylbenzene	100		100		69-130	0		20
1,3,5-Trimethylbenzene	91		94		64-130	3		20
1,2,4-Trimethylbenzene	92		94		70-130	2		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	108		110		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	106		107		70-130

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Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2201739-01A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-01B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-01C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-02A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-02B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-02C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-03A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-03B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-03C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-04A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-04B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-04C	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-05A	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)
L2201739-05B	Vial HCl preserved	A	NA		4.4	Y	Absent		NYCP51-8260(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



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Data Qualifiers

- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water


EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY	Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105	Page 1	Date Rec'd in Lab 1/12/22	ALPHA Job # L2201739	
		of 1			
Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193	Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288	Project Information		Deliverables	Billing Information
Client Information		Project Name: Goodman Project Location: 39-04 Northern Blvd., LIC, NY Project # 3883.0002000 (Use Project name as Project #) <input type="checkbox"/>		<input checked="" type="checkbox"/> ASP-A <input type="checkbox"/> EQUIS (1 File) <input type="checkbox"/> Other	<input checked="" type="checkbox"/> ASP-B <input type="checkbox"/> EQUIS (4 File) PO #
Client: Govt Address: 909 Shaker St. Islandia, NY 11749 Phone: 631-332-2600 Fax: Email: E.Butler@covinc.com		Project Manager: Emily Butler ALPHAQuote #: Turn-Around Time Standard <input checked="" type="checkbox"/> Due Date: Rush (only if pre approved) <input type="checkbox"/> # of Days:		Regulatory Requirement	
				<input type="checkbox"/> NY TOGS <input type="checkbox"/> AWQ Standards <input type="checkbox"/> NY Restricted Use <input type="checkbox"/> NY Unrestricted Use <input type="checkbox"/> NYC Sewer Discharge	
				<input type="checkbox"/> NY Part 375 <input type="checkbox"/> NY CP-51 <input type="checkbox"/> Other	
				Disposal Site Information	
				Please identify below location of applicable disposal facilities. Disposal Facility: <input type="checkbox"/> NJ <input type="checkbox"/> NY <input type="checkbox"/> Other:	
These samples have been previously analyzed by Alpha <input type="checkbox"/> Other project specific requirements/comments: Please specify Metals or TAL.		ANALYSIS		Sample Filtration	
				<input type="checkbox"/> Done <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please Specify below)	
				Sample Specific Comments	
				Total Bottles	
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
01739-01	MW-2	1-12-22	9:20	Gw	MS
-02	MW-7	 	10:30	Gw	MS
-03	MW-8	 	11:25	Gw	MS
-04	DUP-30220112	 	1200	Gw	MS
-05	Trip Blank	1-11-22	-	water	-
				NYCPSI-8860	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015	
				Container Type	Preservative
				✓	B
				Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By:	Date/Time	Received By:	Date/Time
		Melissa	1-12-22 13:15	Wade Deleh	1/12/22 15:10
		Wade Deleh	1/12/22 18:40	Wade Deleh	1/12/22 19:30
		Wade Deleh	1/12/22	Wade Deleh	1/12/22 21:30
		Wade Deleh	1/12/22 23:30	Wade Deleh	1/12/22 23:30