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Mr. Justin Starr
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-1011

2023 Site Inspection and Groundwater Results Summary
Orange & Rockland Utilities, Inc.
Former Clove and Maple Avenues MGP Site – OU 1
NYSDEC Site No. 3-44-049

March 29, 2024

Ramboll
101 Carnegie Center
Suite 200
Princeton, NJ 08540
USA

Dear Mr. Starr:

On behalf of Orange and Rockland Utilities, Inc. (ORU), Ramboll Americas Engineering Solutions, Inc. (Ramboll) has prepared this annual monitoring report to document monitoring activities that were performed for the former Clove and Maple Avenues Manufacturing Gas Plant (MGP) Site (Operable Unit 1 [OU 1]) located in the Village of Haverstraw, New York – New York State Department of Environmental Conservation (NYSDEC) Site No. 3-44-049 (the Site). A Site location map is shown on Figure 1.

The monitoring activities were performed following a draft Interim Site Management Plan (ISMP) that was submitted to the NYSDEC on December 21, 2020 (Ramboll, 2020). At the request of the NYSDEC, ORU initiated monitoring activities described in Section 4 of the ISMP (Monitoring and Sampling Plan) in 2022 while the environmental easement associated with the ISMP is under NYSDEC review. Activities required by the ISMP include an annual Site inspection and annual groundwater sampling of four on-Site monitoring wells (MW-01, MW-04, MW-05 and MW-06), which were completed in 2023. Quarterly groundwater elevation and product thickness measurements were also collected in 2023 to further evaluate Dense Non-Aqueous Phase Liquid (DNAPL) that was detected in monitoring well MW-04 during an August 2022 groundwater sampling event. The 2023 monitoring results are presented herein.

BACKGROUND

The approximately one-acre Site is located in the Village of Haverstraw, Rockland County, New York and is identified as Section 27.62, Block 1, Lot 9 on the Village of Haverstraw Tax Map. The former MGP operated for approximately 48 years, between 1887 and 1935, and the plant structures were demolished in the 1960s. The Site is currently vacant and is owned by ORU. A Site plan is shown on Figure 2.

ORU entered into the following Orders on Consent with the NYSDEC to remediate the Site: Index No. D3-0002-94-12, executed on January 8, 1996; Index No. D3-0001-98-03 executed on September 29, 1998; and Index No. D3-0001-99-01 executed on March 11, 1999. The remedial investigation for the Site was completed in 2009 and characterized the extent of MGP-related constituents

(primarily Volatile Organic Compounds [VOCs] consisting of benzene, toluene, ethylbenzene and xylenes [BTEX] and polycyclic aromatic hydrocarbons [PAHs]) present on-Site at concentrations exceeding applicable NYSDEC criteria in soil and groundwater (CMX, 2009).

The selected remedy for OU-1 was presented in the Record of Decision (ROD), dated March 2011 (NYSDEC, 2011). The selected remedy included the removal of soil to Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs). A Remedial Design Work Plan (RDWP) for the selected remedy was submitted to the NYSDEC in May 2015 (NRT, 2015). Remedial activities associated with the RDWP implementation were performed starting in May 2018 through December 2019. Details pertaining to the remedial action are summarized in a Construction Completion Report, dated April 2020 (OBG, 2020). Impacted material was removed to the limits and depths required by the ROD for OU-1 and the approved RDWP. Overall, approximately 35,000 tons of MGP-impacted soils were excavated and transported off-Site for disposal. An additional 2,500,000 gallons of water that was encountered in the soil excavations was treated in a temporary on-Site treatment system and discharged with NYSDEC approval. Observable non-aqueous phase liquid (NAPL) was also removed.

Soil samples were collected in March 2018 and December 2019 to document soil conditions that remain after the remedial activities were completed. The sampling results detected MGP-related compounds at concentrations exceeding the Part 375 Unrestricted Use SCOs, primarily in samples that were collected along Maple Ave to the north. PAH concentration exceedances were also observed in samples that were collected at discrete areas located within the Site interior. NAPL was not encountered during the March 2018 and December 2019 soil sampling.

Since remaining contamination exists at the site, the ROD requires the implementation of institutional controls (ICs) and engineering controls (ECs) to protect human health and the environment. The ISMP was submitted to the NYSDEC on December 21, 2020 to manage ICs and ECs. In an email dated April 13, 2022, the NYSDEC requested that ORU proceed with monitoring activities associated with ISMP while the Site's environmental easement is being reviewed and to summarize the results of the monitoring activities in an annual monitoring report.

ISMP monitoring activities were initiated in August 2022 with a Site inspection and groundwater sampling for BTEX and PAH laboratory analysis. One BTEX compound (benzene) and one PAH compound (benzo(a)anthracene) were detected at a concentration that is within an order of magnitude above their NYSDEC Ambient Ground Water Standards (AGS). Approximately 0.95 feet of DNAPL was also detected in monitoring well MW-04, which was not sampled due to the free product being present in the monitoring well. In a February 2, 2023 Letter Report summarizing the 2022 monitoring results, ORU recommended collecting quarterly free product thickness measurements in 2023 to further evaluate the MW-04 DNAPL detection. NYSDEC agreed with ORU's recommendation in an email dated March 14, 2023.

The results of 2023 monitoring activities are summarized in the following sections.

ANNUAL SITE INSPECTION

The Monitoring and Sampling Plan of the ISMP requires inspections of the Site and ECs, which include the following:

- A cover system that is comprised of at least 24 inches of clean soil in areas where the upper two feet of exposed surface soil may have exceeded the applicable SCOs. The soil cover was placed over a demarcation layer with the upper six inches consisting of topsoil to maintain a vegetation layer

- The Site's monitoring wells, which are to be maintained and sampled annually in accordance with the draft ISMP

The inspection was performed on September 27, 2023. Completed inspection forms are included in Attachment A.

Site Cover System Inspection

The Site cover system was observed to be in place and as designed. No indications of erosion, degraded vegetation, changes to the cover type, new penetrations, or changes in property use were noted.

Monitoring Well Inspection

The Site's monitoring wells (MW-01, MW-04, MW-05 and MW-06) were inspected on September 27, 2023 and were observed to be structurally intact and in good condition.

GROUNDWATER MONITORING

The Monitoring and Sampling Plan of the ISMP requires annual groundwater sampling of monitoring wells MW-01, MW-04, MW-05 and MW-06 for BTEX and PAH laboratory analysis. Groundwater sampling was completed on September 27, 2023 in accordance with the Site's Quality Assurance Project Plan (QAPP). Quarterly groundwater elevation and free product thickness measurements were also collected on March 24, 2023, June 22, 2023, September 27, 2023 and December 14, 2023.

Monitoring Well Gauging

Table 1 summarizes the quarterly depth to water and free product thickness measurements. Groundwater Elevation contours based on depth-to-water measurements are shown on Figure 3 (March 2023), Figure 4 (June 2023), Figure 5 (September 2023) and Figure 6 (December 2023). Groundwater generally flows to the northeast under a calculated hydraulic gradient of approximately 0.2 to 0.3 feet per feet.

Free product was not detected in MW-01, MW-05 and MW-06, which is consistent with monitoring results from the previous year. Free product (DNAPL) was detected in MW-04 at thicknesses ranging from a trace (June 2023 and December 2023) to approximately 1.5 feet (September 2023). DNAPL was detected at a measurable thickness in March 2023 (0.69 feet) and September 2023 (1.5 feet), when groundwater elevations were seasonally higher, DNAPL was not detected at a measurable thickness (trace indications of NAPL were observed on the oil / water interface probe) in June 2023 and December 2023 when groundwater elevations were seasonally lower.

MW-04 is located near the downgradient property boundary (See Figure 2) and beyond the limits of the 2018-2019 soil excavations. MW-04 is also adjacent to and upgradient of OU 2, which consists of nearby off-Site properties that were affected by the former MGP (See Figure 1 from the ROD and Plate 6A from the May 2009 Remedial Investigation Report [RIR] in Attachment B). Based on information presented in the May 2009 RIR and a Feasibility Study (FS) dated September 2010 (GEI, 2010), NAPL was previously observed in MW-04 and MW-05, as well as in downgradient / off-Site soils and monitoring wells located in OU 2 (in some areas over 2 feet in thickness). NAPL was not detected in MW-05 during 2022 or 2023 groundwater monitoring activities.

Per the ROD, off-Site areas are being addressed separately under OU 2 and OU 3. It is anticipated that the remedy for OU 2 will also address the NAPL observed in MW-04. Continued monitoring at MW-04 is recommended following the ISMP while remedial alternatives are being developed for OU 2 and OU 3.

Monitoring Well Sampling

Groundwater samples were collected following USEPA's low-flow purging and sampling method. Water quality parameters were recorded on a data sheet designated for the well, which recorded data pertaining to purging and sampling of the well. Copies of the monitoring well sampling logs are provided in Attachment C. Once the parameters stabilized into their appropriate ranges (pH ±0.1 standard units, conductivity ±3 percent, oxidation reduction potential ±10 millivolts, dissolved oxygen ±10 percent, and turbidity ±10 percent), groundwater samples were collected. Monitoring well MW-04 was not sampled due to DNAPL being present in the well.

Groundwater samples were labeled and packed on ice for shipment to a New York State Department of Health Environmental Laboratory Approval Program-certified laboratory. Quality assurance / quality control samples were collected in accordance with the draft ISMP and consisted of one field duplicate, one matrix spike/matrix spike duplicate, and one field blank. The samples were shipped under Chain-of-Custody to the analytical laboratory for VOC (BTEX only) analysis via USEPA method 8260C and PAHs analysis via USEPA method 8260D.

Data Validation

Data validation was performed in accordance with the draft ISMP, the results of which are summarized on a Data Usability Summary Report (DUSR). The laboratory data package and DUSR is provided in Attachment D. In summary, there were no issues noted during the sample collection, by the laboratory following the receipt of samples, or during their analysis that would render the collected data as non-usable.

Groundwater Sampling Results and Discussion

The groundwater sample analytical results from the August 2023 sampling event are summarized on Table 2. The groundwater sampling results were compared to the NYSDEC AGS. BTEX concentrations were below the NYSDEC AGS in the monitoring wells that were sampled (MW-01, MW-05 and MW-06). PAH concentrations were also below the NYSDEC AGS in MW-01 and MW-05. The following PAHs were detected at low-level concentrations (i.e., individual detections at 1.28 micrograms per liter [µg/L] or less) above the NYSDEC AGS in MW-06:

- Benzo(a)anthracene, which exceeded its NYSDEC AGS of 0.002 µg/L at a concentration of 0.281 µg/L (0.869 µg/L in the field duplicate);
- Benzo(b)fluoranthene, which exceeded its NYSDEC AGS of 0.002 µg/L at a concentration of 0.543 µg/L (1.28 µg/L in the field duplicate);
- Benzo(k)fluoranthene, which exceeded its NYSDEC AGS of 0.002 µg/L at a concentration of 0.298 µg/L (0.405 µg/L in the field duplicate);
- Chrysene, which exceeded its NYSDEC AGS of 0.002 µg/L at a concentration of 0.464 µg/L (1.11 µg/L in the field duplicate); and,
- Indeno[1,2,3-cd]pyrene, which exceeded its NYSDEC AGS of 0.002 µg/L at a concentration of 0.364 µg/L (0.699 µg/L in the field duplicate).

Table 2 also shows groundwater analytical results from previous sampling events, which occurred before the Site-wide remediation took place. While PAH concentrations were not previously detected above the NYSDEC AGS in MW-06, historical groundwater sampling events that took place in March 1999, December 2001, August 2004 and June 2008 had PAH detection limits that are orders of magnitude higher than the detection limits for the more recent August 2022 and September 2023 sampling events.

Overall, it is anticipated that PAH concentrations will decrease over time because the majority of the on-Site source material was removed during the 2018-2019 soil remediation.

CONCLUSIONS AND RECOMMENDATIONS

The following monitoring activities were completed in 2023:

- Annual inspection of the Site's ECs (Site Cover and groundwater monitoring wells)
- Quarterly free product thickness and groundwater elevation measurements
- Annual groundwater sampling of monitoring wells MW-01, MW-04, MW-05 and MW-06 for BTEX and PAH laboratory analysis. A groundwater sample was not collected from MW-04 because DNAPL was detected in the monitoring well

The annual inspection and groundwater sampling was performed on September 27, 2023. The Site cover system was observed to be in place and as designed. No indications of erosion, degraded vegetation, changes to the cover type, new penetrations, or changes in property use were noted. The Site's monitoring wells were observed to be structurally intact and in good condition.

Quarterly groundwater elevation and free product measurements were collected during the reporting period. NAPL was not detected in MW-01, MW-05 and MW-06. DNAPL was detected in MW-04 at thickness measurements ranging from a trace (June and December 2023) to 1.5 feet (September 2023). DNAPL higher thickness measurements were observed when groundwater elevations were at seasonal highs, and DNAPL was nearly absent when groundwater elevations were at seasonal lows. MW-04 is located near the downgradient property boundary, beyond the limits of the 2018-2019 soil excavations and adjacent to / upgradient of OU 2 (See Attachment B). Continued monitoring at MW-04 is recommended following the ISMP while remedial alternatives are being developed for OU 2 and OU 3.

Groundwater samples were collected for BTEX and PAH laboratory analysis in September 2023. BTEX concentrations were not detected above the NYSDEC AGS. PAH concentrations were detected NYSDEC AGS in MW-06. Individual PAH concentrations exceeding the NYSDEC AGS at MW-06 were 1.28 µg/L or less.

Please feel free to contact me at 508-395-6960 should you have any questions or comments on the above groundwater sampling summary.

Sincerely,

Timothy J. Olean
Technical Director

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tim.olean@ramboll.com

Attachments:

Table 1	Groundwater Elevation and Free Product Monitoring Results Summary
Table 2	Groundwater Sample Analytical Results Summary
Figure 1	Site Location Map
Figure 2	Site Layout and Monitoring Location Map
Figure 3	Groundwater Elevation Contour Map – March 24, 2023
Figure 4	Groundwater Elevation Contour Map – June 22, 2023
Figure 5	Groundwater Elevation Contour Map – September 27, 2023
Figure 6	Groundwater Elevation Contour Map – December 14, 2023

Attachment A Annual Inspection Checklist and Certification, and Annual Monitoring Well Inspection Logs
Attachment B Figure 1 from the Record of Decision, Dated March 2011, and Plate 6A from the Remedial Investigation Report, Dated May 2009
Attachment C Low Flow Purge and Sample Ground Water Sampling Logs
Attachment D Laboratory Analytical Report and Data Usability Summary Report

cc: Mathew Levinson, ORU

TABLES

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Table 1. Groundwater Elevation and Free Product Monitoring Results Summary

Former Clove & Maple MGP Site - Operable Unit 1

Haverstraw New York

NYSDEC Site Number 3-44-049

Well ID	Top of Well Casing Elevation (NAVD88)	Well Depth (ft bgs)	March 2023				June 2023			
			Depth to Water (ft bgs)	Groundwater Elev. (ft amsl)	Depth to Product (ft bgs)	NAPL Thickness (ft)	Depth to Water (ft bgs)	Groundwater Elev. (ft amsl)	Depth to Product (ft bgs)	NAPL Thickness (ft)
MW-01	42.29	29.49	21.36	20.93	ND	0.00	20.34	21.95	ND	0.00
MW-04	18.39	21.40	0.60	17.79	20.71	0.69	0.95	17.44	Trace*	Trace*
MW-05	17.83	21.43	0.20	17.63	ND	0.00	0.56	17.27	ND	0.00
MW-06	17.22	19.02	0.80	16.42	ND	0.00	0.01	17.21	ND	0.00
Well ID	Top of Well Casing Elevation (NAVD88)	Well Depth (ft bgs)	September 2023				December 2023			
			Depth to Water (ft bgs)	Groundwater Elev. (ft amsl)	Depth to Product (ft bgs)	NAPL Thickness (ft)	Depth to Water (ft bgs)	Groundwater Elev. (ft amsl)	Depth to Product (ft bgs)	NAPL Thickness (ft)
MW-01	42.29	29.49	19.45	22.84	ND	0.00	20.35	21.94	ND	0.00
MW-04	18.39	21.40	0.01	18.38	19.90	1.50	0.81	17.58	Trace*	Trace*
MW-05	17.83	21.43	0.95	16.88	ND	0.00	0.20	17.63	ND	0.00
MW-06	17.22	19.02	0.01	17.21	ND	0.00	0.30	16.92	ND	0.00

Notes:

* - Measuremable free product was not detected; however, trace indications of free product was observed on the oil / water interface probe.

feet bgs – feet below ground surface

feet amsl – feet above mean sea level – National Geodetic Vertical Datum of 1929

NAPL - Non-Aqueous Phase Liquid

ND - Not Detected

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Table 2. Groundwater Sample Analytical Results Summary

Former Clove & Maple MGP Site - Operable Unit 1

Haverstraw New York

NYSDEC Site Number 3-44-049

Well ID:	NYSDEC Ambient Groundwater Standards	MW-01							MW-04						
Date Sampled:		6/3/97	2/1/99	12/19/01	8/3/04	6/5/08	8/17/22	9/27/23	2/3/99	12/19/01	12/19/01 (Field Dup)	8/2/04	6/5/08	8/17/22	9/27/23
MS Volatiles (SW846 8260D)															
Benzene	1	10 U	10 U	10 U	10 U	1.0 U	0.50 U	0.45 J	320 D	120	120	30	34	NS (DNAPL)	NS (DNAPL)
Toluene	5	10 U	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	65	37	35	19	37 J	NS (DNAPL)	NS (DNAPL)
Ethylbenzene	5	10 U	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	190	76	73 H	26	30 J	NS (DNAPL)	NS (DNAPL)
Xylenes	5	10 U	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	430	300	310	110	130	NS (DNAPL)	NS (DNAPL)
MS Semivolatiles (SW846 8260E)															
Acenaphthene	20	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	21	400 U	500 U	500 U	20 J	NS (DNAPL)	NS (DNAPL)
Acenaphthylene	20	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	290 DJ	400 U	310 J	310 J	42 J	NS (DNAPL)	NS (DNAPL)
Anthracene	50	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	16	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Benzo(a)anthracene	0.002	9 U	10 U	10 U	10 U	1.2 U	0.064 U	0.050 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Benzo(a)pyrene	--	9 U	10 U	10 U	10 U	1.2 U	0.064 U	0.050 U	10 U	400 U	500 U	500 U	13 U	NS (DNAPL)	NS (DNAPL)
Benzo(b)fluoranthene	0.002	9 U	10 U	10 U	10 U	1.2 U	0.064 U	0.050 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Benzo(g,h,i)perylene	--	9 U	10 U	10 U	10 U	1.2 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	13 U	NS (DNAPL)	NS (DNAPL)
Benzo(k)fluoranthene	0.002	9 U	10 U	10 U	10 U	1.2 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Chrysene	0.002	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Dibenzo(a,h)anthracene	--	9 U	10 U	10 U	10 U	1.2 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	13 U	NS (DNAPL)	NS (DNAPL)
Fluoranthene	50	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	6 J	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Fluorene	50	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	69	400 U	53 J	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Indeno[1,2,3-cd]pyrene	0.002	9 U	10 U	10 U	10 U	1.2 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)
Naphthalene	10	9 U	10 U	10 U	10 U	12 U	0.0674 J	0.299	3,100 D	2,200 J	3,100 J	3,000	130 U	NS (DNAPL)	NS (DNAPL)
Phenanthrene	50	9 U	10 U	10 U	10 U	12 U	0.064 U	0.050 U	10 U	400 U	110 J	110 J	130 U	NS (DNAPL)	NS (DNAPL)
Pyrene	50	9 U	10 U	10 U	10 U	12 U	0.13 U	0.10 U	10 U	400 U	500 U	500 U	130 U	NS (DNAPL)	NS (DNAPL)

Notes:

All concentrations are in micrograms per liter (µg/L)

Exceedances to the New York State Department of Environmental Conservation (NYSDEC) Ambient Groundwater Standards are Bolded and Highlighted

D: The sample was diluted prior to analysis

U: Not detected to the listed reporting limit

J: Indicates that the concentration should be considered approximate

H: Indicates holding times were exceeded

NS (DNAPL): Not sampled. Dense Non Aqueous Phase Liqud was detected in the monitoring well

-- A NYSDEC Ambient Groundwater Standard does not exist for the compound

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Table 2. Groundwater Sample Analytical Results Summary

Former Clove & Maple MGP Site - Operable Unit 1

Haverstraw New York

NYSDEC Site Number 3-44-049

Well ID:	NYSDEC Ambient Groundwater Standards	MW-05						MW-06							
Date Sampled:		2/3/99	12/19/01	8/2/04	6/5/08	8/17/22	9/27/23	3/26/99	12/19/01	8/2/04	6/5/08	8/17/22	8/17/22 (Field Dup)	9/27/23	9/27/2023 (Field Dup)
MS Volatiles (SW846 8260D)															
Benzene	1	1 J	10 U	10 U	1.0 U	**2.5**	0.5 U	10 U	10 U	10 U	1.0 U	**3.2**	**3.3**	0.5 U	0.5 U
Toluene	5	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	10 U	10 U	10 U	5.0 U	1.0 U	1.0	1.0 U	1.0 U
Xylenes	5	10 U	10 U	10 U	5.0 U	1.0 U	1.0 U	10 U	10 U	10 U	5.0 U	1.0 U	2.7	1.0 U	1.0 U
MS Semivolatiles (SW846 8260E)															
Acenaphthene	20	3 J	10 U	10 U	1.2 J	4.89	1.63	10 UJ	10 U	11 U	10 U	0.10 U	0.10 U	0.239	0.400
Acenaphthylene	20	20	6 J	**31**	13	6.41	1.14	10 U	10 U	11 U	10 U	0.103	0.0828 J	0.456	0.808
Anthracene	50	10 U	10 U	10 U	0.6 J	1.38	0.154	10 U	10 U	11 U	10 U	0.123	0.118	0.263	0.482
Benzo(a)anthracene	0.002	10 U	10 U	10 U	1.1 U	**0.0565 J**	0.050 U	10 U	10 U	11 U	2.1 U	0.051 U	0.051 U	**0.281**	**0.869**
Benzo(a)pyrene	--	10 U	10 U	10 U	11 U	0.065 U	0.050 U	10 U	10 U	11 U	10 U	0.051 U	0.051 U	0.463	1.06
Benzo(b)fluoranthene	0.002	10 U	10 U	10 U	1.1 U	0.065 U	0.050 U	10 U	10 U	11 U	2.1 U	0.051 U	0.051 U	**0.543**	**1.28**
Benzo(g,h,i)perylene	--	10 U	10 U	10 U	11 U	0.13 U	0.10 U	10 U	10 U	11 U	10 U	0.10 U	0.10 U	0.527	0.931
Benzo(k)fluoranthene	0.002	10 U	10 U	10 U	1.1 U	0.13 U	0.10 U	10 U	10 U	11 U	2.1 U	0.10 U	0.10 U	**0.298**	**0.405**
Chrysene	0.002	10 U	10 U	10 U	11 U	0.13 U	0.10 U	10 U	10 U	11 U	10 U	0.10 U	0.10 U	**0.464**	**1.11**
Dibenzo(a,h)anthracene	--	10 U	10 U	10 U	11 U	0.13 U	0.10 U	10 U	10 U	11 U	10 U	0.10 U	0.10 U	0.118	0.227
Fluoranthene	50	10 U	10 U	10 U	11 U	0.96	0.327	2 J	10 U	11 U	10 U	0.10 U	0.10 U	1.04	1.4
Fluorene	50	10 U	10 U	10 U	11 U	0.256	0.0978 J	10 U	10 U	11 U	10 U	0.10 U	0.0541 J	0.257	0.356
Indeno[1,2,3-cd]pyrene	0.002	10 U	10 U	10 U	1.1 U	0.13 U	0.10 U	10 U	10 U	11 U	2.1 U	0.10 U	0.10 U	**0.364**	**0.699**
Naphthalene	10	5 J	10 U	10 UJ	11 U	0.488	0.155	10 U	10 U	11 U	10 U	0.0639 J	0.0673 J	1.95	3.36
Phenanthrene	50	3 J	10 U	1 J	11 U	1.53	0.103	10 U	10 U	11 U	10 U	0.0363 J	0.0558	1.57	1.04
Pyrene	50	10 U	10 U	10 U	11 U	1.29	0.547	6 J	10 U	11 U	10 U	0.10 U	0.10 U	1.35	2.04

Notes:

All concentrations are in micrograms per liter (µg/L)

Exceedances to the New York State Department of Environmental Conservation (NYSDEC) Ambient Groundwater Standards are Bolded and Highlighted

D: The sample was diluted prior to analysis

U: Not detected to the listed reporting limit

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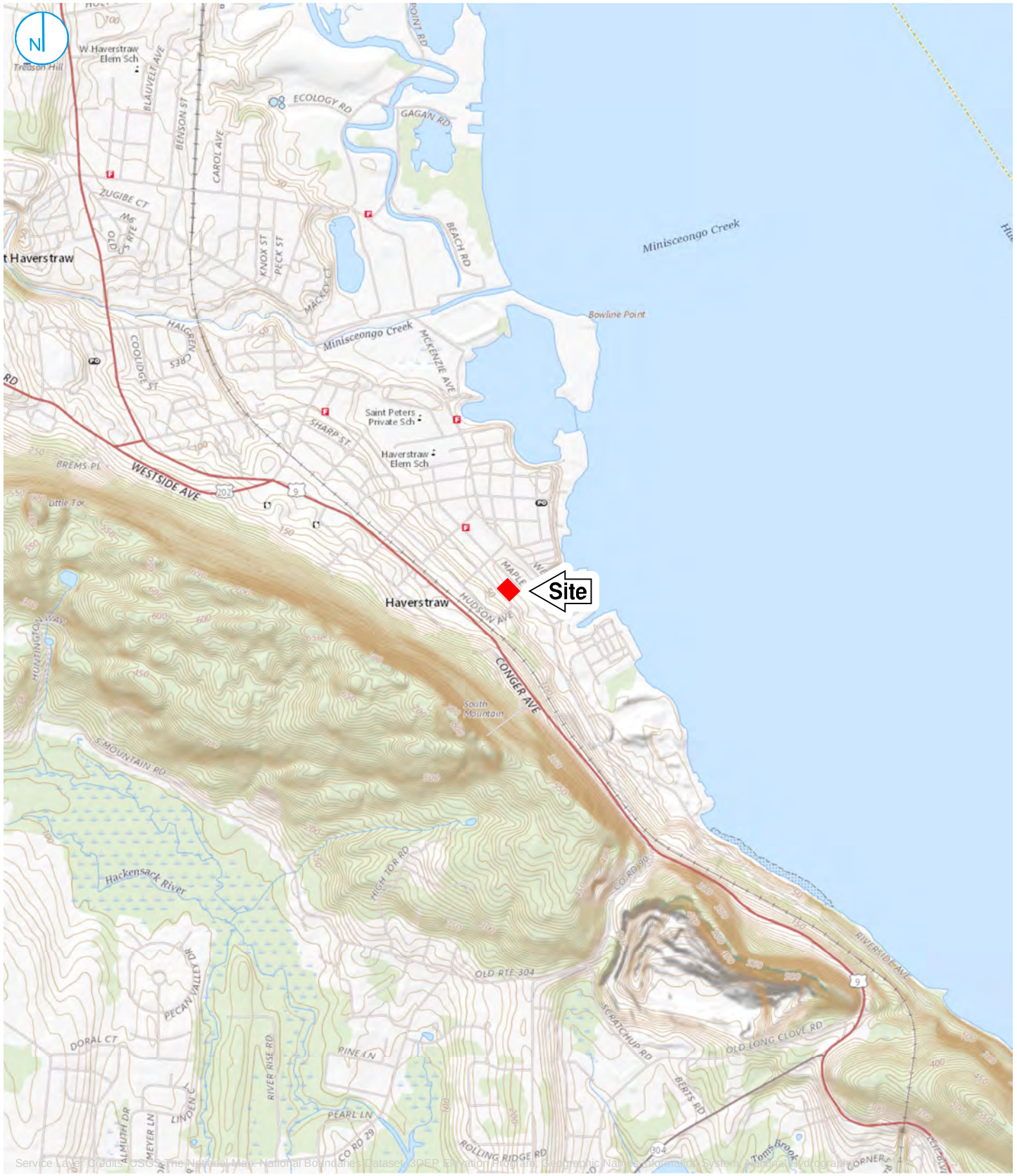
NS (DNAPL): Not sampled. Dense Non Aqueous Phase Liqud was detected in the monitoring well

-- A NYSDEC Ambient Groundwater Standard does not exist for the compound

FIGURES

I:\Con-Ed.8652\STDS\GIS\Figure 1 - Site_Location_Map.mxd



PROJECT: CLOVEMGP | DATED: 2/18/2020 | DESIGNER: BUSTERPJ

LEGEND

Site Location

0 0.5 1 Miles

SITE LOCATION MAP

120 Maple Avenue
Haverstraw, NY

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC

RAMBOLL

MONITORING WELL

SITE BOUNDARY

0 20 40
Feet

SITE LAYOUT AND MONITORING WELL LOCATION MAP

ORANGE & ROCKLAND UTILITIES, INC.

120 MAPLE AVENUE
HAVERSTRAW, NEW YORK

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Bms.287A\STDS\GIS\Hopewell\Figure 4.mxd

PROJECT: 120MAPLE | DATED: 4/21/2020 | DESIGNER: BUSTERPJ

LEGEND

- Site Boundary
- Existing Monitoring Well
- 20.0 Groundwater Elevation Contour
- Inferred Groundwater Flow Direction

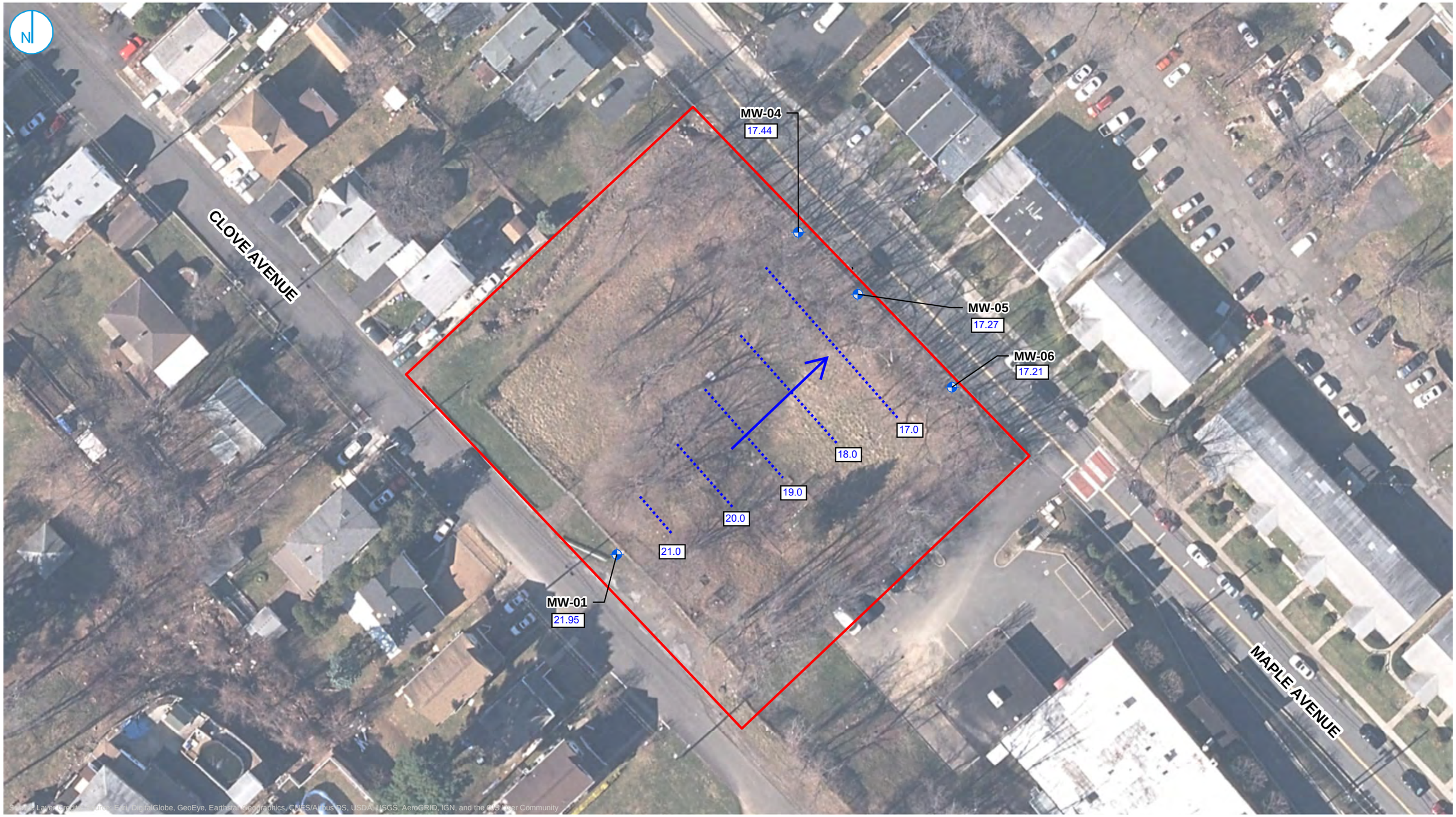
0 150 300 Feet

GROUNDWATER ELEVATION CONTOUR MAP MARCH 24, 2023

120 Maple Avenue,
Haverstraw, NY

FIGURE 03

I:\Bms.287A\STDS\GIS\Hopewell\Figure 4.mxd



PROJECT: 120MAPLE | DATED: 4/21/2020 | DESIGNER: BUSTERPJ

LEGEND

- Site Boundary
- Existing Monitoring Well
- 20.0 Groundwater Elevation Contour
- Inferred Groundwater Flow Direction

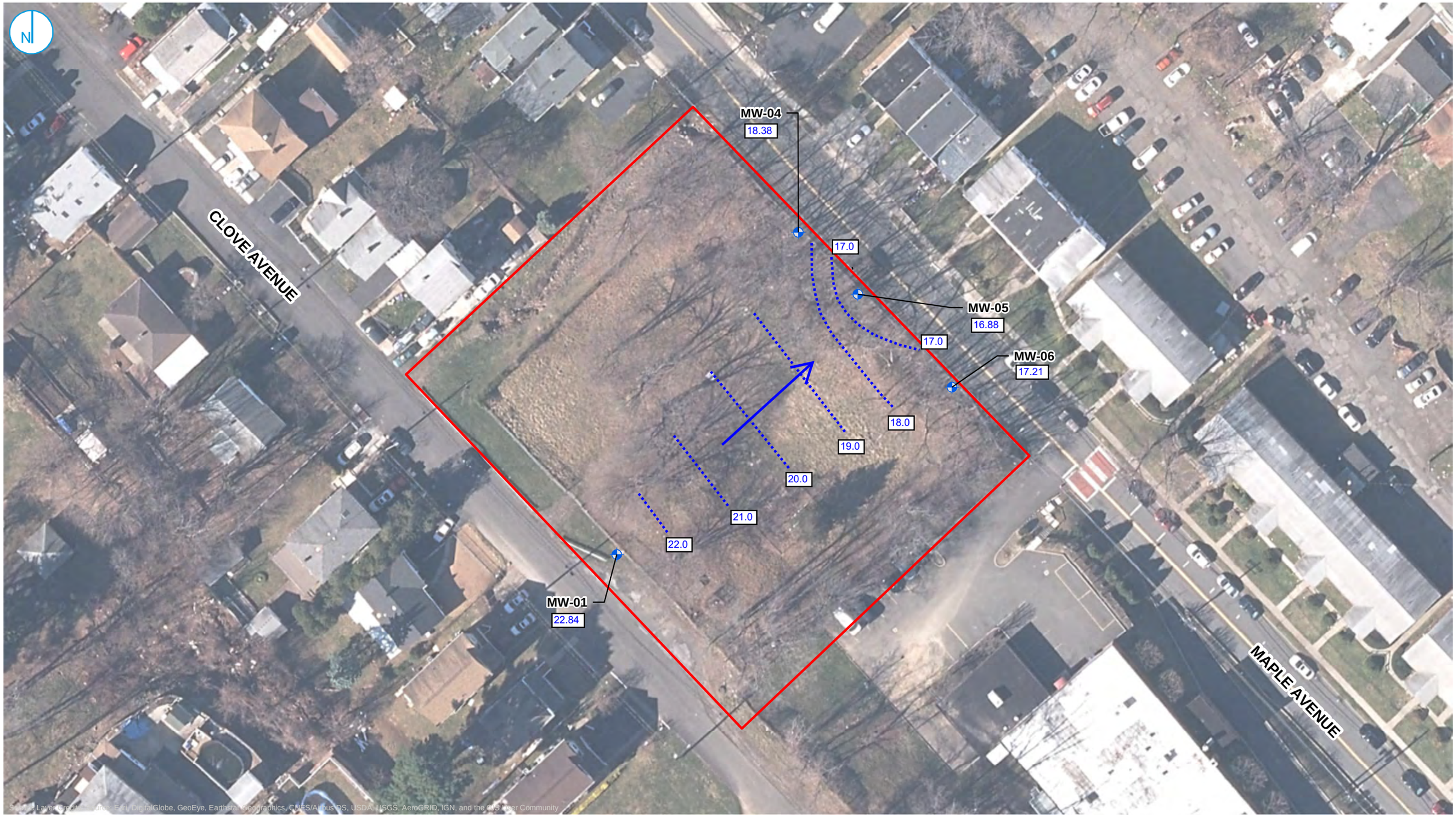
0 150 300 Feet

GROUNDWATER ELEVATION CONTOUR MAP JUNE 22, 2023

120 Maple Avenue,
Haverstraw, NY

FIGURE 04

I:\Bms.287A\STDS\GIS\Hopewell\Figure 4.mxd



PROJECT: 120MAPLE | DATED: 4/21/2020 | DESIGNER: BUSTERPJ

LEGEND

- Site Boundary
- Existing Monitoring Well
- 20.0 Groundwater Elevation Contour
- Inferred Groundwater Flow Direction

GROUNDWATER ELEVATION CONTOUR MAP SEPTEMBER 27, 2023

120 Maple Avenue,
Haverstraw, NY

0 150 300 Feet

FIGURE 05

I:\Bms.287A\STDS\GIS\Hopewell\Figure 4.mxd

PROJECT: 120MAPLE | DATED: 4/21/2020 | DESIGNER: BUSTERPJ

LEGEND

- Site Boundary
- Existing Monitoring Well
- 20.0 Groundwater Elevation Contour
- Inferred Groundwater Flow Direction

0 150 300 Feet

GROUNDWATER ELEVATION CONTOUR MAP DECEMBER 14, 2023

120 Maple Avenue,
Haverstraw, NY

FIGURE 06

ATTACHMENT A

Annual Inspection Checklist and Certification, and Annual Monitoring Well Inspection Logs

Annual Inspection Checklist and Certification

Clove and Maple Avenues Former MGP Site - Operable Unit 1: Village of Haverstraw, New York

Inspection Task	Condition		Comments: Describe Condition, Location and Type of Any Deficiencies, Corrective Actions	Date Completed	Initials
SOIL COVER SYSTEM					
Required Forms Up to Date	Yes [X]	No [ ]		9/27/23	MJ
Vegetation	Complete [X]	Locally Degraded [ ]		9/27/23	MJ
Any Changes in Cover Type	Yes [ ]	No [X]		9/27/23	MJ
New Penetrations	Yes [ ]	No [X]		9/27/23	MJ
Any Changes in Property Usage	Yes [ ]	No [X]		9/27/23	MJ
GROUNDWATER MONITORING WELLS					
Note: Complete Individual Monitoring Well Inspection Logs					
Required Forms Up to Date	Yes [X]	No [ ]		9/27/23	MJ
Any Deficiencies Identified	Yes [ ]	No [X]		9/27/23	MJ

Name / Date: Megan Jarocki 9/27/23

Signature: Megan Jarocki

Annual Monitoring Well Inspection Log

Clove and Maple Avenues Former MGP Site - Operable Unit 1: Village of Haverstraw, New York

Well ID: MW-1 Inspector: M. Jarocki Date: 9/27/23

FLUSHMOUNT WELL - Wellbox present and secure?	(Yes)	No	NA	If no, explain below						
Wellbox brand and/or type:	Flushmount manhole									
Well lid present:	(Yes)	No		Well lid broken?	Yes	(No)				
Well lid diameter:	8"			Number of bolt holes:	0	1	2	(3)	4	____
Number of bolts present:	0	1	2	(3)	4 ____	Number of bolts intact:	0	1	2	(3) 4 ____
Lid seal intact?	Yes	(No)		Well box sitting:	at grade	(below grade)	above grade			
CASING - Casing secure?	(Yes)	No		If no, explain below						
Casing cut at an angle:	Yes	(No)		Casing cut too low:	Yes	(No)				
Casing too high for well to close:	Yes	(No)		Casing cracked or crushed:	Yes	(No)				
LOCK - present	Yes	(No)		Lock functional:	Yes	No	(NA)			
WELL CAP - Cap present?	(Yes)	No		Found secure:	(Yes)	No				
Cap type:	(Expansion)	Slip	Threaded	Other ____	Well cap functional:	(Yes)	No			

Comments:

Well information: Depth of Well*: 30.00 Depth to Water*: 20.45 *Measurement taken from top of casing

Annual Monitoring Well Inspection Log
Clove and Maple Avenues Former MGP Site - Operable Unit 1: Village of Haverstraw, New York

Well ID: MW-04 Inspector: A. Felice Date: 9/27/23

FLUSHMOUNT WELL - Wellbox present and secure?	(Yes)	No	NA	If no, explain below	
Wellbox brand and/or type: Flush mount					
Well lid present:	(Yes)	No	Well lid broken?	Yes	(No)
Well lid diameter: 8"			Number of bolt holes:	0 1 2 (3) 4 ____	
Number of bolts present:	(0) 1 2 3 4 ____		Number of bolts intact:	(0) 1 2 3 4 ____	
Lid seal intact?	(Yes)	No	Well box sitting:	(at grade)	below grade above grade
CASING - Casing secure?	(Yes)	No	If no, explain below		
Casing cut at an angle:	Yes	(No)	Casing cut too low:	Yes	(No)
Casing too high for well to close:	Yes	(No)	Casing cracked or crushed:	Yes	(No)
LOCK - present	(Yes)	No	Lock functional:	(Yes)	No (NA)
WELL CAP - Cap present?	(Yes)	No	Found secure:	(Yes)	No
Cap type:	(Expansion)	Slip Threaded Other ____	Well cap functional:		(Yes) No

Comments:
Well information: Depth of Well*: 21.90 Depth to Water*: At top of Casing *Measurement taken from top of casing

DNAPL Present: ~ 1.5 feet

Annual Monitoring Well Inspection Log
Clove and Maple Avenues Former MGP Site - Operable Unit 1: Village of Haverstraw, New York

Well ID: MW-05 Inspector: A. Felice Date: 9/27/23

FLUSHMOUNT WELL - Wellbox present and secure?	(Yes)	No	NA	If no, explain below	
Wellbox brand and/or type: Flush Mount					
Well lid present: (Yes) No			Well lid broken? Yes (No)		
Well lid diameter: 9"			Number of bolt holes: ~~0~~ 1 2 (3) 4 ___		
Number of bolts present: (0) 1 2 3 4 ___			Number of bolts intact: (0) 1 2 3 4 ___		
Lid seal intact? (Yes) No			Well box sitting: (at grade) below grade above grade		
CASING - Casing secure? (Yes) No			If no, explain below		
Casing cut at an angle: Yes (No)			Casing cut too low: Yes (No)		
Casing too high for well to close: Yes (No)			Casing cracked or crushed: Yes (No)		
LOCK - present ~~Yes~~ (No)			Lock functional: ~~Yes~~ No (NA)		
WELL CAP - Cap present? (Yes) No			Found secure: (Yes) No		
Cap type: (Expansion) Slip Threaded ~~Other~~ T Plug			Well cap functional: (Yes) No		

Comments:
Well information: Depth of Well*: 21.54 Depth to Water*: 5.95 *Measurement taken from top of casing

Annual Monitoring Well Inspection Log
Clove and Maple Avenues Former MGP Site - Operable Unit 1: Village of Haverstraw, New York

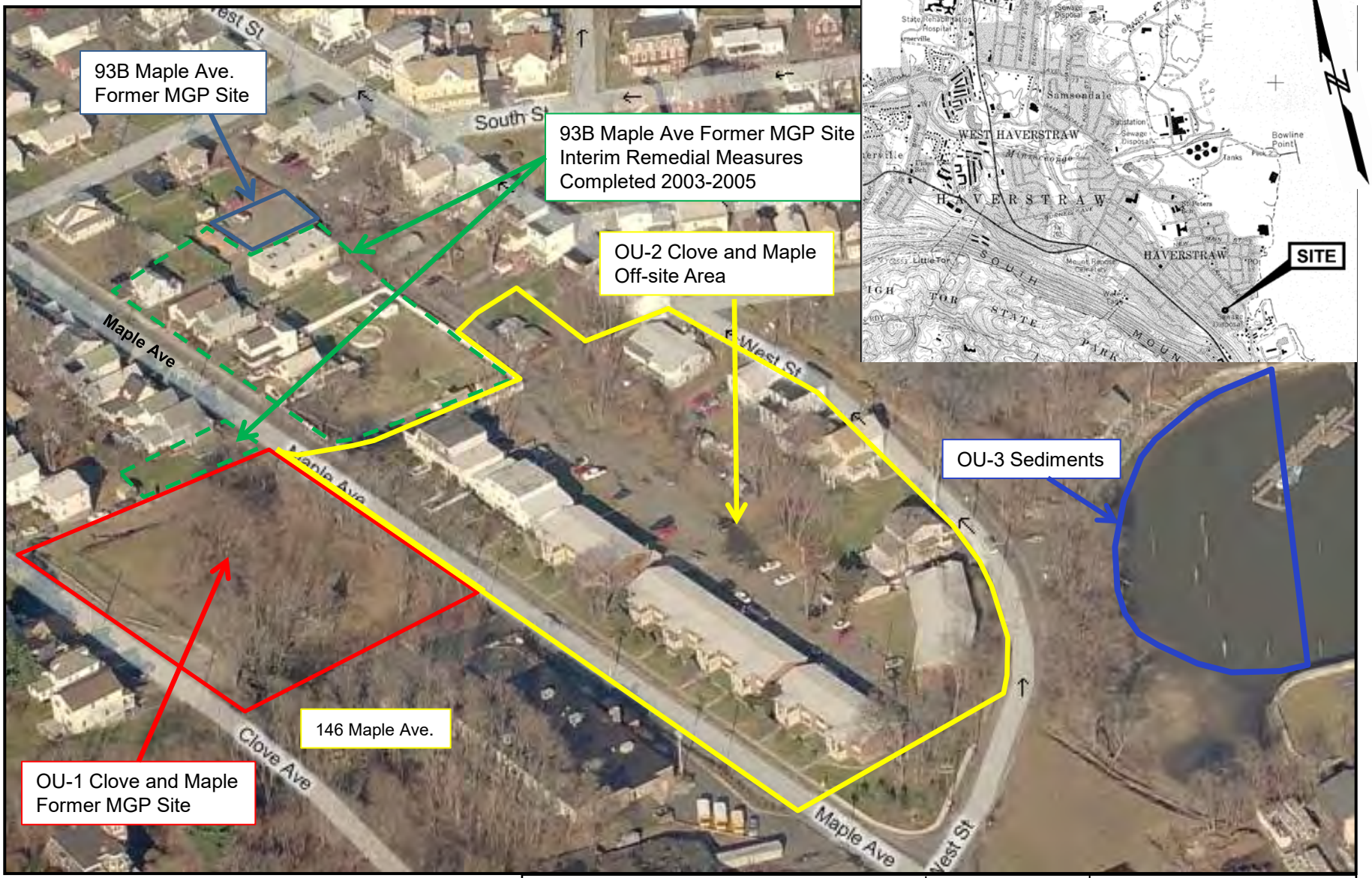
Well ID: MW16 Inspector: A. Felice Date: 9/27/23

FLUSHMOUNT WELL - Wellbox present and secure?	(Yes)	No	NA	If no, explain below						
Wellbox brand and/or type: Flush Mount										
Well lid present:	(Yes)	No		Well lid broken?	Yes	(No)				
Well lid diameter: 8"				Number of bolt holes:	0	1	2	(3)	4	____
Number of bolts present:	0	(1)	2	3	4	____	Number of bolts intact:	0	(1)	2	3	4	____
Lid seal intact?	(Yes)	No		Well box sitting:	(at grade)	below grade	above grade			
CASING - Casing secure?	(Yes)	No		If no, explain below						
Casing cut at an angle:	Yes	(No)		Casing cut too low:	(Yes)	No				
Casing too high for well to close:	Yes	(No)		Casing cracked or crushed:	Yes	(No)				
LOCK - present	(Yes)	(No)		Lock functional:	Yes	No	(NA)			
WELL CAP - Cap present?	(Yes)	No		Found secure:	(Yes)	No				
Cap type:	(Expansion)	Slip	Threaded	Other ____	Well cap functional:	(Yes)	No			

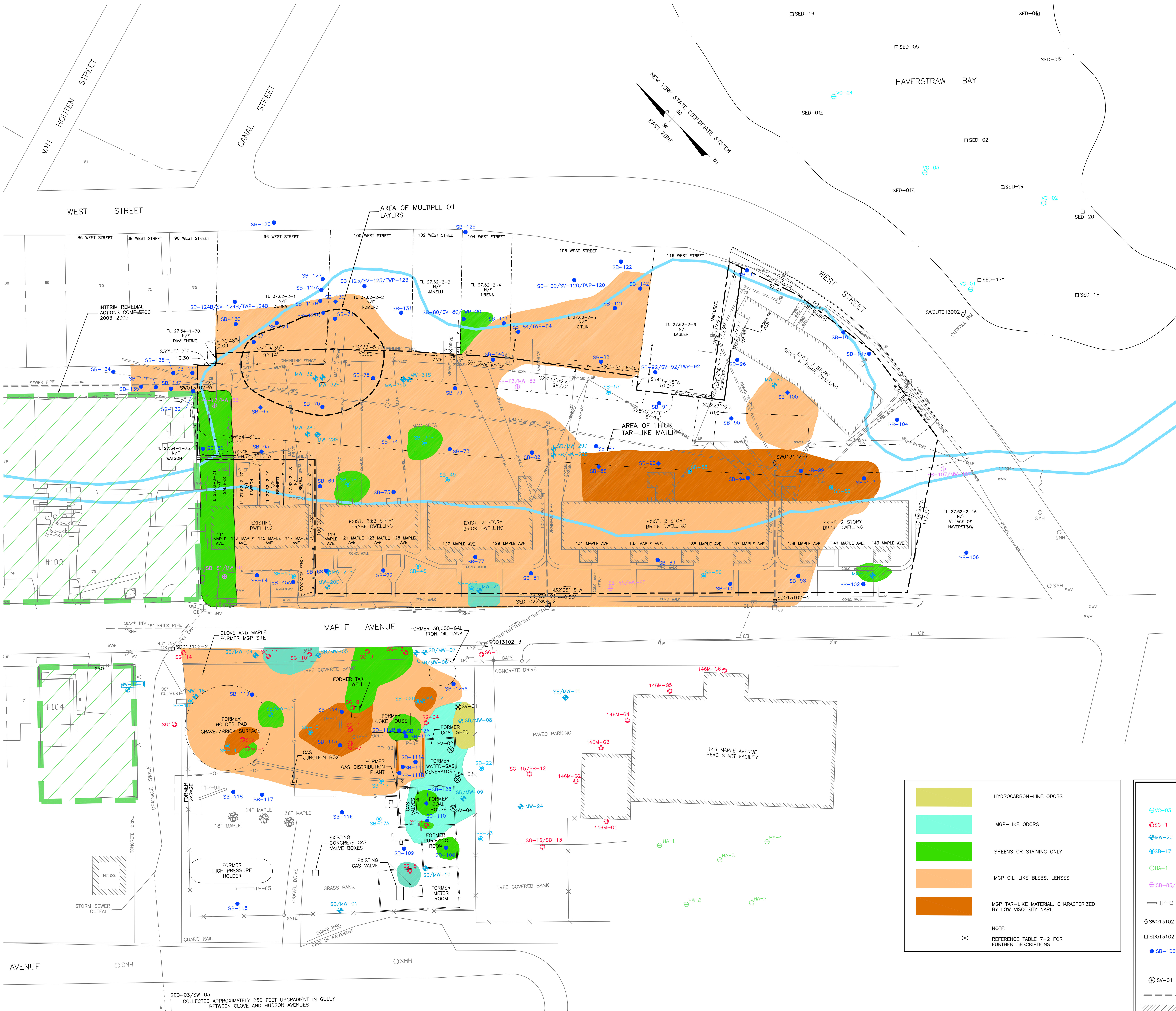
Comments:
Well information: Depth of Well*: 18.76 Depth to Water*: @ ~~Surf~~ top of inner casing *Measurement taken from top of casing

ATTACHMENT B

Figure 1 from the Record of Decision, Dated March 2011 and Place 6A from the Remedial Investigation Report, Dated May 2009



CLOVE AND MAPLE FORMER MGP SITE HAVERSTRAW, NEW YORK		**OU-1 AND OU-2 LOCATION AERIAL PHOTOGRAPH**
ORANGE AND ROCKLAND UTILITIES, INC.		**February 2011** **Figure 1**



NOTE:

PROPERTY INFORMATION SHOWN AND METES AND BOUNDS DERIVED FROM ATZL, SCATASSA & ZIGLER P.C. SURVEYORS–PLANNERS.
234 NORTH MAIN STREET, NEW CITY NEW YORK 10956.
156 ORANGE AVENUE, WALDEN NEW YORK 12586

DRAWING TITLED: BOUNDARY SURVEY PROJECT NO. 3147, DATED MAY 22, 2004.

TAX LOT INFORMATION:

VILLAGE OF HAVERSTRAW TAX MAP
TL 27.62–2–17.1, 17.2, 17.3, AND 17.4

NOTE:

THE INFORMATION PRESENTED ON THIS MAP FIGURE IS ACCURATE TO THE BEST OF OUR BELIEF; NO CLAIM IS MADE TO THE LOCATION OF DRY WELLS, SEPTIC SYSTEMS, GASOLINE TANKS, OR HEATING OIL TANKS. ALL UTILITIES WILL BE IDENTIFIED IN THE FIELD USING THE ONE CALL SYSTEM AND A GEOPHYSICAL SURVEY BY A PRIVATE GEOPHYSICS CONTRACTOR.

HYDROCARBON–LIKE ODORS

MGP–LIKE ODORS

SHEENS OR STAINING ONLY

MGP OIL–LIKE BLEBS, LENSES

MGP TAR–LIKE MATERIAL, CHARACTERIZED BY LOW VISCOSITY NAPL

NOTE:

* REFERENCE TABLE 7–2 FOR FURTHER DESCRIPTIONS

LEGEND

VC–03	VIBRACORE SAMPLE LOCATION		PROPERTY BOUNDARY, SURVEYED
SG–1	PRE–2008 SOIL GAS SAMPLE LOCATION		PROPERTY BOUNDARY APPROXIMATE
MW–20	PRE–2008 MONITORING WELL LOCATION		HISTORICAL STRUCTURE
SB–17	PRE–2008 SOIL BORING LOCATION		RIVER SHORELINE
HA–1	1998–2001 CLOVE & MAPLE AVE RI HAND AUGER BORING LOCATION		WOOD FENCE
SB–83/MW–83	2008 SRI MONITORING WELL LOCATION		CHAIN–LINK FENCE
TP–2	1998–2001 CLOVE & MAPLE AVE RI TEST PIT LOCATION	G	GAS MAINS
SW013102–6	1998–2001 CLOVE & MAPLE AVE RI STORM SEWER WATER SAMPLE LOCATION	OH/ELEC	OVERHEAD WIRE
SD013102–2	1998-2001 CLOVE & MAPLE AVE RI STORM SEWER SEDIMENT SAMPLE LOCATION	UP	UTILITY POLE
SB–106	2008 SRI SOIL BORING LOCATION; WHERE INDICATED – "SV" REPRESENTS CO–LOCATED SOIL VAPOR POINT; "TWP" REPRESENTS CO–LOCATED TEMPORARY WELL POINT	WG	WATER GATE VALVE
SV–01	2008 SOIL GAS SAMPLE ONLY	HYD	FIRE HYDRANT
	STORM SEWER	SMH	SEWER MANHOLE
	EXISTING STRUCTURE	CB	CATCH BASIN
			INTERIM REMEDIAL ACTIONS COMPLETED 2003–2005 (93B MAPLE AVENUE FORMER MGP SITE)
			POND AND RIVERBANK AS DEPICTED IN 1876 COMBINATION ATLAS MAP OF ROCKLAND COUNTY F.A., DAVIS & CO., PHILADELPHIA
			DASHED LINE SHOWN REPRESENTS AREA OF MULTIPLE OIL LAYERS

GEODETIC REFERENCES:
– NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE.

– DATUM: NGVD 1927.

NOT FOR BID OR CONSTRUCTION

REVISION NO.	DATE	REVISION

GRAPHIC SCALE IN FEET
1"=30'

CMX
ARIZONA • FLORIDA • MARYLAND • NEVADA • NEW JERSEY
NEW YORK • PENNSYLVANIA • MEXICO

1311 MAMARONECK AVENUE
SUITE 50
WHITE PLAINS, NY 10605
TEL (914)686–1000
FAX (914)686–1222

PLATE 6A-NAPL OBSERVATIONS
SUPPLEMENTAL REMEDIAL INVESTIGATION-2008
CLOVE AND MAPLE FORMER MGP SITE

HAVERSTRAW — ROCKLAND COUNTY — NEW YORK

PROJECT NO 070748502	DATE 1/28/2009
DRAWN BY MVS	DESIGNED BY ERG
SCALE 1"=30'	CHECKED BY ERG
SHEET NO. 1 of 1	

ATTACHMENT C

Low Flow Purge and Sample
Ground Water Sampling Logs

RAMBOLL

NJ Low Flow Purge and Sample Groundwater Sampling Log

Date: 9/27/23 | Personnel: A. Felice | Weather: 80s Sunny
Site Name: Haverstraw | Pump/Controller ID#: ~~Bennett~~ Peristaltic | Well #: MW-06
Site Location: Haverstraw NY | Sampling Method: Low flow | Project #:
Monitoring Equip. Used (include ID#): Horiba U52

Well Information:
Depth of Well*: ft
Depth to Water*: * NM ft
Length of Water Column: ft
Pump Intake Depth: ft

Well Diameter Multipliers
2 in. = 0.163 gal/ft
4 in. = 0.653 gal/ft
6 in. = 1.469 gal/ft
8 in. = 2.611 gal/ft
Well Diameter: in.

* Measurements taken from
Top of Well Casing
Top of Protective Casing
(Other. Specify)

Start Purge Time:

Verify temperature Dev% change on Weekly Instrument Report (pg. 2)
Dev0%: Yes or No (if Yes, record here)

Elapsed Time	Depth To Water (ft bmp)	Temperature (°C) (SM 2550 B-10)	pH (SU) (SM 4500-H B-11)	Conductivity (mS/cm) (SM 2510 B-11)	ORP (mV)	Dissolved Oxygen (mg/l) (SM 4500-O G-16)	Turbidity (NTU) (SM 2130 B-11)	Flow Rate (ml/min)
11:45	3.00	17.67	7.33	0.744	104	1.87	15.5	200
11:50	3.15	17.37	7.30	0.755	99	0.81	8.6	200
11:55	3.40	17.17	7.36	0.756	75	0.46	11.1	200
12:00	3.50	17.06	7.39	0.756	64	0.36	10.1	200
12:05	3.80	17.07	7.47	0.759	54	0.26	8.4	200
12:10	3.80	16.97	7.51	0.760	44	0.20	1.6	200
12:15	3.60	16.95	7.53	0.763	38	0.17	5.0	200
12:20	3.80	16.78	7.44	0.764	32	0.17	7.7	200
12:25	3.60	16.79	7.41	0.764	30	0.17	8.7	
Stabilization	Δ ≤ 0.3'	± 3%	± 0.1	± 3%	± 10 mV	± 10%	± 10%	100 ≤ X ≤ 500

Sample Time

End Purge Time:
Water sample: MW-06-092723/DUP-01_092723
Time collected: 12:25
Total volume of purged water removed: ~5 gallons

Physical appearance at start
Color: Turbid
Odor: Petrolium
Sheen/Free Product: none

Physical appearance at sampling
Color: clear
Odor: none
Sheen/Free Product: none

Analytical Parameters:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Lab

Notes: * H_2O @ top of Casing

RAMBOLL

NJ Low Flow Purge and Sample Groundwater Sampling Log

Date: 9/27/23 Personnel: M. Jarocki Weather: 50'S Sunny
Site Name: Haverstraw Pump/Controller ID#: Perri Well #: MW-1
Site Location: Haverstraw NY Sampling Method: Lowflow Project #:
Monitoring Equip. Used (include ID#): Horiba U52 8VNSANAS / UY IOA7LS

Well information:
Depth of Well*: 29.55 ft.
Depth to Water*: 20.45 ft.
Length of Water Column: ft.
Pump Intake Depth: 24 ft.

Well Diameter Multipliers
2 in. = 0.163 gal/ft
4 in. = 0.653 gal/ft
6 in. = 1.469 gal/ft
8 in. = 2.611 gal/ft
Well Diameter: in.

* Measurements taken from
Top of Well Casing
Top of Protective Casing
(Other, Specify)

Start Purge Time: 925
Verify temperature Dev% change on Weekly Instrument Report (pg. 2)
Dev0%: Yes or No (If Yes, record here)

Elapsed Time	Depth To Water (ft bmp)	Temperature (°C) (SM 2550 B-10)	pH (SU) (SM 4500-H B-11)	Conductivity (mS/cm) (SM 2510 B-11)	ORP (mV)	Dissolved Oxygen (mg/l) (SM 4500-O G-16)	Turbidity (NTU) (SM 2130 B-11)	Flow Rate (ml/min)
940	20.55	19.74	6.90	0.674	201	4.90	35.1	200
945	20.55	19.85	7.00	0.663	199	5.39	29.5	200
950	20.55	19.89	7.05	0.659	198	5.37	23.8	200
955	20.55	20.07	7.09	0.655	204	5.49	18.5	200
1000	20.55	20.14	7.14	0.653	200	5.71	13.6	200
1005	20.55	20.20	7.16	0.652	200	5.55	12.4	200
30- 100	20.55	20.32	7.17	0.653	201	5.67	10.1	200
1015	20.55	20.41	7.16	0.655	202	5.63	10.3	200
1020	20.55	20.42	7.16	0.656	203	5.63	7.7	200
1025	20.55	20.43	7.16	0.657	204	5.57	8.4	200
Stabilization	Δ ≤ 0.3'	± 3%	± 0.1	± 3%	± 10 mV	± 10%	± 10%	100 ≤ X ≤ 500

End Purge Time:
Water sample: MW-1-092723
Time collected:
Total volume of purged water removed:

Physical appearance at start
Color: Clear
Odor: NO
Sheen/Free Product: NO

Physical appearance at sampling
Color: Clear
Odor: NO
Sheen/Free Product: NO

Analytical Parameters:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Lab
40 ML	VOA	3	NO	HCl	SGS
1 L	amber	2	↓	NO	SGS

Notes: Turbidity looks clear however flow cell jolts around w/ perri pump and istiring the flow cell

NJ Low Flow Purge and Sample Groundwater Sampling Log

Date: 9/27/23 | Personnel: A. Felice | Weather: Sunny ~~75~~ 80s
Site Name: Haverstraw | Pump/Controller ID#: Peri | Well #: MW-05
Site Location: Haverstraw NY | Sampling Method: ~~Peri~~ Low flow | Project #:
Monitoring Equip. Used (include ID#): Horiba U52

Well information:
Depth of Well*: ft.
Depth to Water*: 0.96 ft.
Length of Water Column: ft.
Pump Intake Depth: ft.

Well Diameter Multipliers
2 in. = 0.163 gal/ft
4 in. = 0.653 gal/ft
6 in. = 1.469 gal/ft
8 in. = 2.611 gal/ft
Well Diameter: in.

* Measurements taken from
Top of Well Casing
Top of Protective Casing
(Other, Specify)

Start Purge Time: 09:30
Verify temperature Dev% change on Weekly Instrument Report (pg. 2)
Dev0%: Yes or No (if Yes, record here _____)

Elapsed Time	Depth To Water (ft bmp)	Temperature (°C) (SM 2550 B-10)	pH (SU) (SM 4500-H B-11)	Conductivity (mS/cm) (SM 2510 B-11)	ORP (mV)	Dissolved Oxygen (mg/l) (SM 4500-O G-16)	Turbidity (NTU) (SM 2130 B-11)	Flow Rate (ml/min)
09:30	0.95	15.94	6.33	0.276	119	3.73	211	200
0935	1.98	16.00	6.56	0.248	90	2.21	187	200
0940	1.93	16.28	6.71	0.243	59	1.15	181	200
0945	1.94	16.43	6.85	0.246	29	0.71	174	200
0950	2.00	16.52	7.12	0.254	11	0.89	162	200
0955	2.02	16.84	7.15	0.262	14	0.88	123	200
1000	2.02	16.45	7.16	0.272	15	1.02	68.47	200
1005	2.03	16.59	7.23	0.284	13	1.60	48.3	200
1010	2.05	16.68	7.24	0.298	12	0.69	42.8	200
1015	2.08	16.24	7.19	0.329	15	0.64	33.2	200
1020	2.08	16.34	7.22	0.343	17	0.63	32.8	200
1025	2.08	16.19	7.19	0.336	18	0.10	23.0	200
1030	2.08	16.15	7.19	0.330	18	0.10	23.1	200
1035	2.08	16.18	7.18	0.335	19	0.10	23.2	200
Stabilization	Δ ≤ 0.3'	± 3%	± 0.1	± 3%	± 10 mV	± 10%	± 10%	100 ≤ X ≤ 500

Sample Time

End Purge Time:
Water sample: MW-05-092723/MS/MSD
Time collected:
Total volume of purged water removed: ~5 gallons

Physical appearance at start
Color: turbid
Odor: Petroleum
Sheen/Free Product: none

Physical appearance at sampling
Color: clear
Odor: Slight
Sheen/Free Product: Slight

Analytical Parameters:

Container Size	Container Type	# Collected	Field Filtered	Preservative	Lab

Notes: MS/MSD Collected here

ATTACHMENT D

Laboratory Analytical Report and Data Usability Summary Report

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Ramboll US Corporation

Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

PO 1940103774

SGS Job Number: JD73642

Sampling Date: 09/27/23

Report to:

O'Brien and Gere
Raritan Plaza 1
Edison, NJ 08837
William.Moore@ramboll.com; Jacob.Greenawalt@Ramboll.com

ATTN: William H. Moore

Total number of pages in report: 2120

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Tammy McCloskey 732-329-0200
Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Table of Contents

SGS North America Inc.

Sample Summary

Ramboll US Corporation

Job No: JD73642

Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Project No: PO 1940103774

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73642-1	09/27/23	10:25	MJ	09/27/23	AQ	Ground Water	MW-01-092723
JD73642-2	09/27/23	11:10	MJ	09/27/23	AQ	Field Blank Water	FB-092723
JD73642-3	09/27/23	10:35	AF	09/27/23	AQ	Ground Water	MW-05-092723
JD73642-3D	09/27/23	10:35	AF	09/27/23	AQ	Water Dup/MSD	MW-05-092723_MSD
JD73642-3S	09/27/23	10:35	AF	09/27/23	AQ	Water Matrix Spike	MW-05-092723_MS
JD73642-4	09/27/23	12:25	MJ	09/27/23	AQ	Trip Blank Water	TB-092723
JD73642-5	09/27/23	12:25	AF	09/27/23	AQ	Ground Water	MW-06-092723
JD73642-6	09/27/23	00:00	AF	09/27/23	AQ	Ground Water	DUP-092723

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the MDL

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Ramboll US Corporation	**Job No:**	JD73642
Site:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw,	**Report Date**	10/5/2023 11:26:54 A

On 09/27/2023, 4 sample(s), 1 Trip Blank(s), and 1 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 1 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73642 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: AQ **Batch ID:** V1F245

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD73642-3MS, JD73642-3MSD were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V2F245

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD73642-1MS, JD73642-2DUP were used as the QC samples indicated.

MS Semi-volatiles By Method SW846 8270E BY SIM

Matrix: AQ **Batch ID:** OP49419A

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD73642-3MS, JD73642-3MSD were used as the QC samples indicated.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73642
Account: Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Collected: 09/27/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73642-1	**MW-01-092723**					
Benzene		0.45 J	0.50	0.43	ug/l	SW846 8260D
Naphthalene		0.299	0.10	0.050	ug/l	SW846 8270E BY SIM
JD73642-2	**FB-092723**					
No hits reported in this sample.						
JD73642-3	**MW-05-092723**					
Acenaphthene		1.63	0.10	0.050	ug/l	SW846 8270E BY SIM
Acenaphthylene		1.14	0.10	0.050	ug/l	SW846 8270E BY SIM
Anthracene		0.154	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluoranthene		0.327	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluorene		0.0978 J	0.10	0.050	ug/l	SW846 8270E BY SIM
Naphthalene		0.155	0.10	0.050	ug/l	SW846 8270E BY SIM
Phenanthrene		0.103	0.050	0.023	ug/l	SW846 8270E BY SIM
Pyrene		0.547	0.10	0.050	ug/l	SW846 8270E BY SIM
JD73642-4	**TB-092723**					
No hits reported in this sample.						
JD73642-5	**MW-06-092723**					
Acenaphthene		0.239	0.10	0.050	ug/l	SW846 8270E BY SIM
Acenaphthylene		0.456	0.10	0.050	ug/l	SW846 8270E BY SIM
Anthracene		0.263	0.10	0.050	ug/l	SW846 8270E BY SIM
Benzo(a)anthracene		0.281	0.050	0.023	ug/l	SW846 8270E BY SIM
Benzo(a)pyrene		0.463	0.050	0.033	ug/l	SW846 8270E BY SIM
Benzo(b)fluoranthene		0.543	0.050	0.043	ug/l	SW846 8270E BY SIM
Benzo(g,h,i)perylene		0.527	0.10	0.050	ug/l	SW846 8270E BY SIM
Benzo(k)fluoranthene		0.298	0.10	0.050	ug/l	SW846 8270E BY SIM
Chrysene		0.464	0.10	0.050	ug/l	SW846 8270E BY SIM
Dibenzo(a,h)anthracene		0.118	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluoranthene		1.04	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluorene		0.257	0.10	0.050	ug/l	SW846 8270E BY SIM
Indeno(1,2,3-cd)pyrene		0.364	0.10	0.050	ug/l	SW846 8270E BY SIM
Naphthalene		1.95	0.10	0.050	ug/l	SW846 8270E BY SIM
Phenanthrene		1.57	0.050	0.023	ug/l	SW846 8270E BY SIM
Pyrene		1.35	0.10	0.050	ug/l	SW846 8270E BY SIM

Summary of Hits

Job Number: JD73642
Account: Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Collected: 09/27/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73642-6	**DUP-092723**					
Acenaphthene		0.400	0.10	0.050	ug/l	SW846 8270E BY SIM
Acenaphthylene		0.808	0.10	0.050	ug/l	SW846 8270E BY SIM
Anthracene		0.482	0.10	0.050	ug/l	SW846 8270E BY SIM
Benzo(a)anthracene		0.869	0.050	0.023	ug/l	SW846 8270E BY SIM
Benzo(a)pyrene		1.06	0.050	0.033	ug/l	SW846 8270E BY SIM
Benzo(b)fluoranthene		1.28	0.050	0.043	ug/l	SW846 8270E BY SIM
Benzo(g,h,i)perylene		0.931	0.10	0.050	ug/l	SW846 8270E BY SIM
Benzo(k)fluoranthene		0.405	0.10	0.050	ug/l	SW846 8270E BY SIM
Chrysene		1.11	0.10	0.050	ug/l	SW846 8270E BY SIM
Dibenzo(a,h)anthracene		0.227	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluoranthene		1.40	0.10	0.050	ug/l	SW846 8270E BY SIM
Fluorene		0.356	0.10	0.050	ug/l	SW846 8270E BY SIM
Indeno(1,2,3-cd)pyrene		0.699	0.10	0.050	ug/l	SW846 8270E BY SIM
Naphthalene		3.36	0.10	0.050	ug/l	SW846 8270E BY SIM
Phenanthrene		1.04	0.050	0.023	ug/l	SW846 8270E BY SIM
Pyrene		2.04	0.10	0.050	ug/l	SW846 8270E BY SIM

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-01-092723		
Lab Sample ID:	JD73642-1	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2F7287.D	1	09/28/23 15:47	PS	n/a	n/a	V2F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.45	0.50	0.43	ug/l	J
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		80-120%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	102%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-01-092723		
Lab Sample ID:	JD73642-1	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8270E BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CR3684.D	1	09/30/23 05:31	RS	09/28/23 15:45	OP49419A	ECR166
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.050	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.050	ug/l	
218-01-9	Chrysene	ND	0.10	0.050	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.050	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.050	ug/l	
86-73-7	Fluorene	ND	0.10	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.050	ug/l	
91-20-3	Naphthalene	0.299	0.10	0.050	ug/l	
85-01-8	Phenanthrene	ND	0.050	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.050	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	81%		23-127%
321-60-8	2-Fluorobiphenyl	79%		23-114%
1718-51-0	Terphenyl-d14	67%		10-121%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-092723		
Lab Sample ID:	JD73642-2	**Date Sampled:**	09/27/23
Matrix:	AQ - Field Blank Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2F7281.D	1	09/28/23 14:00	PS	n/a	n/a	V2F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		80-120%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	104%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-092723		
Lab Sample ID:	JD73642-2	**Date Sampled:**	09/27/23
Matrix:	AQ - Field Blank Water	**Date Received:**	09/27/23
Method:	SW846 8270E BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CR3685.D	1	09/30/23 05:51	RS	09/28/23 15:45	OP49419A	ECR166
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.050	ug/l	
120-12-7	Anthracene	ND	0.10	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.050	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.050	ug/l	
218-01-9	Chrysene	ND	0.10	0.050	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.050	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.050	ug/l	
86-73-7	Fluorene	ND	0.10	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.050	ug/l	
91-20-3	Naphthalene	ND	0.10	0.050	ug/l	
85-01-8	Phenanthrene	ND	0.050	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.050	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	90%		23-127%
321-60-8	2-Fluorobiphenyl	81%		23-114%
1718-51-0	Terphenyl-d14	58%		10-121%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-05-092723		
Lab Sample ID:	JD73642-3	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1F7286.D	1	09/28/23 15:29	PS	n/a	n/a	V1F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		80-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	104%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-05-092723		
Lab Sample ID:	JD73642-3	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8270E BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CR3686.D	1	09/30/23 06:11	RS	09/28/23 15:45	OP49419A	ECR166
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	1.63	0.10	0.050	ug/l	
208-96-8	Acenaphthylene	1.14	0.10	0.050	ug/l	
120-12-7	Anthracene	0.154	0.10	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.050	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.050	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.050	ug/l	
218-01-9	Chrysene	ND	0.10	0.050	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.050	ug/l	
206-44-0	Fluoranthene	0.327	0.10	0.050	ug/l	
86-73-7	Fluorene	0.0978	0.10	0.050	ug/l	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.050	ug/l	
91-20-3	Naphthalene	0.155	0.10	0.050	ug/l	
85-01-8	Phenanthrene	0.103	0.050	0.023	ug/l	
129-00-0	Pyrene	0.547	0.10	0.050	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	91%		23-127%
321-60-8	2-Fluorobiphenyl	84%		23-114%
1718-51-0	Terphenyl-d14	45%		10-121%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	TB-092723		
Lab Sample ID:	JD73642-4	**Date Sampled:**	09/27/23
Matrix:	AQ - Trip Blank Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1F7282.D	1	09/28/23 14:18	PS	n/a	n/a	V1F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		80-120%
17060-07-0	1,2-Dichloroethane-D4	104%		80-120%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	104%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-06-092723		
Lab Sample ID:	JD73642-5	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1F7288.D	1	09/28/23 16:06	PS	n/a	n/a	V1F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		80-120%
17060-07-0	1,2-Dichloroethane-D4	104%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	103%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	MW-06-092723		
Lab Sample ID:	JD73642-5	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8270E BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CR3687.D	1	09/30/23 06:31	RS	09/28/23 15:45	OP49419A	ECR166
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.239	0.10	0.050	ug/l	
208-96-8	Acenaphthylene	0.456	0.10	0.050	ug/l	
120-12-7	Anthracene	0.263	0.10	0.050	ug/l	
56-55-3	Benzo(a)anthracene	0.281	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	0.463	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	0.543	0.050	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.527	0.10	0.050	ug/l	
207-08-9	Benzo(k)fluoranthene	0.298	0.10	0.050	ug/l	
218-01-9	Chrysene	0.464	0.10	0.050	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.118	0.10	0.050	ug/l	
206-44-0	Fluoranthene	1.04	0.10	0.050	ug/l	
86-73-7	Fluorene	0.257	0.10	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.364	0.10	0.050	ug/l	
91-20-3	Naphthalene	1.95	0.10	0.050	ug/l	
85-01-8	Phenanthrene	1.57	0.050	0.023	ug/l	
129-00-0	Pyrene	1.35	0.10	0.050	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		23-127%
321-60-8	2-Fluorobiphenyl	70%		23-114%
1718-51-0	Terphenyl-d14	46%		10-121%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-092723		
Lab Sample ID:	JD73642-6	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2F7289.D	1	09/28/23 16:24	PS	n/a	n/a	V2F245
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		82-114%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-092723		
Lab Sample ID:	JD73642-6	**Date Sampled:**	09/27/23
Matrix:	AQ - Ground Water	**Date Received:**	09/27/23
Method:	SW846 8270E BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CR3688.D	1	09/30/23 06:51	RS	09/28/23 15:45	OP49419A	ECR166
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.400	0.10	0.050	ug/l	
208-96-8	Acenaphthylene	0.808	0.10	0.050	ug/l	
120-12-7	Anthracene	0.482	0.10	0.050	ug/l	
56-55-3	Benzo(a)anthracene	0.869	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	1.06	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	1.28	0.050	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.931	0.10	0.050	ug/l	
207-08-9	Benzo(k)fluoranthene	0.405	0.10	0.050	ug/l	
218-01-9	Chrysene	1.11	0.10	0.050	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.227	0.10	0.050	ug/l	
206-44-0	Fluoranthene	1.40	0.10	0.050	ug/l	
86-73-7	Fluorene	0.356	0.10	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.699	0.10	0.050	ug/l	
91-20-3	Naphthalene	3.36	0.10	0.050	ug/l	
85-01-8	Phenanthrene	1.04	0.050	0.023	ug/l	
129-00-0	Pyrene	2.04	0.10	0.050	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	83%		23-127%
321-60-8	2-Fluorobiphenyl	78%		23-114%
1718-51-0	Terphenyl-d14	62%		10-121%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

SGS

GW TB TB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200
www.sgs.com/ehsusa

Page 1 of 1

FED-EX Tracking #:
Bottle Order Control #: TM-092523-22
SGS Quote #:
SGS Job #: JD73642

Client / Reporting Information		Project Information	
Company Name: Ramboll		Project Name: Former Clove 3 Maple MGP Site	
Street Address: 101 Carnegie Dr		Street: 120 Maple ave.	Billing Information (If different from Report to)
City: Princeton State: NJ Zip: Suite 200		City: Haverstraw State: NY	Company Name:
Project Contact: Bill William E-mail: william.moore@ramboll.com		Project #:	Street Address:
Phone #: 973-820-1044		Client Purchase Order #:	City: State: Zip:
Sampler(s) Name(s): MJ AF Phone #: 6462165878		Project Manager:	Attention:

Analysis columns: V8260B TCL; B8270SIMPAH

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL - Sludge, SED - Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB - Field Blank, EB - Equipment Blank, RB - Rinse Blank, TB - Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO_3	H_2SO_4	NONE	DI Water	MEOH	ENCORE	V8260B TCL	B8270SIMPAH	LAB USE ONLY
1	MW-01-092723		9/27/23	1025	MJ	G	N	GW	5	3				2				X	X	
2	FB-092723		9/27/23	1110	MJ	G	N	FB	4	2				2				X	X	
3	MW-05-092723		9/27/23	1035	AF	G	W	GW	5	3				2				X	X	
4	TB-092723		9/27/23	0800	MJ	G	W	TB	2	2								X		
3(	MW-05_092723_MS		9/27/23	1035	AF	G	N	GW	5	3				2				X	X	
	MW-05_092723_MSD		9/27/23	1035	AF	G	W	GW	5	3				2				X	X	
5	MW-06-092723		9/27/23	1225	AF	G	N	GW	5	3				2				X	X	
6	DUP-092723		9/27/23	—	AF	G	W	GW	5	3				2				X	X	

pH Check (Lab Use Only)

Turn Around Time (Business Days)

- [x] 10 Business Days Standard
- [ ] 5 Business Days
- [ ] 3 Business Days*
- [ ] 2 Business Days*
- [ ] 1 Business Day*
- [ ] Other

All data available via SGS Engage

Approved By (SGS PM) / Date:

* Approval needed for 1-3 BD TAT

Deliverable

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] NJ Reduced (Level 3)
- [x] Full Tier I (Level 4)
- [ ] Commercial "C"
- [ ] NJ DKQP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] MA MCP Criteria
- [ ] CT RCP Criteria
- [ ] State Forms
- [ ] EDD Format

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Initial Assessment 2B-JCW

Label Verification

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1 Meegan [signature]	9/27/23 1450	1 Edward Carpenter	2	9/27/23 14:53	2
3		3	4		4
5		5	Custody Seal #	☐ Intact ☐ Not Intact ☐ Absent	Therm ID: On Ice ☑ Cooler Temp. °C 1.3

See Sample Receipt Summary

1.1 IR-40

EHSA-QAC-0023-05 Rev.Date:8/5/22

5.1 5

JD73642: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JD73642 **Client:** RAMBOLL **Project:** FORMER COVE & MAPLE MGP SITE, 120

Date / Time Received: 9/27/2023 7:50:00 PM **Delivery Method:** DROP OFF **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (1.3); Cooler 2: (1.1);

Cooler Temps (Corrected) °C: Cooler 1: (1.0); Cooler 2: (0.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun 40		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	2		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

Internal Sample Tracking Chronicle

Ramboll US Corporation

Job No: JD73642

Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Project No: PO 1940103774

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73642-1	Collected: 27-SEP-23 10:25 By: MJ		Received: 27-SEP-23 By: EN			
MW-01-092723						
JD73642-1	SW846 8260D	28-SEP-23 15:47	PS			V8260BTX
JD73642-1	SW846 8270E BY SIM	30-SEP-23 05:31	RS	28-SEP-23	TG	B8270SIMPAH
JD73642-2	Collected: 27-SEP-23 11:10 By: MJ		Received: 27-SEP-23 By: EN			
FB-092723						
JD73642-2	SW846 8260D	28-SEP-23 14:00	PS			V8260BTX
JD73642-2	SW846 8270E BY SIM	30-SEP-23 05:51	RS	28-SEP-23	TG	B8270SIMPAH
JD73642-3	Collected: 27-SEP-23 10:35 By: AF		Received: 27-SEP-23 By: EN			
MW-05-092723						
JD73642-3	SW846 8260D	28-SEP-23 15:29	PS			V8260BTX
JD73642-3	SW846 8270E BY SIM	30-SEP-23 06:11	RS	28-SEP-23	TG	B8270SIMPAH
JD73642-4	Collected: 27-SEP-23 12:25 By: MJ		Received: 27-SEP-23 By: EN			
TB-092723						
JD73642-4	SW846 8260D	28-SEP-23 14:18	PS			V8260BTX
JD73642-5	Collected: 27-SEP-23 12:25 By: AF		Received: 27-SEP-23 By: EN			
MW-06-092723						
JD73642-5	SW846 8260D	28-SEP-23 16:06	PS			V8260BTX
JD73642-5	SW846 8270E BY SIM	30-SEP-23 06:31	RS	28-SEP-23	TG	B8270SIMPAH
JD73642-6	Collected: 27-SEP-23 00:00 By: AF		Received: 27-SEP-23 By: EN			
DUP-092723						
JD73642-6	SW846 8260D	28-SEP-23 16:24	PS			V8260BTX
JD73642-6	SW846 8270E BY SIM	30-SEP-23 06:51	RS	28-SEP-23	TG	B8270SIMPAH

SGS Internal Chain of Custody

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Received: 09/27/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD73642-1.1	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-1.2	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-1.2	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-1.2	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-1.2	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-1.2.1	Yesmeen Abugosh	Organics Prep	09/29/23 09:41	Extract from JD73642-1.2
JD73642-1.3	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-1.3	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-1.3	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-1.3	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-1.4	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-1.4	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-1.4	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-1.4	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-1.5	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-2.1	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-2.2	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-2.2	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-2.2	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-2.2	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-2.2.1	Yesmeen Abugosh	Organics Prep	09/29/23 09:41	Extract from JD73642-2.2
JD73642-2.3	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-2.3	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-2.3	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-2.3	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-2.4	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-2.4	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-2.4	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-2.4	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage

SGS Internal Chain of Custody

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Received: 09/27/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD73642-3.1	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.1	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-3.1	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-3.1	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-3.1.1	Yesmeen Abugosh	Organics Prep	09/29/23 09:41	Extract from JD73642-3.1
JD73642-3.2	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.3	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.4	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.4	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-3.4	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-3.4	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-3.5	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.6	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-3.6	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-3.6	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-3.6	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-3.7	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.7	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-3.7	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-3.7	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-3.9	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.10	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.11	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.12	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.13	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-3.13	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-3.13	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-3.13	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-3.14	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage

SGS Internal Chain of Custody

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Received: 09/27/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD73642-3.14	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-3.14	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-3.14	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-3.15	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-4.1	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-4.1	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-4.1	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-4.1	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-4.2	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-5.1	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-5.2	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-5.2	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-5.2	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-5.2	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-5.2.1	Yesmeen Abugosh	Organics Prep	09/29/23 09:41	Extract from JD73642-5.2
JD73642-5.3	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-5.3	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
Analyst chain of custody update error.				
JD73642-5.3	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-5.3	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-5.4	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-5.5	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage
JD73642-6.1	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-6.2	Joe Waddington	Secured Storage	09/28/23 00:27	Return to Storage
JD73642-6.2	Secured Storage	Joe Waddington	09/28/23 22:53	Retrieve from Storage
JD73642-6.2	Joe Waddington	Secured Staging Area	09/28/23 22:54	Return to Storage
JD73642-6.2	Secured Staging Area	Yesmeen Abugosh	09/29/23 06:54	Retrieve from Storage
JD73642-6.2.1	Yesmeen Abugosh	Organics Prep	09/29/23 09:41	Extract from JD73642-6.2
JD73642-6.3	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage

SGS Internal Chain of Custody

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY
Received: 09/27/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD73642-6.4	Nicholas Weigand	GCMS1F	09/28/23 16:48	Load on Instrument
JD73642-6.4	GCMS1F	Kinjal Desai	09/29/23 16:22	Unload from Instrument
JD73642-6.4	Kinjal Desai	Secured Storage	09/29/23 16:22	Return to Storage
JD73642-6.5	Joe Waddington	Secured Storage	09/27/23 23:50	Return to Storage

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2F245-MB	2F7279.D	1	09/28/23	PS	n/a	n/a	V2F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-1, JD73642-2, JD73642-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	89%	80-120%
17060-07-0	1,2-Dichloroethane-D4	105%	80-120%
2037-26-5	Toluene-D8	101%	80-120%
460-00-4	4-Bromofluorobenzene	102%	82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	System artifact	.86	31	ug/l	J
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1F245-MB	1F7280.D	1	09/28/23	PS	n/a	n/a	V1F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-3, JD73642-4, JD73642-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	90%	80-120%
17060-07-0	1,2-Dichloroethane-D4	106%	80-120%
2037-26-5	Toluene-D8	101%	80-120%
460-00-4	4-Bromofluorobenzene	104%	82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	System artifact	.84	29	ug/l	J
	Total TIC, Volatile		0	ug/l	

Blank Spike Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1F245-BS	1F7276.D	1	09/28/23	PS	n/a	n/a	V1F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-3, JD73642-4, JD73642-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	45.9	92	80-115
100-41-4	Ethylbenzene	50	46.8	94	78-116
108-88-3	Toluene	50	44.2	88	79-116
1330-20-7	Xylene (total)	150	141	94	80-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	80-120%
17060-07-0	1,2-Dichloroethane-D4	100%	80-120%
2037-26-5	Toluene-D8	105%	80-120%
460-00-4	4-Bromofluorobenzene	102%	82-114%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2F245-BS	2F7277.D	1	09/28/23	PS	n/a	n/a	V2F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-1, JD73642-2, JD73642-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	50.3	101	80-115
100-41-4	Ethylbenzene	50	51.5	103	78-116
108-88-3	Toluene	50	48.1	96	79-116
1330-20-7	Xylene (total)	150	150	100	80-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	80-120%
17060-07-0	1,2-Dichloroethane-D4	101%	80-120%
2037-26-5	Toluene-D8	104%	80-120%
460-00-4	4-Bromofluorobenzene	107%	82-114%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JD73642-1MS	2F7293.D	1	09/28/23	PS	n/a	n/a	V2F245
JD73642-1	2F7287.D	1	09/28/23	PS	n/a	n/a	V2F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-1, JD73642-2, JD73642-6

CAS No.	Compound	JD73642-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
71-43-2	Benzene	0.45	J	50	50.9	101	49-137
100-41-4	Ethylbenzene	ND		50	52.6	105	37-144
108-88-3	Toluene	ND		50	47.8	96	46-139
1330-20-7	Xylene (total)	ND		150	152	101	38-147

CAS No.	Surrogate Recoveries	MS	JD73642-1	Limits
1868-53-7	Dibromofluoromethane	87%	87%	80-120%
17060-07-0	1,2-Dichloroethane-D4	103%	102%	80-120%
2037-26-5	Toluene-D8	102%	104%	80-120%
460-00-4	4-Bromofluorobenzene	104%	102%	82-114%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JD73642-3MS	1F7292.D	1	09/28/23	PS	n/a	n/a	V1F245
JD73642-3MSD	1F7294.D	1	09/28/23	PS	n/a	n/a	V1F245
JD73642-3	1F7286.D	1	09/28/23	PS	n/a	n/a	V1F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-3, JD73642-4, JD73642-5

CAS No.	Compound	JD73642-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		50	41.2	82	50	44.3	89	7	49-137/12
100-41-4	Ethylbenzene	ND		50	41.0	82	50	45.3	91	10	37-144/12
108-88-3	Toluene	ND		50	39.1	78	50	43.5	87	11	46-139/12
1330-20-7	Xylene (total)	ND		150	124	83	150	138	92	11	38-147/12

CAS No.	Surrogate Recoveries	MS	MSD	JD73642-3	Limits
1868-53-7	Dibromofluoromethane	87%	88%	89%	80-120%
17060-07-0	1,2-Dichloroethane-D4	101%	108%	105%	80-120%
2037-26-5	Toluene-D8	102%	105%	100%	80-120%
460-00-4	4-Bromofluorobenzene	103%	103%	104%	82-114%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JD73642-2DUP	2F7297.D	1	09/28/23	PS	n/a	n/a	V2F245
JD73642-2	2F7281.D	1	09/28/23	PS	n/a	n/a	V2F245

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73642-1, JD73642-2, JD73642-6

CAS No.	Compound	JD73642-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	14
100-41-4	Ethylbenzene	ND		ND		nc	20
108-88-3	Toluene	ND		ND		nc	16
1330-20-7	Xylene (total)	ND		ND		nc	22

CAS No.	Surrogate Recoveries	DUP	JD73642-2	Limits
1868-53-7	Dibromofluoromethane	90%	89%	80-120%
17060-07-0	1,2-Dichloroethane-D4	104%	105%	80-120%
2037-26-5	Toluene-D8	102%	99%	80-120%
460-00-4	4-Bromofluorobenzene	106%	104%	82-114%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V1F241-BFB
Lab File ID: 1F7121.D
Instrument ID: GCMS1F
Injection Date: 09/19/23
Injection Time: 21:27

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	25984	18.1		Pass
75	30.0 - 60.0% of mass 95	66628	46.4		Pass
95	Base peak, 100% relative abundance	143693	100.0		Pass
96	5.0 - 9.0% of mass 95	9392	6.54		Pass
173	Less than 2.0% of mass 174	1461	1.02	(1.22) [a]	Pass
174	50.0 - 120.0% of mass 95	120080	83.6		Pass
175	5.0 - 9.0% of mass 174	8985	6.25	(7.48) [a]	Pass
176	95.0 - 101.0% of mass 174	117035	81.4	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	7697	5.36	(6.58) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1F241-IC241	1F7123.D	09/19/23	22:03	00:36	Initial cal 0.2
V1F241-IC241	1F7125.D	09/19/23	22:38	01:11	Initial cal 0.5
V1F241-IC241	1F7127.D	09/19/23	23:14	01:47	Initial cal 1
V1F241-IC241	1F7129.D	09/19/23	23:49	02:22	Initial cal 2
V1F241-IC241	1F7131.D	09/20/23	00:24	02:57	Initial cal 4
V1F241-IC241	1F7133.D	09/20/23	00:59	03:32	Initial cal 8
V1F241-IC241	1F7135.D	09/20/23	01:34	04:07	Initial cal 20
V1F241-ICC241	1F7137.D	09/20/23	02:10	04:43	Initial cal 50
V1F241-IC241	1F7139.D	09/20/23	02:45	05:18	Initial cal 100
V1F241-IC241	1F7141.D	09/20/23	03:20	05:53	Initial cal 200
V1F241-ICV241	1F7147.D	09/20/23	05:05	07:38	Initial cal verification 50
V1F241-ICV241	1F7149.D	09/20/23	05:39	08:12	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V1F241-BFB2
Lab File ID: 1F7156.D
Instrument ID: GCMS1F
Injection Date: 09/22/23
Injection Time: 17:56

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	25150	17.6		Pass
75	30.0 - 60.0% of mass 95	65702	45.9		Pass
95	Base peak, 100% relative abundance	143283	100.0		Pass
96	5.0 - 9.0% of mass 95	9106	6.36		Pass
173	Less than 2.0% of mass 174	1642	1.15	(1.33) [a]	Pass
174	50.0 - 120.0% of mass 95	123099	85.9		Pass
175	5.0 - 9.0% of mass 174	9388	6.55	(7.63) [a]	Pass
176	95.0 - 101.0% of mass 174	119200	83.2	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	7851	5.48	(6.59) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1F241-ICV241	1F7158.D	09/22/23	18:31	00:35	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V1F245-BFB
Lab File ID: 1F7270.D
Instrument ID: GCMS1F
Injection Date: 09/28/23
Injection Time: 10:27

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	31372	19.7		Pass
75	30.0 - 60.0% of mass 95	73185	46.0		Pass
95	Base peak, 100% relative abundance	159147	100.0		Pass
96	5.0 - 9.0% of mass 95	10191	6.40		Pass
173	Less than 2.0% of mass 174	1752	1.10	(1.31) [a]	Pass
174	50.0 - 120.0% of mass 95	133509	83.9		Pass
175	5.0 - 9.0% of mass 174	10561	6.64	(7.91) [a]	Pass
176	95.0 - 101.0% of mass 174	130171	81.8	(97.5) [a]	Pass
177	5.0 - 9.0% of mass 176	8491	5.34	(6.52) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1F245-CC241	1F7270.D	09/28/23	10:27	00:00	Continuing cal 20
V1F245-CC241	1F7272.D	09/28/23	11:20	00:53	Continuing cal 1
V1F245-CC241	1F7274.D	09/28/23	11:55	01:28	Continuing cal 2
V1F245-BS	1F7276.D	09/28/23	12:30	02:03	Blank Spike
V1F245-MB	1F7280.D	09/28/23	13:42	03:15	Method Blank
JD73642-4	1F7282.D	09/28/23	14:18	03:51	TB-092723
ZZZZZZ	1F7284.D	09/28/23	14:53	04:26	(unrelated sample)
JD73642-3	1F7286.D	09/28/23	15:29	05:02	MW-05-092723
JD73642-5	1F7288.D	09/28/23	16:06	05:39	MW-06-092723
ZZZZZZ	1F7290.D	09/28/23	16:42	06:15	(unrelated sample)
JD73642-3MS	1F7292.D	09/28/23	17:18	06:51	Matrix Spike
JD73642-3MSD	1F7294.D	09/28/23	17:55	07:28	Matrix Spike Duplicate
ZZZZZZ	1F7296.D	09/28/23	18:31	08:04	(unrelated sample)
ZZZZZZ	1F7298.D	09/28/23	19:07	08:40	(unrelated sample)
ZZZZZZ	1F7300.D	09/28/23	19:43	09:16	(unrelated sample)
ZZZZZZ	1F7302.D	09/28/23	20:19	09:52	(unrelated sample)
ZZZZZZ	1F7304.D	09/28/23	20:55	10:28	(unrelated sample)
ZZZZZZ	1F7306.D	09/28/23	21:30	11:03	(unrelated sample)
ZZZZZZ	1F7308.D	09/28/23	22:06	11:39	(unrelated sample)
V1F246-CC241	1F7313.D	09/29/23	08:40	22:13	Continuing cal 20
V1F246-CC241	1F7315.D	09/29/23	09:41	23:14	Continuing cal 1
V1F246-BS	1F7317.D	09/29/23	10:16	23:49	Blank Spike

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V2F241-BFB
Lab File ID: 2F7122.D
Instrument ID: GCMS2F
Injection Date: 09/19/23
Injection Time: 21:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	28928	18.6		Pass
75	30.0 - 60.0% of mass 95	71753	46.1		Pass
95	Base peak, 100% relative abundance	155621	100.0		Pass
96	5.0 - 9.0% of mass 95	9838	6.32		Pass
173	Less than 2.0% of mass 174	1434	0.92	(1.11) [a]	Pass
174	50.0 - 120.0% of mass 95	129576	83.3		Pass
175	5.0 - 9.0% of mass 174	9834	6.32	(7.59) [a]	Pass
176	95.0 - 101.0% of mass 174	126640	81.4	(97.7) [a]	Pass
177	5.0 - 9.0% of mass 176	8222	5.28	(6.49) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2F241-IC241	2F7124.D	09/19/23	22:20	00:35	Initial cal 0.2
V2F241-IC241	2F7126.D	09/19/23	22:56	01:11	Initial cal 0.5
V2F241-IC241	2F7128.D	09/19/23	23:31	01:46	Initial cal 1
V2F241-IC241	2F7130.D	09/20/23	00:07	02:22	Initial cal 2
V2F241-IC241	2F7132.D	09/20/23	00:42	02:57	Initial cal 4
V2F241-IC241	2F7134.D	09/20/23	01:17	03:32	Initial cal 8
V2F241-IC241	2F7136.D	09/20/23	01:52	04:07	Initial cal 20
V2F241-ICC241	2F7138.D	09/20/23	02:27	04:42	Initial cal 50
V2F241-IC241	2F7140.D	09/20/23	03:02	05:17	Initial cal 100
V2F241-IC241	2F7142.D	09/20/23	03:37	05:52	Initial cal 200
V2F241-ICV241	2F7148.D	09/20/23	05:22	07:37	Initial cal verification 50
V2F241-ICV241	2F7150.D	09/20/23	05:57	08:12	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V2F241-BFB2
Lab File ID: 2F7157.D
Instrument ID: GCMS2F
Injection Date: 09/22/23
Injection Time: 18:13

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	29247	17.9		Pass
75	30.0 - 60.0% of mass 95	74673	45.8		Pass
95	Base peak, 100% relative abundance	163093	100.0		Pass
96	5.0 - 9.0% of mass 95	10586	6.49		Pass
173	Less than 2.0% of mass 174	1552	0.95	(1.13) [a]	Pass
174	50.0 - 120.0% of mass 95	137496	84.3		Pass
175	5.0 - 9.0% of mass 174	9947	6.10	(7.23) [a]	Pass
176	95.0 - 101.0% of mass 174	133072	81.6	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	8929	5.47	(6.71) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2F241-ICV241	2F7159.D	09/22/23	18:49	00:36	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Sample: V2F245-BFB
Lab File ID: 2F7271.D
Instrument ID: GCMS2F
Injection Date: 09/28/23
Injection Time: 10:44

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	34111	19.6		Pass
75	30.0 - 60.0% of mass 95	79799	45.8		Pass
95	Base peak, 100% relative abundance	174357	100.0		Pass
96	5.0 - 9.0% of mass 95	11374	6.52		Pass
173	Less than 2.0% of mass 174	2003	1.15	(1.38) [a]	Pass
174	50.0 - 120.0% of mass 95	145024	83.2		Pass
175	5.0 - 9.0% of mass 174	11018	6.32	(7.60) [a]	Pass
176	95.0 - 101.0% of mass 174	141997	81.4	(97.9) [a]	Pass
177	5.0 - 9.0% of mass 176	9516	5.46	(6.70) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V2F245-CC241	2F7271.D	09/28/23	10:44	00:00	Continuing cal 20
V2F245-CC241	2F7273.D	09/28/23	11:37	00:53	Continuing cal 1
V2F245-CC241	2F7275.D	09/28/23	12:12	01:28	Continuing cal 2
V2F245-BS	2F7277.D	09/28/23	12:48	02:04	Blank Spike
V2F245-MB	2F7279.D	09/28/23	13:24	02:40	Method Blank
JD73642-2	2F7281.D	09/28/23	14:00	03:16	FB-092723
ZZZZZZ	2F7283.D	09/28/23	14:36	03:52	(unrelated sample)
ZZZZZZ	2F7285.D	09/28/23	15:11	04:27	(unrelated sample)
JD73642-1	2F7287.D	09/28/23	15:47	05:03	MW-01-092723
JD73642-6	2F7289.D	09/28/23	16:24	05:40	DUP-092723
ZZZZZZ	2F7291.D	09/28/23	17:00	06:16	(unrelated sample)
JD73642-1MS	2F7293.D	09/28/23	17:36	06:52	Matrix Spike
JD73642-2DUP	2F7297.D	09/28/23	18:49	08:05	Duplicate
ZZZZZZ	2F7299.D	09/28/23	19:25	08:41	(unrelated sample)
ZZZZZZ	2F7301.D	09/28/23	20:01	09:17	(unrelated sample)
ZZZZZZ	2F7303.D	09/28/23	20:37	09:53	(unrelated sample)
ZZZZZZ	2F7305.D	09/28/23	21:12	10:28	(unrelated sample)
ZZZZZZ	2F7307.D	09/28/23	21:48	11:04	(unrelated sample)
ZZZZZZ	2F7309.D	09/28/23	22:24	11:40	(unrelated sample)
V2F246-CC241	2F7314.D	09/29/23	08:58	22:14	Continuing cal 20
V2F246-CC241	2F7316.D	09/29/23	09:58	23:14	Continuing cal 1
V2F246-BS	2F7318.D	09/29/23	10:34	23:50	Blank Spike
V2F246-MB	2F7320.D	09/29/23	11:10	24:26	Method Blank

Internal Standard Area Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Check Std:	V1F245-CC241	**Injection Date:**	09/28/23
Lab File ID:	1F7270.D	**Injection Time:**	10:27
Instrument ID:	GCMS1F	**Method:**	SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	254181	2.29	270805	3.65	470728	4.07	400013	6.54	213407	8.02
Upper Limit [a]	508362	2.79	541610	4.15	941456	4.57	800026	7.04	426814	8.52
Lower Limit [b]	127091	1.79	135403	3.15	235364	3.57	200007	6.04	106704	7.52

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V1F245-BS	293293	2.30	282170	3.65	496491	4.07	402911	6.54	222578	8.01
V1F245-MB	273398	2.30	265540	3.66	458106	4.08	396501	6.54	210674	8.01
JD73642-4	303681	2.30	266237	3.66	453995	4.08	393039	6.54	211895	8.01
ZZZZZZ	289316	2.31	271184	3.66	467223	4.08	399289	6.54	209441	8.01
JD73642-3	282181	2.30	266498	3.66	454294	4.08	393030	6.54	208414	8.01
JD73642-5	257778	2.31	258311	3.66	443599	4.08	381168	6.54	203417	8.01
ZZZZZZ	259386	2.30	256003	3.66	431295	4.07	371879	6.54	201183	8.01
JD73642-3MS	307813	2.30	265641	3.65	467547	4.07	387942	6.54	210198	8.01
JD73642-3MSD	304283	2.31	273283	3.66	476970	4.08	389994	6.54	217826	8.01
ZZZZZZ	251968	2.29	263345	3.65	459188	4.07	395542	6.54	205642	8.01
ZZZZZZ	252657	2.30	259795	3.65	446417	4.08	387269	6.54	205133	8.01
ZZZZZZ	274499	2.30	258890	3.66	440300	4.08	376806	6.54	199073	8.01
ZZZZZZ	273372	2.30	255992	3.66	430900	4.08	368193	6.54	197944	8.01
ZZZZZZ	280269	2.30	261728	3.65	434086	4.07	382894	6.54	203966	8.01
ZZZZZZ	276909	2.30	272930	3.65	466547	4.07	390794	6.54	210969	8.02
ZZZZZZ	258965	2.30	256967	3.65	436662	4.07	373118	6.54	196065	8.01

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Check Std:	V2F245-CC241	**Injection Date:**	09/28/23
Lab File ID:	2F7271.D	**Injection Time:**	10:44
Instrument ID:	GCMS2F	**Method:**	SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	289223	2.31	276381	3.66	479775	4.08	423312	6.54	239289	8.01
Upper Limit [a]	578446	2.81	552762	4.16	959550	4.58	846624	7.04	478578	8.51
Lower Limit [b]	144612	1.81	138191	3.16	239888	3.58	211656	6.04	119645	7.51

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V2F245-BS	320038	2.31	279165	3.66	500131	4.08	425192	6.54	237536	8.02
V2F245-MB	278928	2.31	275286	3.66	471085	4.08	425741	6.54	239068	8.02
JD73642-2	254159	2.30	273017	3.66	463108	4.08	417228	6.54	231336	8.02
ZZZZZZ	294864	2.31	279490	3.66	490973	4.08	415776	6.54	233078	8.02
ZZZZZZ	272754	2.31	274162	3.66	460027	4.08	411907	6.54	232604	8.02
JD73642-1	257690	2.31	262681	3.66	445458	4.08	389067	6.54	220960	8.01
JD73642-6	226476	2.31	265099	3.66	440895	4.08	399347	6.54	219001	8.01
ZZZZZZ	247855	2.30	266500	3.66	449656	4.08	403438	6.54	219392	8.02
JD73642-1MS	273947	2.31	269636	3.66	463703	4.08	399262	6.54	227390	8.02
JD73642-2DUP	277136	2.31	269137	3.66	464893	4.08	411071	6.54	233337	8.01
ZZZZZZ	264500	2.31	271613	3.66	457001	4.08	407624	6.54	232359	8.01
ZZZZZZ	233891	2.31	265345	3.66	444362	4.08	400004	6.54	217054	8.02
ZZZZZZ	246744	2.31	263891	3.66	439660	4.08	392094	6.54	218747	8.02
ZZZZZZ	251459	2.31	267070	3.66	449342	4.08	405898	6.54	224193	8.02
ZZZZZZ	298336	2.31	277512	3.66	478423	4.08	418578	6.54	238634	8.02
ZZZZZZ	244237	2.31	263916	3.66	441172	4.08	395735	6.54	220696	8.01

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Method: SW846 8260D **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73642-1	2F7287.D	87	102	104	102
JD73642-2	2F7281.D	89	105	99	104
JD73642-3	1F7286.D	89	105	100	104
JD73642-4	1F7282.D	89	104	102	104
JD73642-5	1F7288.D	88	104	101	103
JD73642-6	2F7289.D	87	105	101	104
JD73642-1MS	2F7293.D	87	103	102	104
JD73642-2DUP	2F7297.D	90	104	102	106
JD73642-3MS	1F7292.D	87	101	102	103
JD73642-3MSD	1F7294.D	88	108	105	103
V1F245-BS	1F7276.D	87	100	105	102
V1F245-MB	1F7280.D	90	106	101	104
V2F245-BS	2F7277.D	88	101	104	107
V2F245-MB	2F7279.D	89	105	101	102

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-120%
S2 = 1,2-Dichloroethane-D4	80-120%
S3 = Toluene-D8	80-120%
S4 = 4-Bromofluorobenzene	82-114%

Initial Calibration Summary

Job Number: JD73642 **Sample:** V1F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7137.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Response Factor Report GCMS-F

Method : C:\msdchem\1\METHODS\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Initial Calibration

Calibration Files
4 =1F7131.D 0.5 =1F7125.D 8 =1F7133.D 50 =1F7137.D
100 =1F7139.D 1 =1F7127.D 200 =1F7141.D 20 =1F7135.D
2 =1F7129.D 0.2 =1F7123.D = =

Compound	4	0.5	8	50	100	1	200	20	2	0.2	Avg	%RSD
1) I tert butyl alcohol-d9	----------ISTD----------											
2) ethanol											0.000	-1.00
3) tertiary butyl alcohol	1.373	1.458	1.319	1.455	1.371	1.270	1.367	1.445	1.478	1.316	1.385	5.12
4) 1,4-dioxane	0.115		0.116	0.114	0.102	0.098	0.097	0.123	0.130		0.112	10.47
5) I pentafluorobenzene	----------ISTD----------											
6) chlorodifluoromethane	0.785		0.765	0.746	0.685		0.675	0.715			0.728	6.08
7) dichlorodifluoromethane	0.724	0.773	0.737	0.736	0.698	0.732	0.684	0.725	0.746		0.728	3.56
8) chloromethane	0.692		0.656	0.669	0.619	0.777	0.617	0.681	0.712		0.678	7.68
9) vinyl chloride	0.689		0.658	0.662	0.628	0.693	0.618	0.662	0.693		0.663	4.31
10) 1,3-butadiene	0.523		0.509	0.511	0.479	0.548	0.473	0.500	0.642		0.523	10.23
11) bromomethane	0.194		0.200	0.264	0.292	0.156	0.305	0.220	0.213		0.230	22.41
----- Quadratic regression ----- Coefficient = 0.9982												
Response Ratio = -0.00273 + 0.24952 *A + 0.01487 *A^2												
12) chloroethane	0.427		0.378	0.321	0.273	0.494	0.229	0.373	0.372		0.358	23.41
----- Quadratic regression ----- Coefficient = 0.9976												
Response Ratio = 0.00335 + 0.34635 *A + -0.03030 *A^2												
13) trichlorofluoromethane	0.879	0.891	0.879	0.830	0.738	0.837	0.565	0.858	0.890		0.818	13.00
14) ethyl ether	0.313		0.323	0.292	0.287	0.394	0.275	0.301	0.308		0.312	11.73
15) acrolein	0.128		0.124	0.137	0.135	0.123	0.133	0.132	0.135		0.131	4.05
16) freon 113	0.481	0.403	0.459	0.454	0.437	0.472	0.437	0.438	0.488		0.452	5.90
17) 1,1-dichloroethene	0.688	0.665	0.738	0.732	0.715	0.672	0.716	0.721	0.736	0.650	0.703	4.56
18) acetone	0.104	0.099	0.110	0.118	0.110	0.096	0.114	0.112	0.122		0.109	7.72
19) acetonitrile	0.118	0.130	0.111	0.110	0.107	0.125	0.105	0.109	0.128		0.116	8.22
20) iodomethane *This compound fails initial calibration criteria.*												

0.360 0.363 0.512 0.524 0.446 0.517 0.426 0.401 0.444 15.26

21) carbon disulfide
1.473 1.735 1.423 1.401 1.389 1.526 1.391 1.366 1.506 1.468 7.82

22) methylene chloride
0.515 0.522 0.533 0.530 0.507 0.536 0.507 0.520 0.579 0.559 0.531 4.37

23) methyl acetate
0.182 0.154 0.149 0.141 0.144 0.138 0.151 10.64

24) methyl tert butyl ether
1.523 1.514 1.558 1.608 1.557 1.421 1.535 1.540 1.588 1.667 1.551 4.16

25) trans-1,2-dichloroethene
0.507 0.454 0.502 0.509 0.492 0.454 0.496 0.501 0.533 0.519 0.497 5.09

26) hexane
1.037 1.105 1.059 1.098 1.073 1.046 1.065 1.025 1.053 1.062 2.49

27) di-isopropyl ether
1.567 1.413 1.595 1.677 1.639 1.493 1.625 1.612 1.637 1.336 1.559 7.10

28) ethyl tert-butyl ether
1.595 1.523 1.652 1.738 1.689 1.408 1.692 1.651 1.587 1.311 1.585 8.53

29) 2-butanone
0.124 0.099 0.125 0.140 0.130 0.118 0.136 0.132 0.124 0.125 9.60

30) 1,1-dichloroethane
1.017 0.994 0.960 0.971 0.937 1.177 0.927 0.957 1.075 1.002 7.95

31) chloroprene
0.774 0.751 0.797 0.812 0.791 0.811 0.789 0.791 0.779 0.788 2.39

32) acrylonitrile
0.262 0.244 0.267 0.266 0.350 0.259 0.263 0.283 0.274 11.88

33) vinyl acetate
0.084 0.090 0.088 0.089 0.096 0.082 0.086 0.093 0.088 5.33

34) ethyl acetate
0.095 0.099 0.106 0.107 0.108 0.103 0.090 0.101 6.69

35) 2,2-dichloropropane
0.869 0.805 0.809 0.774 1.413 0.766 0.792 0.904 0.892 24.22
----- Linear regression ----- Coefficient = 0.9995
Response Ratio = 0.01002 + 0.76892 *A

36) cis-1,2-dichloroethene
0.572 0.583 0.606 0.584 0.557 0.554 0.560 0.547 0.583 0.517 0.566 4.37

37) propionitrile
0.143 0.135 0.141 0.150 0.148 0.129 0.150 0.144 0.142 0.157 0.144 5.53

38) methyl acrylate
0.116 0.139 0.143 0.138 0.137 0.136 0.128 0.134 6.86

39) bromochloromethane
0.322 0.300 0.295 0.279 0.329 0.275 0.296 0.362 0.307 9.41

40) tetrahydrofuran
0.122 0.131 0.135 0.135 0.135 0.133 0.124 0.130 4.16

41) chloroform
0.246 0.229 0.236 0.253 0.243 0.244 0.237 0.246 0.275 0.245 5.24

42) dibromofluoromethane (s)
0.616 0.591 0.630 0.607 0.606 0.604 0.601 0.627 0.609 0.573 0.606 2.71

43) methacrylonitrile
0.294 0.312 0.324 0.314 0.299 0.313 0.313 0.325 0.312 3.41

44) 1,1,1-trichloroethane
0.874 0.824 0.893 0.898 0.856 0.810 0.856 0.878 0.909 0.864 0.866 3.63

45) cyclohexane
0.834 0.765 0.840 0.839 0.813 0.665 0.766 0.833 0.819 0.771 0.794 6.89

46) 1,1-dichloropropene
0.739 0.780 0.758 0.725 0.707 0.725 0.740 0.724 0.737 3.11

47) carbon tetrachloride
0.784 0.670 0.787 0.803 0.775 0.779 0.783 0.774 0.780 0.770 4.99

48) isobutyl alcohol
0.039 0.048 0.054 0.051 0.052 0.047 0.057 0.050 11.42

Initial Calibration Summary

Job Number: JD73642 **Sample:** V1F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7137.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

49) tert-amyl alcohol
0.055 0.049 0.049 0.056 0.053 0.058 0.054 0.051 0.055 0.053 5.99

50) I 1,4-difluorobenzene ----------ISTD----------
51) 1,2-dichloroethane-d4 (s)
0.319 0.314 0.322 0.308 0.318 0.316 0.304 0.313 0.307 0.309 0.313 1.84
52) iso-octane
0.857 1.005 0.880 0.909 0.907 0.865 0.883 0.834 0.906 0.967 0.901 5.72
53) benzene
1.123 1.273 1.110 1.117 1.092 1.134 1.059 1.071 1.159 1.127 5.60
54) tert-amyl methyl ether
0.803 0.861 0.815 0.854 0.855 0.778 0.829 0.797 0.854 0.827 3.69
55) heptane
0.168 0.157 0.170 0.176 0.171 0.156 0.169 0.166 0.159 0.166 4.20
56) isopropyl acetate
0.075 0.079 0.084 0.084 0.087 0.083 0.076 0.077 0.081 5.26
57) 1,2-dichloroethane
0.407 0.402 0.391 0.388 0.478 0.376 0.387 0.440 0.409 8.31
58) n-butyl alcohol
0.019 0.019 0.021 0.021 0.021 0.020 0.020 0.020 4.68
59) ethyl acrylate
0.484 0.474 0.506 0.500 0.501 0.488 0.481 0.504 0.492 2.48
60) trichloroethene
0.321 0.378 0.330 0.337 0.329 0.334 0.319 0.324 0.341 0.335 5.26
61) 2-nitropropane
0.000 -1.00
62) 2-chloroethyl vinyl ether
0.180 0.190 0.174 0.181 0.180 0.170 0.175 0.171 0.190 0.179 4.09
63) methyl methacrylate
0.094 0.099 0.100 0.097 0.073 0.095 0.093 0.087 0.092 9.22
64) 1,2-dichloropropane
0.303 0.368 0.289 0.292 0.286 0.331 0.274 0.283 0.324 0.306 9.88
65) methylcyclohexane
0.221 0.223 0.228 0.223 0.215 0.217 0.210 0.197 0.217 4.53
66) dibromomethane
0.205 0.225 0.203 0.197 0.193 0.211 0.185 0.189 0.212 0.202 6.27
67) bromodichloromethane
0.383 0.361 0.388 0.397 0.388 0.391 0.373 0.380 0.390 0.354 0.380 3.64
68) epichlorohydrin
0.054 0.053 0.058 0.059 0.049 0.058 0.054 0.054 0.055 5.89
69) cis-1,3-dichloropropene
0.475 0.492 0.483 0.476 0.608 0.464 0.470 0.495 0.495 9.46
70) 4-methyl-2-pentanone
0.157 0.154 0.158 0.172 0.171 0.148 0.168 0.160 0.163 0.134 0.158 7.25
71) 3-methyl-1-butanol
0.017 0.019 0.020 0.020 0.019 0.018 0.019 0.019 5.32

72) I chlorobenzene-d5 ----------ISTD----------
73) toluene-d8 (s)
1.277 1.287 1.291 1.286 1.296 1.314 1.295 1.292 1.284 1.290 1.291 0.75
74) toluene
0.806 1.109 0.818 0.816 0.792 0.923 0.790 0.788 0.892 0.859 12.25
75) ethyl methacrylate
0.441 0.481 0.442 0.451 0.449 0.426 0.447 0.445 0.470 0.450 3.59
76) trans-1,3-dichloropropene
0.497 0.583 0.510 0.529 0.523 0.562 0.519 0.508 0.516 0.527 5.23
77) 1,1,2-trichloroethane
0.255 0.274 0.256 0.269 0.262 0.217 0.261 0.250 0.242 0.254 6.60
78) tetrachloroethene
0.377 0.428 0.374 0.384 0.375 0.373 0.375 0.366 0.375 0.369 0.380 4.64

Initial Calibration Summary

Job Number: JD73642 **Sample:** V1F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7137.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

79) 2-hexanone
0.214 0.212 0.215 0.228 0.221 0.204 0.224 0.216 0.227 0.205 0.217 3.94
80) 1,3-dichloropropane
0.487 0.569 0.521 0.506 0.501 0.497 0.495 0.491 0.527 0.510 5.02
81) butyl acetate
0.266 0.228 0.268 0.272 0.271 0.283 0.274 0.263 0.271 0.266 5.85
82) dibromochloromethane
0.413 0.393 0.402 0.401 0.344 0.397 0.381 0.438 0.396 6.80
83) 1,2-dibromoethane
0.339 0.326 0.352 0.357 0.358 0.343 0.358 0.345 0.359 0.352 0.349 3.06
84) n-butyl ether
1.375 1.446 1.348 1.392 1.363 1.367 1.366 1.332 1.406 1.564 1.396 4.80
85) chlorobenzene
0.906 1.044 0.933 0.938 0.916 0.900 0.916 0.897 0.939 1.058 0.945 6.13
86) 1,1,1,2-tetrachloroethane
0.335 0.391 0.323 0.352 0.352 0.343 0.356 0.331 0.346 0.406 0.353 7.39
87) ethylbenzene
1.536 1.671 1.509 1.542 1.536 1.577 1.539 1.484 1.567 1.905 1.587 7.71
88) m,p-xylene
0.614 0.651 0.605 0.623 0.616 0.570 0.618 0.596 0.606 0.732 0.623 6.96
89) o-xylene
0.593 0.639 0.585 0.619 0.608 0.563 0.612 0.583 0.586 0.588 0.597 3.69
90) styrene
0.948 0.995 0.997 0.996 0.995 0.943 1.016 0.962 0.977 1.050 0.988 3.24
91) bromoform
0.280 0.283 0.283 0.303 0.314 0.249 0.322 0.279 0.280 0.288 0.288 7.16
92) butyl acrylate
0.700 0.773 0.736 0.752 0.760 0.760 0.767 0.736 0.755 0.784 0.752 3.14
93) isopropylbenzene
1.406 1.464 1.439 1.487 1.459 1.396 1.468 1.405 1.458 1.545 1.453 3.09
94) cis-1,4-dichloro-2-butene
0.194 0.184 0.194 0.219 0.223 0.182 0.228 0.191 0.185 0.200 9.03

95) I 1,4-dichlorobenzene-d ----------ISTD----------
96) 4-bromofluorobenzene (s)
0.916 0.912 0.915 0.889 0.888 0.924 0.908 0.897 0.916 0.926 0.909 1.46
97) bromobenzene
0.771 0.878 0.737 0.753 0.737 0.851 0.741 0.721 0.838 0.795 0.782 7.09
98) 1,1,2,2-tetrachloroethane
0.829 0.826 0.829 0.836 0.841 0.817 0.843 0.811 0.884 0.839 0.836 2.37
99) trans-1,4-dichloro-2-butene
0.364 0.406 0.289 0.353 0.365 0.262 0.356 0.354 0.377 0.347 12.81
100) 1,2,3-trichloropropane
0.252 0.287 0.265 0.269 0.269 0.259 0.268 0.258 0.286 0.268 4.39
101) n-propylbenzene
3.201 3.385 3.161 3.279 3.225 3.333 3.178 3.106 3.384 3.796 3.305 5.96
102) 2-chlorotoluene
0.687 0.810 0.695 0.695 0.673 0.745 0.673 0.676 0.727 0.709 6.38
103) 4-chlorotoluene
1.996 2.272 2.025 2.014 2.011 2.064 2.012 1.972 2.131 2.055 4.54
104) 1,3,5-trimethylbenzene
2.318 2.379 2.337 2.384 2.356 2.300 2.324 2.308 2.376 2.717 2.380 5.13
105) tert-butylbenzene
1.997 1.993 1.975 2.061 1.973 1.829 1.984 1.953 2.005 2.049 1.982 3.18
106) 1,2,4-trimethylbenzene
2.419 2.491 2.450 2.490 2.469 2.434 2.436 2.408 2.626 2.772 2.499 4.57
107) sec-butylbenzene
2.870 3.001 2.863 2.966 2.924 2.790 2.890 2.874 3.005 3.133 2.931 3.33
108) 1,3-dichlorobenzene
1.392 1.415 1.397 1.459 1.429 1.374 1.418 1.381 1.486 1.577 1.433 4.29

Initial Calibration Summary

Job Number: JD73642 **Sample:** V1F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7137.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

```
109)  p-isopropyltoluene
       2.537 2.685 2.511 2.577 2.592 2.463 2.521 2.442 2.610 2.564  2.550    2.82
110)  1,4-dichlorobenzene
       1.462 1.685 1.407 1.472 1.453 1.459 1.433 1.408 1.477        1.473    5.68
111)  1,2-dichlorobenzene
       1.337 1.336 1.317 1.407 1.391 1.310 1.355 1.333 1.402 1.397  1.359    2.74
112)  1,2,3-trimethylbenzene
       2.439 2.471 2.421 2.510 2.486 2.367 2.425 2.438 2.607 2.988  2.515    7.09
113)  n-butylbenzene
       1.298 1.728 1.325 1.367 1.340 1.461 1.305 1.296 1.425        1.394    9.89
114)  1,2-dibromo-3-chloropropane
       0.319 0.315 0.344 0.346 0.344 0.319 0.333 0.325 0.384        0.336    6.35
115)  1,3,5-trichlorobenzene
       1.045 1.024 1.063 1.079 1.037 1.005 0.997 1.037 1.063 1.266  1.062    7.19
116)  1,2,4-trichlorobenzene
       0.909 0.992 0.913 0.955 0.944 0.908 0.904 0.914 0.971 0.945  0.936    3.27
117)  hexachlorobutadiene
       0.377 0.433 0.376 0.371 0.359 0.332 0.344 0.364 0.392        0.372    7.86
118)  naphthalene
       2.604 3.323 2.651 2.791 2.844 2.899 2.876 2.627 2.945        2.840    7.75
119)  1,2,3-trichlorobenzene
       0.894 0.909 0.895 0.919 0.904 0.888 0.850 0.879 0.909 0.913  0.896    2.26
120)  hexachloroethane
       0.404 0.447 0.407 0.465 0.469 0.393 0.467 0.425 0.435 0.478  0.439    7.02
121)  benzyl chloride
       0.374       0.365 0.395 0.389 0.384 0.387 0.380 0.445        0.390    6.18
122)  2-methylnaphthalene
                   1.508 1.053 0.969       0.974 1.214              1.144   19.78
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M1F241.M          Fri Sep 22 19:44:42 2023
```

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7147.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\Initials\VF241\1F7147.D Vial: 15
Acq On : 20 Sep 2023 5:05 am Operator: PrashanS
Sample : ICV241-50 Inst : GCMS-F
Misc : MS72266,V1F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	98	0.00	2.30
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	3.65
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane	0.728	0.784	-7.7	108	0.00	0.94
8		chloromethane	0.678	0.724	-6.8	110	0.00	1.07
9		vinyl chloride	0.663	0.727	-9.7	112	0.00	1.10
10		1,3-butadiene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		bromomethane	50.000	53.019	-6.0	107	0.00	1.29
12		chloroethane	50.000	57.768	-15.5	115	0.00	1.37
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.818	0.953	-16.5	117	0.00	1.45
14		ethyl ether		----------NA----------				
15		acrolein	0.131	0.160	-22.1	119	0.00	1.95
16		freon 113		----------NA----------				
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
20		iodomethane		----------NA----------				
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane	1.062	1.092	-2.8	101	0.00	2.26
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				
34		ethyl acetate		----------NA----------				
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7147.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane		----------NA----------				
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.606	0.589	2.8	99	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane		----------NA----------				
45		cyclohexane	0.794	0.912	-14.9	111	0.00	3.10
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride		----------NA----------				
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.308	1.6	100	0.00	3.67
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol		----------NA----------				
72	I	chlorobenzene-d5	1.000	1.000	0.0	99	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.279	0.9	99	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene		----------NA----------				
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7147.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.909	0.879	3.3	98	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute		----------NA----------				
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7137.D M1F241.M Fri Sep 22 19:53:09 2023

6.9.2

6

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7149.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\Initials\VF241\1F7149.D Vial: 16
Acq On : 20 Sep 2023 5:39 am Operator: PrashanS
Sample : ICV241-50 Inst : GCMS-F
Misc : MS72266,V1F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	90	0.00	2.30
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	102	0.00	3.65
6		chlorodifluoromethane	0.728	0.801	-10.0	110	0.00	0.97
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		bromomethane		----------NA----------				
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113		----------NA----------				
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile	0.116	0.118	-1.7	110	0.00	2.42
20		iodomethane		----------NA----------				
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile	0.274	0.242	11.7	93	0.00	2.62
33		vinyl acetate		----------NA----------				
34		ethyl acetate		----------NA----------				
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7149.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene		NA				
37		propionitrile		NA				
38		methyl acrylate		NA				
39		bromochloromethane		NA				
40		tetrahydrofuran		NA				
41		chloroform		NA				
42	S	dibromofluoromethane (s)	0.606	0.588	3.0	99	0.00	3.29
43		methacrylonitrile		NA				
44		1,1,1-trichloroethane		NA				
45		cyclohexane		NA				
46		1,1-dichloropropene		NA				
47		carbon tetrachloride		NA				
48		isobutyl alcohol		NA				
49		tert-amyl alcohol		NA				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	97	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.314	-0.3	99	0.00	3.67
52		iso-octane		NA				
53	M	benzene		NA				
54		tert-amyl methyl ether		NA				
55		heptane		NA				
56		isopropyl acetate		NA				
57		1,2-dichloroethane		NA				
58		n-butyl alcohol		NA				
59		ethyl acrylate		NA				
60		trichloroethene		NA				
61		2-nitropropane		NA				
62		2-chloroethyl vinyl ether		NA				
63		methyl methacrylate		NA				
64		1,2-dichloropropane		NA				
65		methylcyclohexane		NA				
66		dibromomethane		NA				
67		bromodichloromethane		NA				
68		epichlorohydrin		NA				
69		cis-1,3-dichloropropene		NA				
70		4-methyl-2-pentanone		NA				
71		3-methyl-1-butanol		NA				
72	I	chlorobenzene-d5	1.000	1.000	0.0	98	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.285	0.5	98	0.00	5.30
74		toluene		NA				
75		ethyl methacrylate		NA				
76		trans-1,3-dichloropropene		NA				
77		1,1,2-trichloroethane		NA				
78		tetrachloroethene	0.380	0.375	1.3	95	0.00	5.69
79		2-hexanone		NA				
80		1,3-dichloropropane		NA				
81		butyl acetate		NA				
82		dibromochloromethane		NA				
83		1,2-dibromoethane		NA				
84		n-butyl ether		NA				
85		chlorobenzene		NA				
86		1,1,1,2-tetrachloroethane		NA				
87		ethylbenzene		NA				
88		m,p-xylene		NA				
89		o-xylene		NA				
90		styrene		NA				
91		bromoform		NA				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7149.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.909	0.926	-1.9	97	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute		----------NA----------				
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene	2.515	2.744	-9.1	102	0.00	8.05
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7137.D M1F241.M Fri Sep 22 19:48:49 2023

6.9.3

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Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7158.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\Initials\VF241\1F7158.d Vial: 22
Acq On : 22 Sep 2023 6:31 pm Operator: PrashanS
Sample : icv241-50 Inst : GCMS-F
Misc : MS72266,V1F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	95	0.00	2.30
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol	1.385	1.153	16.8	75	0.00	2.35
4		1,4-dioxane	0.112	0.081	27.7	68	0.00	4.72
5	I	pentafluorobenzene	1.000	1.000	0.0	115	0.00	3.65
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene	0.523	0.373	28.7	84	0.00	1.12
		----------	True	Calc.	% Drift	----------		
11		bromomethane		----------NA----------				
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether	0.312	0.251	19.6	98	0.00	1.64
15		acrolein		----------NA----------				
16		freon 113	0.452	0.352	22.1	89	0.00	1.78
17		1,1-dichloroethene	0.703	0.628	10.7	98	0.00	1.75
18		acetone	0.109	0.089	18.3	86	0.00	2.13
19		acetonitrile	0.116	0.083	28.4	86	0.00	2.42
20		iodomethane	0.444	0.224	49.5#	50	0.00	1.83
21		carbon disulfide	1.468	1.179	19.7	96	0.00	1.77
22		methylene chloride	0.531	0.426	19.8	92	0.00	2.11
23		methyl acetate	0.151	0.124	17.9	96	0.00	2.22
24		methyl tert butyl ether	1.551	1.318	15.0	94	0.00	2.28
25		trans-1,2-dichloroethene	0.497	0.413	16.9	93	0.00	2.21
26		hexane		----------NA----------				
27		di-isopropyl ether	1.559	1.351	13.3	92	0.00	2.53
28		ethyl tert-butyl ether	1.585	1.367	13.8	90	0.00	2.77
29		2-butanone	0.125	0.108	13.6	88	0.00	3.37
30	M	1,1-dichloroethane	1.002	0.792	21.0	93	0.00	2.60
31		chloroprene	0.788	0.643	18.4	91	0.00	2.58
32		acrylonitrile	0.274	0.222	19.0	95	0.00	2.63
33		vinyl acetate	0.088	0.093	-5.7	121	0.00	2.77
34		ethyl acetate	0.101	0.092	8.9	99	0.00	3.25
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane	50.000	44.869	10.3	99	0.00	3.03

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7158.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene	0.566	0.464	18.0	91	0.00	2.96
37		propionitrile	0.144	0.111	22.9	85	0.00	3.58
38		methyl acrylate	0.134	0.116	13.4	93	0.00	3.25
39		bromochloromethane	0.307	0.234	23.8	91	0.00	3.10
40		tetrahydrofuran	0.130	0.108	16.9	92	0.00	3.26
41		chloroform	0.245	0.202	17.6	91	0.00	3.15
42	S	dibromofluoromethane (s)	0.606	0.560	7.6	106	0.00	3.29
43		methacrylonitrile	0.312	0.269	13.8	95	0.00	3.61
44		1,1,1-trichloroethane	0.866	0.692	20.1	88	0.00	3.30
45		cyclohexane		----------NA----------				
46		1,1-dichloropropene	0.737	0.605	17.9	91	0.00	3.39
47		carbon tetrachloride	0.770	0.632	17.9	90	0.00	3.25
48		isobutyl alcohol	0.050	0.038	24.0	80	0.00	3.78
49		tert-amyl alcohol	0.053	0.038	28.3	79	0.00	3.85
50	I	1,4-difluorobenzene	1.000	1.000	0.0	108	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.307	1.9	107	0.00	3.67
52		iso-octane	0.901	0.902	-0.1	107	0.00	3.49
53	M	benzene	1.127	0.954	15.4	92	0.00	3.57
54		tert-amyl methyl ether	0.827	0.709	14.3	90	0.00	3.68
55		heptane	0.166	0.166	0.0	102	0.00	3.57
56		isopropyl acetate	0.081	0.074	8.6	95	0.00	3.96
57		1,2-dichloroethane	0.409	0.337	17.6	93	0.00	3.73
58		n-butyl alcohol	0.020	0.016	20.0	79	0.00	4.36
59		ethyl acrylate	0.492	0.430	12.6	92	0.00	4.53
60		trichloroethene	0.335	0.277	17.3	89	0.00	4.04
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether	0.179	0.197	-10.1	118	0.00	5.09
63		methyl methacrylate	0.092	0.087	5.4	94	0.00	4.71
64		1,2-dichloropropane	0.306	0.250	18.3	93	0.00	4.47
65		methylcyclohexane	0.217	0.191	12.0	91	0.00	4.03
66		dibromomethane	0.202	0.168	16.8	93	0.00	4.39
67		bromodichloromethane	0.380	0.339	10.8	92	0.00	4.54
68		epichlorohydrin	0.055	0.049	10.9	92	0.00	5.36
69		cis-1,3-dichloropropene	0.495	0.419	15.4	94	0.00	5.12
70		4-methyl-2-pentanone	0.158	0.148	6.3	93	0.00	5.70
71		3-methyl-1-butanol	0.019	0.015	21.1	84	0.00	5.57
72	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.274	1.3	106	0.00	5.30
74		toluene	0.859	0.689	19.8	90	0.00	5.35
75		ethyl methacrylate	0.450	0.404	10.2	96	0.00	5.89
76		trans-1,3-dichloropropene	0.527	0.463	12.1	94	0.00	5.73
77		1,1,2-trichloroethane	0.254	0.231	9.1	92	0.00	5.85
78		tetrachloroethene	0.380	0.376	1.1	104	0.00	5.69
79		2-hexanone	0.217	0.191	12.0	89	0.00	6.36
80		1,3-dichloropropane	0.510	0.451	11.6	95	0.00	6.06
81		butyl acetate	0.266	0.251	5.6	98	0.00	6.31
82		dibromochloromethane	0.396	0.350	11.6	93	0.00	5.99
83		1,2-dibromoethane	0.349	0.314	10.0	94	0.00	6.15
84		n-butyl ether	1.396	1.191	14.7	91	0.00	6.54
85		chlorobenzene	0.945	0.813	14.0	92	0.00	6.55
86		1,1,1,2-tetrachloroethane	0.353	0.309	12.5	93	0.00	6.60
87		ethylbenzene	1.587	1.349	15.0	93	0.00	6.58
88		m,p-xylene	0.623	0.543	12.8	93	0.00	6.69
89		o-xylene	0.597	0.528	11.6	91	0.00	6.97
90		styrene	0.988	0.884	10.5	95	0.00	7.00
91		bromoform	0.288	0.280	2.8	99	0.00	7.01

Initial Calibration Verification

Job Number: JD73642 **Sample:** V1F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7158.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate	0.752	0.670	10.9	95	0.00	7.11
93		isopropylbenzene	1.453	1.306	10.1	94	0.00	7.18
94		cis-1,4-dichloro-2-butene	0.200	0.173	13.5	84	0.00	7.40
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.909	0.886	2.5	104	0.00	7.34
97		bromobenzene	0.782	0.658	15.9	92	0.00	7.40
98		1,1,2,2-tetrachloroethane	0.836	0.793	5.1	100	0.00	7.49
99		trans-1,4-dichloro-2-bute	0.347	0.343	1.2	102	0.00	7.59
100		1,2,3-trichloropropane	0.268	0.239	10.8	93	0.00	7.55
101		n-propylbenzene	3.305	2.897	12.3	93	0.00	7.44
102		2-chlorotoluene	0.709	0.616	13.1	93	0.00	7.52
103		4-chlorotoluene	2.055	1.813	11.8	94	0.00	7.62
104		1,3,5-trimethylbenzene	2.380	2.108	11.4	93	0.00	7.56
105		tert-butylbenzene	1.982	2.059	-3.9	105	0.00	7.75
106		1,2,4-trimethylbenzene	2.499	2.206	11.7	93	0.00	7.79
107		sec-butylbenzene	2.931	2.612	10.9	92	0.00	7.86
108		1,3-dichlorobenzene	1.433	1.278	10.8	92	0.00	7.97
109		p-isopropyltoluene	2.550	2.285	10.4	93	0.00	7.95
110		1,4-dichlorobenzene	1.473	1.278	13.2	91	0.00	8.03
111		1,2-dichlorobenzene	1.359	1.227	9.7	91	0.00	8.27
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene	1.394	1.223	12.3	94	0.00	8.19
114		1,2-dibromo-3-chloropropa	0.336	0.310	7.7	94	0.00	8.72
115		1,3,5-trichlorobenzene	1.062	1.028	3.2	100	0.00	8.74
116		1,2,4-trichlorobenzene	0.936	0.872	6.8	96	0.00	9.11
117		hexachlorobutadiene	0.372	0.350	5.9	99	0.00	9.10
118		naphthalene	2.840	2.500	12.0	94	0.00	9.28
119		1,2,3-trichlorobenzene	0.896	0.827	7.7	94	0.00	9.38
120		hexachloroethane	0.439	0.413	5.9	93	0.00	8.26
121		benzyl chloride	0.390	0.389	0.3	103	0.00	8.17
122		2-methylnaphthalene	1.144	0.919	19.7	91	0.00	9.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7137.D M1F241.M Fri Sep 22 19:45:26 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7270.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : X:\Dayton VOA GCMS\l...\9-28\v1f245\1F7270.d Vial: 5
Acq On : 28 Sep 2023 10:27 am Operator: PrashanS
Sample : CC241-20 Inst : GCMS-F
Misc : MS73466,V1F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	112	-0.01	2.29
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol	1.385	1.285	7.2	100	0.00	2.35
4		1,4-dioxane	0.112	0.083	25.9#	76	0.00	4.72
5	I	pentafluorobenzene	1.000	1.000	0.0	127	0.00	3.65
6		chlorodifluoromethane	0.728	0.592	18.7	105	0.00	0.98
7		dichlorodifluoromethane	0.728	0.555	23.8#	97	0.00	0.94
8		chloromethane	0.678	0.602	11.2	112	0.00	1.07
9		vinyl chloride	0.663	0.564	14.9	108	0.00	1.10
10		1,3-butadiene	0.523	0.705	-34.8#	179	0.00	1.11
		----------	True	Calc.	% Drift	----------		
11		bromomethane	20.000	10.385	48.1#	72	0.00	1.29
12		chloroethane	20.000	21.416	-7.1	124	0.00	1.37
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.818	0.645	21.1#	95	0.00	1.45
14		ethyl ether	0.312	0.260	16.7	110	0.00	1.64
15		acrolein	0.131	0.121	7.6	117	0.00	1.95
16		freon 113	0.452	0.305	32.5#	88	0.00	1.78
17		1,1-dichloroethene	0.703	0.575	18.2	101	0.00	1.75
18		acetone	0.109	0.136	-24.8#	154	0.00	2.13
19		acetonitrile	0.116	0.113	2.6	131	0.00	2.42
20		iodomethane	0.444	0.137	69.1#	41#	0.00	1.83
21		carbon disulfide	1.468	1.191	18.9	111	0.00	1.77
22		methylene chloride	0.531	0.440	17.1	108	0.00	2.11
23		methyl acetate	0.151	0.122	19.2	112	0.00	2.22
24		methyl tert butyl ether	1.551	1.331	14.2	110	0.00	2.28
25		trans-1,2-dichloroethene	0.497	0.421	15.3	107	0.00	2.21
26		hexane	1.062	0.902	15.1	112	0.00	2.26
27		di-isopropyl ether	1.559	1.633	-4.7	129	0.00	2.53
28		ethyl tert-butyl ether	1.585	1.459	7.9	112	0.00	2.77
29		2-butanone	0.125	0.130	-4.0	124	0.00	3.37
30	M	1,1-dichloroethane	1.002	0.846	15.6	112	0.00	2.59
31		chloroprene	0.788	0.657	16.6	105	0.00	2.58
32		acrylonitrile	0.274	0.267	2.6	129	0.00	2.62
33		vinyl acetate	0.088	0.099	-12.5	146	0.00	2.77
34		ethyl acetate	0.101	0.090	10.9	111	0.00	3.25
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane	20.000	16.929	15.4	108	0.00	3.03

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7270.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene	0.566	0.485	14.3	112	0.00	2.96
37		propionitrile	0.144	0.132	8.3	117	0.00	3.58
38		methyl acrylate	0.134	0.122	9.0	114	0.00	3.25
39		bromochloromethane	0.307	0.243	20.8#	104	0.00	3.10
40		tetrahydrofuran	0.130	0.117	10.0	112	0.00	3.26
41		chloroform	0.245	0.226	7.8	117	0.00	3.15
42	S	dibromofluoromethane (s)	0.606	0.541	10.7	109	0.00	3.29
43		methacrylonitrile	0.312	0.283	9.3	115	0.00	3.60
44		1,1,1-trichloroethane	0.866	0.656	24.2#	95	0.00	3.30
45		cyclohexane	0.794	0.570	28.2#	87	0.00	3.10
46		1,1-dichloropropene	0.737	0.591	19.8	101	0.00	3.39
47		carbon tetrachloride	0.770	0.549	28.7#	90	0.00	3.25
48		isobutyl alcohol	0.050	0.044	12.0	120	0.00	3.77
49		tert-amyl alcohol	0.053	0.043	18.9	107	0.00	3.85
50	I	1,4-difluorobenzene	1.000	1.000	0.0	113	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.332	-6.1	120	0.00	3.67
52		iso-octane	0.901	0.859	4.7	117	0.00	3.48
53	M	benzene	1.127	1.024	9.1	108	0.00	3.57
54		tert-amyl methyl ether	0.827	0.790	4.5	112	0.00	3.68
55		heptane	0.166	0.161	3.0	110	0.00	3.57
56		isopropyl acetate	0.081	0.079	2.5	117	0.00	3.96
57		1,2-dichloroethane	0.409	0.370	9.5	108	0.00	3.73
58		n-butyl alcohol	0.020	0.017	15.0	96	0.00	4.36
59		ethyl acrylate	0.492	0.503	-2.2	119	0.00	4.53
60		trichloroethene	0.335	0.287	14.3	100	0.00	4.04
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether	0.179	0.176	1.7	117	0.00	5.09
63		methyl methacrylate	0.092	0.083	9.8	101	0.00	4.71
64		1,2-dichloropropane	0.306	0.293	4.2	117	0.00	4.47
65		methylcyclohexane	0.217	0.178	18.0	96	0.00	4.04
66		dibromomethane	0.202	0.182	9.9	109	0.00	4.39
67		bromodichloromethane	0.380	0.357	6.1	107	0.00	4.54
68		epichlorohydrin	0.055	0.052	5.5	110	0.00	5.36
69		cis-1,3-dichloropropene	0.495	0.445	10.1	107	0.00	5.12
70		4-methyl-2-pentanone	0.158	0.167	-5.7	118	0.00	5.70
71		3-methyl-1-butanol	0.019	0.015	21.1#	96	0.00	5.56
72	I	chlorobenzene-d5	1.000	1.000	0.0	111	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.309	-1.4	113	0.00	5.30
74		toluene	0.859	0.758	11.8	107	0.00	5.35
75		ethyl methacrylate	0.450	0.457	-1.6	114	0.00	5.89
76		trans-1,3-dichloropropene	0.527	0.487	7.6	107	0.00	5.73
77		1,1,2-trichloroethane	0.254	0.255	-0.4	114	0.00	5.85
78		tetrachloroethene	0.380	0.331	12.9	100	0.00	5.69
79		2-hexanone	0.217	0.238	-9.7	123	0.00	6.36
80		1,3-dichloropropane	0.510	0.498	2.4	113	0.00	6.06
81		butyl acetate	0.266	0.279	-4.9	118	0.00	6.32
82		dibromochloromethane	0.396	0.345	12.9	100	0.00	5.99
83		1,2-dibromoethane	0.349	0.339	2.9	109	0.00	6.15
84		n-butyl ether	1.396	1.419	-1.6	118	0.00	6.53
85		chlorobenzene	0.945	0.840	11.1	104	0.00	6.55
86		1,1,1,2-tetrachloroethane	0.353	0.306	13.3	103	0.00	6.60
87		ethylbenzene	1.587	1.401	11.7	105	0.00	6.58
88		m,p-xylene	0.623	0.549	11.9	102	0.00	6.69
89		o-xylene	0.597	0.542	9.2	103	0.00	6.97
90		styrene	0.988	0.886	10.3	102	0.00	7.00
91		bromoform	0.288	0.252	12.5	100	0.00	7.01

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7270.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate	0.752	0.773	-2.8	117	0.00	7.11
93		isopropylbenzene	1.453	1.262	13.1	100	0.00	7.18
94		cis-1,4-dichloro-2-butene	0.200	0.076	62.0#	44#	0.00	7.39
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.909	0.951	-4.6	115	0.00	7.34
97		bromobenzene	0.782	0.714	8.7	107	0.00	7.40
98		1,1,2,2-tetrachloroethane	0.836	0.876	-4.8	117	0.00	7.49
99		trans-1,4-dichloro-2-bute	0.347	0.132	62.0#	40#	0.00	7.58
100		1,2,3-trichloropropane	0.268	0.249	7.1	104	0.00	7.55
101		n-propylbenzene	3.305	3.086	6.6	107	0.00	7.44
102		2-chlorotoluene	0.709	0.646	8.9	103	0.00	7.52
103		4-chlorotoluene	2.055	1.931	6.0	106	0.00	7.62
104		1,3,5-trimethylbenzene	2.380	2.142	10.0	100	0.00	7.56
105		tert-butylbenzene	1.982	1.805	8.9	100	0.00	7.75
106		1,2,4-trimethylbenzene	2.499	2.276	8.9	102	0.00	7.79
107		sec-butylbenzene	2.931	2.646	9.7	100	0.00	7.86
108		1,3-dichlorobenzene	1.433	1.323	7.7	104	0.00	7.97
109		p-isopropyltoluene	2.550	2.312	9.3	102	0.00	7.95
110		1,4-dichlorobenzene	1.473	1.333	9.5	102	0.00	8.03
111		1,2-dichlorobenzene	1.359	1.271	6.5	103	0.00	8.27
112		1,2,3-trimethylbenzene	2.515	2.284	9.2	101	0.00	8.05
113		n-butylbenzene	1.394	1.290	7.5	108	0.00	8.19
114		1,2-dibromo-3-chloropropa	0.336	0.312	7.1	104	0.00	8.72
115		1,3,5-trichlorobenzene	1.062	0.981	7.6	102	0.00	8.74
116		1,2,4-trichlorobenzene	0.936	0.889	5.0	105	0.00	9.11
117		hexachlorobutadiene	0.372	0.339	8.9	101	0.00	9.09
118		naphthalene	2.840	2.729	3.9	112	0.00	9.28
119		1,2,3-trichlorobenzene	0.896	0.861	3.9	106	0.00	9.39
120		hexachloroethane	0.439	0.341	22.3#	87	0.00	8.26
121		benzyl chloride	0.390	0.370	5.1	105	0.00	8.17
122		2-methylnaphthalene	1.144	1.261	-10.2	112	0.00	9.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7135.D M1F241.M Fri Sep 29 10:36:53 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7272.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : R:\MSVOA\Done\Batch\...otusa\v1f245\1F7272.d Vial: 7
Acq On : 28 Sep 2023 11:20 am Operator: PrashanS
Sample : cc241-1 Inst : GCMS-F
Misc : MS73466,V1F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 200% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	112	0.00	2.30
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane	0.112	0.090	19.6	103	0.00	4.72
5	I	pentafluorobenzene	1.000	1.000	0.0	127	0.00	3.65
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane	0.728	0.538	26.1	93	0.00	0.94
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		bromomethane	1.000	1.023	-2.3	97	0.00	1.30
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.818	0.595	27.3	90	0.00	1.45
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113	0.452	0.308	31.9	83	0.00	1.78
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
20		iodomethane	0.444	0.172	61.3	49#	0.00	1.84
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				
34		ethyl acetate		----------NA----------				
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7272.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane	0.307	0.273	11.1	106	0.00	3.10
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.606	0.516	14.9	109	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane	0.866	0.565	34.8	89	0.00	3.30
45		cyclohexane	0.794	0.535	32.6	102	0.00	3.10
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride	0.770	0.475	38.3	78	0.00	3.25
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	117	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.321	-2.6	118	0.00	3.67
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol	0.019	0.015	21.1	0#	0.00	5.57
72	I	chlorobenzene-d5	1.000	1.000	0.0	114	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.315	-1.9	114	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene		----------NA----------				
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7272.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene	0.200	0.055	72.5	34#	0.00	7.40
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	111	0.00	8.01
96	S	4-bromofluorobenzene (s)	0.909	0.948	-4.3	113	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute	0.347	0.150	56.8	63	0.00	7.59
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane	0.439	0.238	45.8	67	0.00	8.26
121		benzyl chloride		----------NA----------				
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7127.D M1F241.M Sat Sep 30 06:50:07 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7274.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : R:\MSVOA\Done\Batch\...otusa\v1f245\1F7274.d Vial: 9
Acq On : 28 Sep 2023 11:55 am Operator: PrashanS
Sample : cc241-2 Inst : GCMS-F
Misc : MS73466,V1F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M1F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 12:54:35 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 200% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	105	0.00	2.30
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane	0.112	0.060	46.4	49#	0.00	4.72
5	I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	3.65
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane	0.728	0.646	11.3	109	0.00	0.94
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
		----------	True	Calc.	% Drift	----------		
11		bromomethane	2.000	1.544	22.8	74	0.00	1.30
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.818	0.704	13.9	100	0.00	1.45
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113	0.452	0.341	24.6	88	0.00	1.78
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
20		iodomethane	0.444	0.115	74.1	36#	0.00	1.84
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				
34		ethyl acetate		----------NA----------				
		----------	True	Calc.	% Drift	----------		
35		2,2-dichloropropane		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7274.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			AvgRF	CCRF	% Dev			
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane	0.307	0.241	21.5	84	0.00	3.10
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.606	0.544	10.2	112	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane	0.866	0.604	30.3	84	0.00	3.30
45		cyclohexane	0.794	0.586	26.2	90	0.00	3.10
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride	0.770	0.500	35.1	81	0.00	3.25
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	116	0.00	4.07
51	S	1,2-dichloroethane-d4 (s)	0.313	0.331	-5.8	125	0.00	3.67
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol	0.019	0.012	36.8	75	0.00	5.57
72	I	chlorobenzene-d5	1.000	1.000	0.0	113	0.00	6.54
73	S	toluene-d8 (s)	1.291	1.306	-1.2	115	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene		----------NA----------				
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V1F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 1F7274.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene	0.200	0.057	71.5	35#	0.00	7.40
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	114	0.00	8.01
96	S	4-bromofluorobenzene (s)	0.909	0.944	-3.9	117	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute	0.347	0.109	68.6	33#	0.00	7.59
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane	0.439	0.254	42.1	66	0.00	8.25
121		benzyl chloride		----------NA----------				
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
1F7129.D M1F241.M Sat Sep 30 06:57:55 2023

Initial Calibration Summary

Job Number: JD73642 **Sample:** V2F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7138.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Response Factor Report GCMS-F

Method : C:\msdchem\1\METHODS\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Initial Calibration

Calibration Files
4 =2F7132.D 0.5 =2F7126.D 8 =2F7134.D 50 =2F7138.D
100 =2F7140.D 1 =2F7128.D 200 =2F7142.D 20 =2F7136.D
2 =2F7130.D 0.2 =2F7124.D = =

Compound	4	0.5	8	50	100	1	200	20	2	0.2	Avg	%RSD
1) I tert butyl alcohol-d9	ISTD											
2) ethanol											0.000	-1.00
3) tertiary butyl alcohol	1.503	1.560	1.320	1.456	1.304	1.220	1.257	1.277	1.488	1.449	1.383	8.71
4) 1,4-dioxane	0.148		0.135	0.130	0.108	0.117	0.096	0.125	0.142		0.125	13.91
5) I pentafluorobenzene	ISTD											
6) chlorodifluoromethane	0.752		0.700	0.726	0.662		0.629	0.683			0.692	6.39
7) dichlorodifluoromethane	0.668	0.659	0.677	0.723	0.670	0.723	0.647	0.689	0.757	0.823	0.704	7.70
8) chloromethane	0.680	0.769	0.638	0.666	0.612	0.649	0.570	0.627	0.688		0.655	8.55
9) vinyl chloride	0.593	0.856	0.621	0.643	0.607	0.675	0.584	0.624	0.678		0.654	12.65
10) 1,3-butadiene	0.480	0.650	0.436	0.481	0.448	0.536	0.433	0.450	0.633		0.505	16.55
11) bromomethane	0.246	0.263	0.242	0.313	0.319	0.260	0.327	0.260	0.279		0.279	11.69
12) chloroethane	0.344		0.329	0.276	0.239	0.353	0.215	0.297	0.443		0.312	23.08
Quadratic regr.,Force(0,0) for chloroethane												
Coefficient = 0.9973												
Response Ratio = 0.00000 + 0.29938 *A + -0.02203 *A^2												
13) trichlorofluoromethane	0.810	0.948	0.770	0.819	0.643	0.795	0.476	0.788	0.844		0.766	17.55
14) ethyl ether	0.273		0.261	0.294	0.278	0.321	0.266	0.279	0.340		0.289	9.70
15) acrolein	0.102		0.103	0.122	0.129	0.117	0.125	0.121	0.126		0.118	8.69
16) freon 113	0.411	0.465	0.391	0.423	0.400	0.351	0.393	0.392	0.428		0.406	7.77
17) 1,1-dichloroethene	0.616	0.618	0.634	0.697	0.659	0.579	0.650	0.638	0.655	0.656	0.640	4.97
18) acetone	0.089	0.068	0.083	0.100	0.098	0.074	0.098	0.090	0.090	0.088	0.088	11.85
19) acetonitrile	0.122	0.140	0.113	0.122	0.115	0.125	0.110	0.118	0.127		0.121	7.41
20) iodomethane *This compound fails initial calibration criteria.*	0.379		0.462	0.680	0.661		0.638	0.561	0.417		0.543	22.71
----- Linear regression ----- Coefficient = 0.9976												

Response Ratio = -0.01603 + 0.65267 *A

21)	carbon disulfide											
	1.311	1.523	1.283	1.400	1.318	1.389	1.297	1.301	1.484		1.367	6.41
22)	methylene chloride											
	0.537	0.630	0.506	0.521	0.500	0.640	0.487	0.504	0.642	0.583	0.555	11.31
23)	methyl acetate											
	0.140		0.129	0.141	0.135		0.135	0.131	0.167		0.140	9.19
24)	methyl tert butyl ether											
	1.412	1.236	1.358	1.547	1.472	1.279	1.448	1.420	1.453	1.609	1.423	7.91
25)	trans-1,2-dichloroethene											
	0.448	0.442	0.457	0.482	0.452	0.397	0.452	0.448	0.462	0.499	0.454	5.83
26)	hexane											
	0.943	1.044	0.935	1.060	1.011	0.944	1.007	0.976	0.978		0.989	4.56
27)	di-isopropyl ether											
	1.474	1.457	1.422	1.638	1.567	1.369	1.530	1.512	1.536	1.424	1.493	5.34
28)	ethyl tert-butyl ether											
	1.486	1.393	1.478	1.697	1.640	1.457	1.595	1.537	1.532	1.762	1.558	7.39
29)	2-butanone											
	0.112	0.091	0.118	0.128	0.124	0.091	0.123	0.120	0.109		0.113	12.19
30)	1,1-dichloroethane											
	0.882	1.232	0.876	0.943	0.883	0.840	0.863	0.886	0.943		0.927	12.84
31)	chloroprene											
	0.706	0.741	0.725	0.796	0.743	0.709	0.734	0.729	0.768		0.739	3.85
32)	acrylonitrile											
	0.243		0.220	0.257	0.250	0.296	0.250	0.251	0.248		0.252	8.33
33)	vinyl acetate											
	0.075		0.081	0.087	0.082		0.080	0.083	0.096		0.083	8.00
34)	ethyl acetate											
	0.093		0.093	0.103	0.099		0.100	0.098	0.086		0.096	5.83
35)	2,2-dichloropropane											
	0.819		0.687	0.762	0.719	0.818	0.707	0.720	0.941		0.772	10.97
36)	cis-1,2-dichloroethene											
	0.508	0.470	0.516	0.551	0.524	0.487	0.509	0.518	0.563	0.573	0.522	6.21
37)	propionitrile											
	0.127	0.122	0.127	0.145	0.139	0.118	0.139	0.130	0.135	0.143	0.133	6.89
38)	methyl acrylate											
	0.124		0.118	0.138	0.129		0.124	0.129	0.159		0.132	10.22
39)	bromochloromethane											
	0.292	0.340	0.283	0.297	0.281	0.364	0.266	0.277	0.345		0.305	11.56
40)	tetrahydrofuran											
	0.119		0.116	0.126	0.127		0.125	0.118	0.127		0.122	3.85
41)	chloroform											
	0.221	0.266	0.217	0.242	0.229	0.228	0.220	0.226	0.241		0.232	6.64
42)	dibromofluoromethane (s)											
	0.617	0.590	0.610	0.615	0.618	0.606	0.612	0.623	0.622	0.589	0.610	1.99
43)	methacrylonitrile											
	0.287		0.274	0.307	0.292	0.244	0.288	0.280	0.295		0.283	6.59
44)	1,1,1-trichloroethane											
	0.757	0.702	0.770	0.850	0.798	0.723	0.784	0.775	0.827	0.770	0.776	5.66
45)	cyclohexane											
	0.714	0.705	0.735	0.769	0.764	0.711	0.707	0.758	0.731	0.915	0.751	8.33
46)	1,1-dichloropropene											
	0.631	0.905	0.669	0.727	0.681	0.735	0.665	0.668	0.754		0.715	11.40
47)	carbon tetrachloride											
	0.700	0.632	0.690	0.777	0.729	0.658	0.716	0.710	0.735	0.696	0.704	5.75
48)	isobutyl alcohol											
	0.040		0.038	0.052	0.053	0.050	0.057	0.046	0.044		0.048	14.03
49)	tert-amyl alcohol											
	0.048	0.053	0.047	0.056	0.053	0.055	0.058	0.050	0.058		0.053	7.48

Initial Calibration Summary

Job Number: JD73642 **Sample:** V2F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7138.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

50) I 1,4-difluorobenzene ----------ISTD----------
51) 1,2-dichloroethane-d4 (s)
0.313 0.316 0.317 0.311 0.316 0.325 0.318 0.313 0.318 0.317 0.317 1.25
52) iso-octane
0.811 0.844 0.818 0.889 0.850 0.821 0.845 0.827 0.853 1.047 0.860 8.08
53) benzene
0.992 1.200 0.990 1.064 0.995 0.991 0.983 1.003 1.062 1.031 6.84
54) tert-amyl methyl ether
0.780 0.808 0.754 0.834 0.805 0.755 0.797 0.782 0.790 0.789 3.24
55) heptane
0.153 0.166 0.160 0.168 0.153 0.145 0.154 0.154 0.161 0.157 4.56
56) isopropyl acetate
0.070 0.074 0.081 0.078 0.068 0.079 0.073 0.075 0.075 5.82
57) 1,2-dichloroethane
0.383 0.377 0.382 0.366 0.436 0.354 0.361 0.431 0.386 7.98
58) n-butyl alcohol
0.019 0.018 0.021 0.020 0.019 0.020 0.018 0.019 5.73
59) ethyl acrylate
0.438 0.438 0.446 0.475 0.471 0.443 0.467 0.457 0.474 0.457 3.42
60) trichloroethene
0.288 0.305 0.294 0.322 0.304 0.262 0.298 0.300 0.312 0.392 0.308 10.96
61) 2-nitropropane
0.000 -1.00
62) 2-chloroethyl vinyl ether
0.164 0.176 0.163 0.177 0.174 0.168 0.171 0.168 0.177 0.171 3.10
63) methyl methacrylate
0.091 0.090 0.098 0.092 0.091 0.092 0.091 0.092 3.07
64) 1,2-dichloropropane
0.277 0.267 0.280 0.270 0.332 0.262 0.264 0.301 0.282 8.46
65) methylcyclohexane
0.181 0.199 0.199 0.211 0.207 0.175 0.203 0.196 0.197 0.196 5.94
66) dibromomethane
0.194 0.194 0.178 0.189 0.181 0.184 0.180 0.184 0.201 0.220 0.191 6.63
67) bromodichloromethane
0.352 0.400 0.350 0.373 0.365 0.337 0.363 0.358 0.376 0.419 0.369 6.60
68) epichlorohydrin
0.053 0.051 0.057 0.055 0.056 0.055 0.054 0.053 0.054 3.25
69) cis-1,3-dichloropropene
0.453 0.576 0.441 0.473 0.456 0.440 0.443 0.445 0.492 0.469 9.33
70) 4-methyl-2-pentanone
0.151 0.144 0.150 0.168 0.164 0.141 0.163 0.156 0.154 0.165 0.156 5.92
71) 3-methyl-1-butanol
0.017 0.017 0.020 0.019 0.014 0.018 0.018 0.017 0.018 9.58

72) I chlorobenzene-d5 ----------ISTD----------
73) toluene-d8 (s)
1.271 1.271 1.265 1.258 1.277 1.261 1.251 1.270 1.256 1.263 1.264 0.65
74) toluene
0.778 1.050 0.731 0.761 0.726 0.843 0.695 0.709 0.777 0.786 13.85
75) ethyl methacrylate
0.397 0.465 0.402 0.428 0.432 0.400 0.411 0.408 0.432 0.420 5.25
76) trans-1,3-dichloropropene
0.460 0.645 0.464 0.512 0.498 0.520 0.477 0.466 0.490 0.503 11.37
77) 1,1,2-trichloroethane
0.233 0.237 0.233 0.251 0.247 0.220 0.237 0.236 0.241 0.276 0.241 6.14
78) tetrachloroethene
0.328 0.363 0.333 0.356 0.341 0.299 0.328 0.331 0.332 0.334 5.53
79) 2-hexanone
0.195 0.190 0.196 0.215 0.215 0.191 0.204 0.201 0.204 0.205 0.202 4.35

Initial Calibration Summary

Job Number: JD73642 **Sample:** V2F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7138.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

80) 1,3-dichloropropane
0.468 0.466 0.487 0.473 0.558 0.463 0.469 0.512 0.487 6.78
81) butyl acetate
0.231 0.270 0.242 0.257 0.263 0.212 0.252 0.247 0.255 0.248 7.12
82) dibromochloromethane
0.376 0.343 0.386 0.377 0.472 0.367 0.348 0.366 0.379 10.61
83) 1,2-dibromoethane
0.314 0.323 0.312 0.342 0.342 0.305 0.328 0.323 0.319 0.372 0.328 5.95
84) n-butyl ether
1.264 1.295 1.254 1.339 1.292 1.230 1.268 1.260 1.311 1.468 1.298 5.18
85) chlorobenzene
0.846 0.864 0.827 0.885 0.853 0.830 0.832 0.835 0.889 0.984 0.864 5.50
86) 1,1,1,2-tetrachloroethane
0.291 0.343 0.300 0.336 0.329 0.274 0.324 0.299 0.301 0.380 0.318 9.76
87) ethylbenzene
1.391 1.437 1.391 1.480 1.438 1.302 1.402 1.398 1.398 1.626 1.426 5.87
88) m,p-xylene
0.571 0.572 0.571 0.607 0.581 0.556 0.560 0.566 0.567 0.635 0.579 4.19
89) o-xylene
0.574 0.555 0.558 0.593 0.585 0.529 0.565 0.558 0.585 0.721 0.582 8.95
90) styrene
0.890 0.980 0.904 0.992 0.972 0.850 0.940 0.922 0.921 1.115 0.949 7.69
91) bromoform
0.252 0.260 0.266 0.303 0.307 0.244 0.297 0.270 0.260 0.273 8.55
92) butyl acrylate
0.665 0.716 0.681 0.731 0.751 0.658 0.710 0.699 0.733 0.835 0.718 7.10
93) isopropylbenzene
1.307 1.394 1.333 1.421 1.373 1.215 1.356 1.328 1.358 1.459 1.354 4.93
94) cis-1,4-dichloro-2-butene
0.193 0.179 0.173 0.212 0.213 0.157 0.209 0.186 0.175 0.188 10.39

95) I 1,4-dichlorobenzene-d ----------ISTD----------
96) 4-bromofluorobenzene (s)
0.885 0.890 0.889 0.865 0.887 0.901 0.893 0.875 0.899 0.907 0.889 1.38
97) bromobenzene
0.693 0.828 0.678 0.697 0.674 0.658 0.671 0.671 0.701 0.831 0.710 9.03
98) 1,1,2,2-tetrachloroethane
0.724 0.776 0.745 0.781 0.773 0.741 0.764 0.739 0.790 0.915 0.775 6.94
99) trans-1,4-dichloro-2-butene
0.332 0.353 0.317 0.323 0.331 0.324 0.325 0.313 0.341 0.329 3.73
100) 1,2,3-trichloropropane
0.242 0.208 0.236 0.247 0.245 0.226 0.242 0.234 0.250 0.237 5.44
101) n-propylbenzene
2.868 3.068 2.829 3.006 2.919 2.804 2.906 2.869 2.934 3.915 3.012 10.86
102) 2-chlorotoluene
0.634 0.696 0.618 0.651 0.622 0.579 0.609 0.633 0.675 0.764 0.648 8.08
103) 4-chlorotoluene
1.870 1.956 1.838 1.911 1.841 1.772 1.840 1.772 1.909 2.439 1.915 10.09
104) 1,3,5-trimethylbenzene
2.034 2.172 2.086 2.182 2.158 1.911 2.131 2.077 2.127 2.406 2.128 5.93
105) tert-butylbenzene
1.785 1.813 1.791 1.894 1.838 1.634 1.828 1.781 1.861 2.270 1.850 8.83
106) 1,2,4-trimethylbenzene
2.019 1.994 2.004 2.197 2.170 1.981 2.184 2.022 2.033 2.559 2.116 8.36
107) sec-butylbenzene
2.531 2.544 2.565 2.765 2.702 2.452 2.619 2.608 2.677 3.010 2.647 5.92
108) 1,3-dichlorobenzene
1.295 1.326 1.286 1.357 1.341 1.226 1.297 1.255 1.287 1.503 1.317 5.75
109) p-isopropyltoluene
2.118 2.108 2.193 2.335 2.320 1.973 2.293 2.203 2.168 2.625 2.234 7.87

Initial Calibration Summary

Job Number: JD73642 **Sample:** V2F241-ICC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7138.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

```
110)  1,4-dichlorobenzene
       1.325 1.329 1.294 1.391 1.351 1.253 1.306 1.285 1.374        1.323    3.32
111)  1,2-dichlorobenzene
       1.214 1.298 1.238 1.335 1.302 1.246 1.230 1.261 1.289 1.341  1.275    3.46
112)  1,2,3-trimethylbenzene
       1.994 2.088 2.013 2.216 2.194 1.869 2.160 2.032 2.049 2.279  2.090    5.89
113)  n-butylbenzene
       1.019 1.177 1.034 1.187 1.173 1.078 1.166 1.040 1.061        1.104    6.38
114)  1,2-dibromo-3-chloropropane
       0.311       0.308 0.320 0.309 0.318 0.294 0.309 0.321        0.311    2.84
115)  1,3,5-trichlorobenzene
       0.800 0.890 0.801 0.902 0.893 0.753 0.879 0.815 0.829 0.837  0.840    5.88
116)  1,2,4-trichlorobenzene
       0.600 0.637 0.640 0.772 0.766 0.616 0.769 0.680 0.625 0.618  0.672   10.37
117)  hexachlorobutadiene
       0.309 0.368 0.342 0.358 0.342 0.334 0.325 0.332 0.362        0.341    5.55
118)  naphthalene
       1.481 2.050 1.469 1.796 1.889 1.720 2.052 1.525 1.575        1.728   13.44
119)  1,2,3-trichlorobenzene
       0.641 0.659 0.656 0.731 0.746 0.607 0.746 0.672 0.646 0.614  0.672    7.69
120)  hexachloroethane
       0.369 0.346 0.365 0.434 0.434 0.330 0.434 0.379 0.375 0.380  0.385    9.69
121)  benzyl chloride
       0.366 0.396 0.339 0.368 0.366 0.340 0.351 0.339 0.362        0.359    5.24
122)  2-methylnaphthalene
                   1.068 0.643 0.591       0.548 0.767              0.723   28.98
              ----- Linear regression -----  Coefficient =  0.9993
                Response Ratio = 0.04480 + 0.53501 *A

 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2F241.M          Tue Sep 26 10:44:55 2023
```

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7148.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VF241\2F7148.D Vial: 15
Acq On : 20 Sep 2023 5:22 am Operator: PrashanS
Sample : ICV241-50 Inst : GCMS-F
Misc : MS72266,V2F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	100	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	103	0.00	3.66
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane	0.704	0.769	-9.2	110	0.00	0.96
8		chloromethane	0.655	0.733	-11.9	114	0.00	1.09
9		vinyl chloride	0.654	0.719	-9.9	116	0.00	1.12
10		1,3-butadiene		----------NA----------				
11		bromomethane	0.279	0.321	-15.1	106	0.00	1.31
		----------	True	Calc.	% Drift	----------		
12		chloroethane	50.000	57.386	-14.8	118	0.00	1.38
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.766	0.908	-18.5	115	0.00	1.46
14		ethyl ether		----------NA----------				
15		acrolein	0.118	0.149	-26.3	126	0.00	1.96
16		freon 113		----------NA----------				
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
		----------	True	Calc.	% Drift	----------		
20		iodomethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane	0.989	1.048	-6.0	102	0.00	2.27
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7148.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate		----------NA----------					
35		2,2-dichloropropane		----------NA----------					
36		cis-1,2-dichloroethene		----------NA----------					
37		propionitrile		----------NA----------					
38		methyl acrylate		----------NA----------					
39		bromochloromethane		----------NA----------					
40		tetrahydrofuran		----------NA----------					
41		chloroform		----------NA----------					
42	S	dibromofluoromethane (s)	0.610	0.595	2.5	100	0.00	3.30	
43		methacrylonitrile		----------NA----------					
44		1,1,1-trichloroethane		----------NA----------					
45		cyclohexane	0.751	0.868	-15.6	117	0.00	3.11	
46		1,1-dichloropropene		----------NA----------					
47		carbon tetrachloride		----------NA----------					
48		isobutyl alcohol		----------NA----------					
49		tert-amyl alcohol		----------NA----------					
50	I	1,4-difluorobenzene	1.000	1.000	0.0	99	0.00	4.08	
51	S	1,2-dichloroethane-d4 (s)	0.317	0.307	3.2	98	0.00	3.68	
52		iso-octane		----------NA----------					
53	M	benzene		----------NA----------					
54		tert-amyl methyl ether		----------NA----------					
55		heptane		----------NA----------					
56		isopropyl acetate		----------NA----------					
57		1,2-dichloroethane		----------NA----------					
58		n-butyl alcohol		----------NA----------					
59		ethyl acrylate		----------NA----------					
60		trichloroethene		----------NA----------					
61		2-nitropropane		----------NA----------					
62		2-chloroethyl vinyl ether		----------NA----------					
63		methyl methacrylate		----------NA----------					
64		1,2-dichloropropane		----------NA----------					
65		methylcyclohexane		----------NA----------					
66		dibromomethane		----------NA----------					
67		bromodichloromethane		----------NA----------					
68		epichlorohydrin		----------NA----------					
69		cis-1,3-dichloropropene		----------NA----------					
70		4-methyl-2-pentanone		----------NA----------					
71		3-methyl-1-butanol		----------NA----------					
72	I	chlorobenzene-d5	1.000	1.000	0.0	99	0.00	6.54	
73	S	toluene-d8 (s)	1.264	1.267	-0.2	100	0.00	5.30	
74		toluene		----------NA----------					
75		ethyl methacrylate		----------NA----------					
76		trans-1,3-dichloropropene		----------NA----------					
77		1,1,2-trichloroethane		----------NA----------					
78		tetrachloroethene		----------NA----------					
79		2-hexanone		----------NA----------					
80		1,3-dichloropropane		----------NA----------					
81		butyl acetate		----------NA----------					
82		dibromochloromethane		----------NA----------					
83		1,2-dibromoethane		----------NA----------					
84		n-butyl ether		----------NA----------					
85		chlorobenzene		----------NA----------					
86		1,1,1,2-tetrachloroethane		----------NA----------					
87		ethylbenzene		----------NA----------					
88		m,p-xylene		----------NA----------					
89		o-xylene		----------NA----------					
90		styrene		----------NA----------					
91		bromoform		----------NA----------					

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7148.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	98	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.889	0.875	1.6	99	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute		----------NA----------				
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				

		----------	True	Calc.	% Drift	----------		
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7138.D M2F241.M Tue Sep 26 10:41:35 2023

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7150.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VF241\2F7150.D Vial: 16
Acq On : 20 Sep 2023 5:57 am Operator: PrashanS
Sample : ICV241-50 Inst : GCMS-F
Misc : MS72266,V2F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	90	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	104	0.00	3.66
6		chlorodifluoromethane	0.692	0.768	-11.0	110	0.00	0.99
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
11		bromomethane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113		----------NA----------				
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile	0.121	0.114	5.8	97	0.00	2.43
		----------	True	Calc.	% Drift	----------		
20		iodomethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile	0.252	0.229	9.1	92	0.00	2.64
33		vinyl acetate		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7150.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate		----------NA----------				
35		2,2-dichloropropane		----------NA----------				
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane		----------NA----------				
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.610	0.582	4.6	98	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane		----------NA----------				
45		cyclohexane		----------NA----------				
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride		----------NA----------				
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	96	0.00	4.08
51	S	1,2-dichloroethane-d4 (s)	0.317	0.313	1.3	96	0.00	3.68
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol		----------NA----------				
72	I	chlorobenzene-d5	1.000	1.000	0.0	97	0.00	6.54
73	S	toluene-d8 (s)	1.264	1.268	-0.3	98	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene	0.334	0.344	-3.0	93	0.00	5.69
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7150.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	94	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.889	0.886	0.3	96	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute		----------NA----------				
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene	2.090	2.267	-8.5	96	0.00	8.05
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				
		----------	True	Calc.	% Drift	----------		
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7138.D M2F241.M Tue Sep 26 10:44:32 2023

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7159.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VF241\2F7159.D Vial: 23
Acq On : 22 Sep 2023 6:49 pm Operator: PrashanS
Sample : icv241-50 Inst : GCMS-F
Misc : MS72266,V2F241,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	93	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol	1.383	1.197	13.4	77	0.00	2.35
4		1,4-dioxane	0.125	0.098	21.6	70	0.00	4.73
5	I	pentafluorobenzene	1.000	1.000	0.0	116	0.00	3.66
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene	0.505	0.370	26.7	89	0.00	1.13
11		bromomethane		----------NA----------				
		----------	True	Calc.	% Drift	----------		
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether	0.289	0.245	15.2	96	0.00	1.66
15		acrolein		----------NA----------				
16		freon 113	0.406	0.351	13.5	96	0.00	1.79
17		1,1-dichloroethene	0.640	0.633	1.1	105	0.00	1.77
18		acetone	0.088	0.073	17.0	85	0.00	2.14
19		acetonitrile	0.121	0.092	24.0	87	0.00	2.43
		----------	True	Calc.	% Drift	----------		
20		iodomethane	50.000	34.567	30.9#	74	0.00	1.85
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide	1.367	1.210	11.5	100	0.00	1.78
22		methylene chloride	0.555	0.437	21.3	97	0.00	2.12
23		methyl acetate	0.140	0.112	20.0	92	0.00	2.22
24		methyl tert butyl ether	1.423	1.277	10.3	95	0.00	2.28
25		trans-1,2-dichloroethene	0.454	0.408	10.1	98	0.00	2.22
26		hexane		----------NA----------				
27		di-isopropyl ether	1.493	1.346	9.8	95	0.00	2.54
28		ethyl tert-butyl ether	1.558	1.359	12.8	93	0.00	2.78
29		2-butanone	0.113	0.104	8.0	94	0.00	3.38
30	M	1,1-dichloroethane	0.927	0.783	15.5	96	0.00	2.60
31		chloroprene	0.739	0.669	9.5	97	0.00	2.59
32		acrylonitrile	0.252	0.211	16.3	95	0.00	2.63
33		vinyl acetate	0.083	0.090	-8.4	120	0.00	2.78

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7159.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate	0.096	0.086	10.4	97	0.00	3.26
35		2,2-dichloropropane	0.772	0.697	9.7	106	0.00	3.04
36		cis-1,2-dichloroethene	0.522	0.461	11.7	97	0.00	2.97
37		propionitrile	0.133	0.105	21.1	84	0.00	3.59
38		methyl acrylate	0.132	0.111	15.9	93	0.00	3.26
39		bromochloromethane	0.305	0.241	21.0	94	0.00	3.10
40		tetrahydrofuran	0.122	0.105	13.9	97	0.00	3.26
41		chloroform	0.232	0.200	13.8	96	0.00	3.17
42	S	dibromofluoromethane (s)	0.610	0.564	7.5	106	0.00	3.29
43		methacrylonitrile	0.283	0.251	11.3	94	0.00	3.61
44		1,1,1-trichloroethane	0.776	0.691	11.0	94	0.00	3.31
45		cyclohexane		----------NA----------				
46		1,1-dichloropropene	0.715	0.604	15.5	96	0.00	3.40
47		carbon tetrachloride	0.704	0.643	8.7	96	0.00	3.25
48		isobutyl alcohol	0.048	0.034	29.2	75	0.00	3.78
49		tert-amyl alcohol	0.053	0.040	24.5	83	0.00	3.85
50	I	1,4-difluorobenzene	1.000	1.000	0.0	108	0.00	4.08
51	S	1,2-dichloroethane-d4 (s)	0.317	0.308	2.8	107	0.00	3.68
52		iso-octane	0.860	0.920	-7.0	112	0.00	3.49
53	M	benzene	1.031	0.946	8.2	96	0.00	3.58
54		tert-amyl methyl ether	0.789	0.691	12.4	90	0.00	3.68
55		heptane	0.157	0.160	-1.9	103	0.00	3.58
56		isopropyl acetate	0.075	0.070	6.7	94	0.00	3.96
57		1,2-dichloroethane	0.386	0.331	14.2	94	0.00	3.74
58		n-butyl alcohol	0.019	0.015	21.1	79	0.00	4.36
59		ethyl acrylate	0.457	0.421	7.9	96	0.00	4.53
60		trichloroethene	0.308	0.273	11.4	92	0.00	4.05
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether	0.171	0.195	-14.0	119	0.00	5.09
63		methyl methacrylate	0.092	0.086	6.5	95	0.00	4.71
64		1,2-dichloropropane	0.282	0.249	11.7	96	0.00	4.48
65		methylcyclohexane	0.196	0.189	3.6	97	0.00	4.04
66		dibromomethane	0.191	0.166	13.1	95	0.00	4.39
67		bromodichloromethane	0.369	0.332	10.0	96	0.00	4.55
68		epichlorohydrin	0.054	0.048	11.1	92	0.00	5.36
69		cis-1,3-dichloropropene	0.469	0.416	11.3	95	0.00	5.13
70		4-methyl-2-pentanone	0.156	0.144	7.7	93	0.00	5.70
71		3-methyl-1-butanol	0.018	0.015	16.7	83	0.00	5.57
72	I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	6.54
73	S	toluene-d8 (s)	1.264	1.257	0.6	107	0.00	5.30
74		toluene	0.786	0.675	14.1	95	0.00	5.35
75		ethyl methacrylate	0.420	0.395	6.0	98	0.00	5.89
76		trans-1,3-dichloropropene	0.503	0.456	9.3	95	0.00	5.73
77		1,1,2-trichloroethane	0.241	0.225	6.6	96	0.00	5.85
78		tetrachloroethene	0.334	0.364	-9.0	109	0.00	5.69
79		2-hexanone	0.202	0.189	6.4	94	0.00	6.36
80		1,3-dichloropropane	0.487	0.437	10.3	96	0.00	6.06
81		butyl acetate	0.248	0.247	0.4	103	0.00	6.32
82		dibromochloromethane	0.379	0.343	9.5	95	0.00	5.99
83		1,2-dibromoethane	0.328	0.311	5.2	97	0.00	6.15
84		n-butyl ether	1.298	1.204	7.2	96	0.00	6.54
85		chlorobenzene	0.864	0.800	7.4	96	0.00	6.55
86		1,1,1,2-tetrachloroethane	0.318	0.304	4.4	96	0.00	6.60
87		ethylbenzene	1.426	1.355	5.0	98	0.00	6.58
88		m,p-xylene	0.579	0.545	5.9	96	0.00	6.69
89		o-xylene	0.582	0.549	5.7	99	0.00	6.97
90		styrene	0.949	0.888	6.4	95	0.00	7.00
91		bromoform	0.273	0.275	-0.7	97	0.00	7.01

Initial Calibration Verification

Job Number: JD73642 **Sample:** V2F241-ICV241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7159.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

			True	Calc.	% Drift			
92		butyl acrylate	0.718	0.667	7.1	97	0.00	7.11
93		isopropylbenzene	1.354	1.337	1.3	100	0.00	7.18
94		cis-1,4-dichloro-2-butene	0.188	0.177	5.9	89	0.00	7.40
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	8.02
96	S	4-bromofluorobenzene (s)	0.889	0.862	3.0	105	0.00	7.34
97		bromobenzene	0.710	0.625	12.0	95	0.00	7.40
98		1,1,2,2-tetrachloroethane	0.775	0.724	6.6	98	0.00	7.49
99		trans-1,4-dichloro-2-bute	0.329	0.311	5.5	102	0.00	7.59
100		1,2,3-trichloropropane	0.237	0.222	6.3	95	0.00	7.55
101		n-propylbenzene	3.012	2.773	7.9	98	0.00	7.44
102		2-chlorotoluene	0.648	0.605	6.6	98	0.00	7.52
103		4-chlorotoluene	1.915	1.723	10.0	95	0.00	7.63
104		1,3,5-trimethylbenzene	2.128	1.995	6.3	97	0.00	7.56
105		tert-butylbenzene	1.850	1.983	-7.2	111	0.00	7.75
106		1,2,4-trimethylbenzene	2.116	1.989	6.0	96	0.00	7.79
107		sec-butylbenzene	2.647	2.533	4.3	97	0.00	7.86
108		1,3-dichlorobenzene	1.317	1.243	5.6	97	0.00	7.97
109		p-isopropyltoluene	2.234	2.183	2.3	99	0.00	7.95
110		1,4-dichlorobenzene	1.323	1.245	5.9	95	0.00	8.03
111		1,2-dichlorobenzene	1.275	1.199	6.0	95	0.00	8.27
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene	1.104	1.110	-0.5	99	0.00	8.19
114		1,2-dibromo-3-chloropropa	0.311	0.289	7.1	96	0.00	8.72
115		1,3,5-trichlorobenzene	0.840	0.891	-6.1	105	0.00	8.74
116		1,2,4-trichlorobenzene	0.672	0.698	-3.9	96	0.00	9.11
117		hexachlorobutadiene	0.341	0.348	-2.1	103	0.00	9.10
118		naphthalene	1.728	1.622	6.1	96	0.00	9.28
119		1,2,3-trichlorobenzene	0.672	0.679	-1.0	98	0.00	9.39
120		hexachloroethane	0.385	0.396	-2.9	96	0.00	8.26
121		benzyl chloride	0.359	0.361	-0.6	104	0.00	8.17
		----------	True	Calc.	% Drift	----------		
122		2-methylnaphthalene	25.000	23.095	7.6	96	0.00	9.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7138.D M2F241.M Tue Sep 26 10:35:51 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7271.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : X:\Dayton VOA GCMS\l...\9-28\v2f245\2F7271.d Vial: 6
Acq On : 28 Sep 2023 10:44 am Operator: PrashanS
Sample : CC241-20 Inst : GCMS-F
Misc : MS73466,V2F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	117	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol	1.383	1.318	4.7	121	0.00	2.35
4		1,4-dioxane	0.125	0.135	-8.0	127	0.00	4.73
5	I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	3.66
6		chlorodifluoromethane	0.692	0.610	11.8	112	0.00	0.99
7		dichlorodifluoromethane	0.704	0.576	18.2	105	0.00	0.96
8		chloromethane	0.655	0.634	3.2	127	0.00	1.09
9		vinyl chloride	0.654	0.578	11.6	117	0.00	1.12
10		1,3-butadiene	0.505	0.696	-37.8#	195	0.00	1.13
11		bromomethane	0.279	0.198	29.0#	96	0.00	1.31
		----------	True	Calc.	% Drift	----------		
12		chloroethane	20.000	24.741	-23.7#	151	0.00	1.38
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane	0.766	0.629	17.9	100	0.00	1.46
14		ethyl ether	0.289	0.251	13.1	113	0.00	1.66
15		acrolein	0.118	0.125	-5.9	130	0.00	1.96
16		freon 113	0.406	0.301	25.9#	97	0.00	1.79
17		1,1-dichloroethene	0.640	0.574	10.3	113	0.00	1.76
18		acetone	0.088	0.109	-23.9#	153	0.00	2.14
19		acetonitrile	0.121	0.140	-15.7	150	0.00	2.43
		----------	True	Calc.	% Drift	----------		
20		iodomethane	20.000	9.483	52.6#	60	0.00	1.84
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide	1.367	1.205	11.9	117	0.00	1.78
22		methylene chloride	0.555	0.451	18.7	113	0.00	2.12
23		methyl acetate	0.140	0.115	17.9	110	0.00	2.23
24		methyl tert butyl ether	1.423	1.272	10.6	113	0.00	2.29
25		trans-1,2-dichloroethene	0.454	0.401	11.7	113	0.00	2.21
26		hexane	0.989	0.867	12.3	112	0.00	2.27
27		di-isopropyl ether	1.493	1.595	-6.8	133	0.00	2.54
28		ethyl tert-butyl ether	1.558	1.464	6.0	120	0.00	2.78
29		2-butanone	0.113	0.118	-4.4	124	0.00	3.38
30	M	1,1-dichloroethane	0.927	0.851	8.2	121	0.00	2.60
31		chloroprene	0.739	0.663	10.3	114	0.00	2.59
32		acrylonitrile	0.252	0.254	-0.8	127	0.00	2.64
33		vinyl acetate	0.083	0.094	-13.3	143	0.00	2.78

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7271.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate	0.096	0.085	11.5	110	0.00	3.26
35		2,2-dichloropropane	0.772	0.651	15.7	114	0.00	3.04
36		cis-1,2-dichloroethene	0.522	0.456	12.6	111	0.00	2.97
37		propionitrile	0.133	0.135	-1.5	130	0.00	3.59
38		methyl acrylate	0.132	0.113	14.4	110	0.00	3.26
39		bromochloromethane	0.305	0.254	16.7	116	0.00	3.10
40		tetrahydrofuran	0.122	0.115	5.7	123	0.00	3.27
41		chloroform	0.232	0.223	3.9	124	0.00	3.16
42	S	dibromofluoromethane (s)	0.610	0.540	11.5	109	0.00	3.29
43		methacrylonitrile	0.283	0.267	5.7	120	0.00	3.61
44		1,1,1-trichloroethane	0.776	0.648	16.5	105	0.00	3.31
45		cyclohexane	0.751	0.586	22.0#	97	0.00	3.11
46		1,1-dichloropropene	0.715	0.587	17.9	110	0.00	3.40
47		carbon tetrachloride	0.704	0.548	22.2#	97	0.00	3.26
48		isobutyl alcohol	0.048	0.050	-4.2	137	0.00	3.78
49		tert-amyl alcohol	0.053	0.046	13.2	116	0.00	3.85
50	I	1,4-difluorobenzene	1.000	1.000	0.0	114	0.00	4.08
51	S	1,2-dichloroethane-d4 (s)	0.317	0.340	-7.3	124	0.00	3.68
52		iso-octane	0.860	0.877	-2.0	121	0.00	3.49
53	M	benzene	1.031	1.018	1.3	116	0.00	3.58
54		tert-amyl methyl ether	0.789	0.774	1.9	113	0.00	3.69
55		heptane	0.157	0.157	0.0	116	0.00	3.58
56		isopropyl acetate	0.075	0.075	0.0	117	0.00	3.96
57		1,2-dichloroethane	0.386	0.367	4.9	116	0.00	3.73
58		n-butyl alcohol	0.019	0.022	-15.8	129	0.00	4.36
59		ethyl acrylate	0.457	0.496	-8.5	124	0.00	4.53
60		trichloroethene	0.308	0.269	12.7	103	0.00	4.05
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether	0.171	0.170	0.6	116	0.00	5.09
63		methyl methacrylate	0.092	0.085	7.6	105	0.00	4.71
64		1,2-dichloropropane	0.282	0.277	1.8	120	0.00	4.48
65		methylcyclohexane	0.196	0.176	10.2	103	0.00	4.04
66		dibromomethane	0.191	0.178	6.8	111	0.00	4.39
67		bromodichloromethane	0.369	0.349	5.4	111	0.00	4.55
68		epichlorohydrin	0.054	0.057	-5.6	123	0.00	5.36
69		cis-1,3-dichloropropene	0.469	0.442	5.8	113	0.00	5.13
70		4-methyl-2-pentanone	0.156	0.165	-5.8	120	0.00	5.70
71		3-methyl-1-butanol	0.018	0.019	-5.6	119	0.00	5.57
72	I	chlorobenzene-d5	1.000	1.000	0.0	112	0.00	6.54
73	S	toluene-d8 (s)	1.264	1.278	-1.1	112	0.00	5.30
74		toluene	0.786	0.703	10.6	111	0.00	5.35
75		ethyl methacrylate	0.420	0.435	-3.6	119	0.00	5.89
76		trans-1,3-dichloropropene	0.503	0.464	7.8	111	0.00	5.73
77		1,1,2-trichloroethane	0.241	0.240	0.4	113	0.00	5.85
78		tetrachloroethene	0.334	0.319	4.5	108	0.00	5.69
79		2-hexanone	0.202	0.218	-7.9	121	0.00	6.36
80		1,3-dichloropropane	0.487	0.473	2.9	113	0.00	6.06
81		butyl acetate	0.248	0.264	-6.5	120	0.00	6.32
82		dibromochloromethane	0.379	0.327	13.7	105	0.00	5.99
83		1,2-dibromoethane	0.328	0.314	4.3	109	0.00	6.15
84		n-butyl ether	1.298	1.369	-5.5	121	0.00	6.54
85		chlorobenzene	0.864	0.815	5.7	109	0.00	6.55
86		1,1,1,2-tetrachloroethane	0.318	0.288	9.4	108	0.00	6.60
87		ethylbenzene	1.426	1.387	2.7	111	0.00	6.58
88		m,p-xylene	0.579	0.547	5.5	108	0.00	6.69
89		o-xylene	0.582	0.546	6.2	109	0.00	6.97
90		styrene	0.949	0.891	6.1	108	0.00	7.00
91		bromoform	0.273	0.244	10.6	101	0.00	7.01

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7271.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate	0.718	0.749	-4.3	120	0.00	7.11
93		isopropylbenzene	1.354	1.266	6.5	107	0.00	7.18
94		cis-1,4-dichloro-2-butene	0.188	0.079	58.0#	48#	0.00	7.39
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	8.01
96	S	4-bromofluorobenzene (s)	0.889	0.916	-3.0	114	0.00	7.34
97		bromobenzene	0.710	0.644	9.3	104	0.00	7.40
98		1,1,2,2-tetrachloroethane	0.775	0.796	-2.7	117	0.00	7.49
99		trans-1,4-dichloro-2-bute	0.329	0.125	62.0#	43#	0.00	7.59
100		1,2,3-trichloropropane	0.237	0.231	2.5	107	0.00	7.55
101		n-propylbenzene	3.012	2.874	4.6	109	0.00	7.44
102		2-chlorotoluene	0.648	0.629	2.9	108	0.00	7.52
103		4-chlorotoluene	1.915	1.831	4.4	112	0.00	7.62
104		1,3,5-trimethylbenzene	2.128	2.030	4.6	106	0.00	7.56
105		tert-butylbenzene	1.850	1.708	7.7	104	0.00	7.75
106		1,2,4-trimethylbenzene	2.116	2.033	3.9	109	0.00	7.79
107		sec-butylbenzene	2.647	2.521	4.8	105	0.00	7.86
108		1,3-dichlorobenzene	1.317	1.264	4.0	109	0.00	7.97
109		p-isopropyltoluene	2.234	2.100	6.0	103	0.00	7.95
110		1,4-dichlorobenzene	1.323	1.259	4.8	106	0.00	8.03
111		1,2-dichlorobenzene	1.275	1.237	3.0	106	0.00	8.27
112		1,2,3-trimethylbenzene	2.090	2.014	3.6	107	0.00	8.05
113		n-butylbenzene	1.104	1.122	-1.6	117	0.00	8.19
114		1,2-dibromo-3-chloropropa	0.311	0.294	5.5	103	0.00	8.72
115		1,3,5-trichlorobenzene	0.840	0.843	-0.4	112	0.00	8.74
116		1,2,4-trichlorobenzene	0.672	0.677	-0.7	108	0.00	9.11
117		hexachlorobutadiene	0.341	0.330	3.2	108	0.00	9.10
118		naphthalene	1.728	1.568	9.3	111	0.00	9.28
119		1,2,3-trichlorobenzene	0.672	0.663	1.3	107	0.00	9.39
120		hexachloroethane	0.385	0.334	13.2	95	0.00	8.26
121		benzyl chloride	0.359	0.342	4.7	110	0.00	8.17
			True	Calc.	% Drift			
122		2-methylnaphthalene	10.000	9.989	0.1	107	0.00	9.87

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7136.D M2F241.M Fri Sep 29 13:01:19 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7273.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : R:\MSVOA\Done\Batch\...otusa\v2f245\2F7273.d Vial: 8
Acq On : 28 Sep 2023 11:37 am Operator: PrashanS
Sample : cc241-1 Inst : GCMS-F
Misc : MS73466,V2F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 200% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	116	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	124	0.00	3.66
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
11		bromomethane	0.279	0.194	30.5	92	0.00	1.31
		----------	True	Calc.	% Drift	----------		
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113	0.406	0.231	43.1	82	0.00	1.79
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
		----------	True	Calc.	% Drift	----------		
20		iodomethane	1.000	1.726	-72.6	0	0.00	1.84
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7273.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate		----------NA----------				
35		2,2-dichloropropane		----------NA----------				
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane		----------NA----------				
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.610	0.535	12.3	109	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane		----------NA----------				
45		cyclohexane	0.751	0.493	34.4	86	0.00	3.11
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride	0.704	0.437	37.9	82	0.00	3.25
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	115	0.00	4.08
51	S	1,2-dichloroethane-d4 (s)	0.317	0.334	-5.4	118	0.00	3.68
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol		----------NA----------				
72	I	chlorobenzene-d5	1.000	1.000	0.0	112	0.00	6.54
73	S	toluene-d8 (s)	1.264	1.267	-0.2	112	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene		----------NA----------				
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7273.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	8.01
96	S	4-bromofluorobenzene (s)	0.889	0.917	-3.1	110	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute	0.329	0.146	55.6	49#	0.00	7.58
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				

			True	Calc.	% Drift			
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7128.D M2F241.M Sat Sep 30 08:05:27 2023

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7275.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Evaluate Continuing Calibration Report

Data File : R:\MSVOA\Done\Batch\...otusa\v2f245\2F7275.d Vial: 10
Acq On : 28 Sep 2023 12:12 pm Operator: PrashanS
Sample : cc241-2 Inst : GCMS-F
Misc : MS73466,V2F245,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\methods\M2F241.M (RTE Integrator)
Title : SW-846 Method 8260d, column DB-624 60 m x 0.25 mm x 1.4 um
Last Update : Fri Sep 22 16:41:58 2023
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 200% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	tert butyl alcohol-d9	1.000	1.000	0.0	125	0.00	2.31
2		ethanol		----------NA----------				
3	M	tertiary butyl alcohol		----------NA----------				
4		1,4-dioxane		----------NA----------				
5	I	pentafluorobenzene	1.000	1.000	0.0	126	0.00	3.66
6		chlorodifluoromethane		----------NA----------				
7		dichlorodifluoromethane		----------NA----------				
8		chloromethane		----------NA----------				
9		vinyl chloride		----------NA----------				
10		1,3-butadiene		----------NA----------				
11		bromomethane	0.279	0.177	36.6	80	0.00	1.31
		----------	True	Calc.	% Drift	----------		
12		chloroethane		----------NA----------				
		----------	AvgRF	CCRF	% Dev	----------		
13		trichlorofluoromethane		----------NA----------				
14		ethyl ether		----------NA----------				
15		acrolein		----------NA----------				
16		freon 113	0.406	0.277	31.8	81	0.00	1.79
17		1,1-dichloroethene		----------NA----------				
18		acetone		----------NA----------				
19		acetonitrile		----------NA----------				
		----------	True	Calc.	% Drift	----------		
20		iodomethane	2.000	1.889	5.5	65	0.00	1.84
		----------	AvgRF	CCRF	% Dev	----------		
21		carbon disulfide		----------NA----------				
22		methylene chloride		----------NA----------				
23		methyl acetate		----------NA----------				
24		methyl tert butyl ether		----------NA----------				
25		trans-1,2-dichloroethene		----------NA----------				
26		hexane		----------NA----------				
27		di-isopropyl ether		----------NA----------				
28		ethyl tert-butyl ether		----------NA----------				
29		2-butanone		----------NA----------				
30	M	1,1-dichloroethane		----------NA----------				
31		chloroprene		----------NA----------				
32		acrylonitrile		----------NA----------				
33		vinyl acetate		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7275.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

34		ethyl acetate		----------NA----------				
35		2,2-dichloropropane		----------NA----------				
36		cis-1,2-dichloroethene		----------NA----------				
37		propionitrile		----------NA----------				
38		methyl acrylate		----------NA----------				
39		bromochloromethane		----------NA----------				
40		tetrahydrofuran		----------NA----------				
41		chloroform		----------NA----------				
42	S	dibromofluoromethane (s)	0.610	0.536	12.1	109	0.00	3.29
43		methacrylonitrile		----------NA----------				
44		1,1,1-trichloroethane		----------NA----------				
45		cyclohexane	0.751	0.559	25.6	96	0.00	3.11
46		1,1-dichloropropene		----------NA----------				
47		carbon tetrachloride	0.704	0.471	33.1	81	0.00	3.26
48		isobutyl alcohol		----------NA----------				
49		tert-amyl alcohol		----------NA----------				
50	I	1,4-difluorobenzene	1.000	1.000	0.0	112	0.00	4.08
51	S	1,2-dichloroethane-d4 (s)	0.317	0.339	-6.9	120	0.00	3.68
52		iso-octane		----------NA----------				
53	M	benzene		----------NA----------				
54		tert-amyl methyl ether		----------NA----------				
55		heptane		----------NA----------				
56		isopropyl acetate		----------NA----------				
57		1,2-dichloroethane		----------NA----------				
58		n-butyl alcohol		----------NA----------				
59		ethyl acrylate		----------NA----------				
60		trichloroethene		----------NA----------				
61		2-nitropropane		----------NA----------				
62		2-chloroethyl vinyl ether		----------NA----------				
63		methyl methacrylate		----------NA----------				
64		1,2-dichloropropane		----------NA----------				
65		methylcyclohexane		----------NA----------				
66		dibromomethane		----------NA----------				
67		bromodichloromethane		----------NA----------				
68		epichlorohydrin		----------NA----------				
69		cis-1,3-dichloropropene		----------NA----------				
70		4-methyl-2-pentanone		----------NA----------				
71		3-methyl-1-butanol		----------NA----------				
72	I	chlorobenzene-d5	1.000	1.000	0.0	110	0.00	6.54
73	S	toluene-d8 (s)	1.264	1.283	-1.5	112	0.00	5.30
74		toluene		----------NA----------				
75		ethyl methacrylate		----------NA----------				
76		trans-1,3-dichloropropene		----------NA----------				
77		1,1,2-trichloroethane		----------NA----------				
78		tetrachloroethene		----------NA----------				
79		2-hexanone		----------NA----------				
80		1,3-dichloropropane		----------NA----------				
81		butyl acetate		----------NA----------				
82		dibromochloromethane		----------NA----------				
83		1,2-dibromoethane		----------NA----------				
84		n-butyl ether		----------NA----------				
85		chlorobenzene		----------NA----------				
86		1,1,1,2-tetrachloroethane		----------NA----------				
87		ethylbenzene		----------NA----------				
88		m,p-xylene		----------NA----------				
89		o-xylene		----------NA----------				
90		styrene		----------NA----------				
91		bromoform		----------NA----------				

Continuing Calibration Summary

Job Number: JD73642 **Sample:** V2F245-CC241
Account: OBGNJ Ramboll US Corporation **Lab FileID:** 2F7275.D
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

92		butyl acrylate		----------NA----------				
93		isopropylbenzene		----------NA----------				
94		cis-1,4-dichloro-2-butene		----------NA----------				
95	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	8.01
96	S	4-bromofluorobenzene (s)	0.889	0.926	-4.2	111	0.00	7.34
97		bromobenzene		----------NA----------				
98		1,1,2,2-tetrachloroethane		----------NA----------				
99		trans-1,4-dichloro-2-bute	0.329	0.189	42.6	60	0.00	7.58
100		1,2,3-trichloropropane		----------NA----------				
101		n-propylbenzene		----------NA----------				
102		2-chlorotoluene		----------NA----------				
103		4-chlorotoluene		----------NA----------				
104		1,3,5-trimethylbenzene		----------NA----------				
105		tert-butylbenzene		----------NA----------				
106		1,2,4-trimethylbenzene		----------NA----------				
107		sec-butylbenzene		----------NA----------				
108		1,3-dichlorobenzene		----------NA----------				
109		p-isopropyltoluene		----------NA----------				
110		1,4-dichlorobenzene		----------NA----------				
111		1,2-dichlorobenzene		----------NA----------				
112		1,2,3-trimethylbenzene		----------NA----------				
113		n-butylbenzene		----------NA----------				
114		1,2-dibromo-3-chloropropa		----------NA----------				
115		1,3,5-trichlorobenzene		----------NA----------				
116		1,2,4-trichlorobenzene		----------NA----------				
117		hexachlorobutadiene		----------NA----------				
118		naphthalene		----------NA----------				
119		1,2,3-trichlorobenzene		----------NA----------				
120		hexachloroethane		----------NA----------				
121		benzyl chloride		----------NA----------				

				True	Calc.	% Drift		
122		2-methylnaphthalene		----------NA----------				

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2F7130.D M2F241.M Sat Sep 30 08:06:54 2023

Run Sequence Report

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Run ID: V1F241 **Method:** SW846 8260D **Instrument ID:** GCMS1F

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V1F241-BFB	1F7121.D	09/19/23 21:27	n/a	BFB Tune
V1F241-IC241	1F7123.D	09/19/23 22:03	n/a	Initial cal 0.2
V1F241-IC241	1F7125.D	09/19/23 22:38	n/a	Initial cal 0.5
V1F241-IC241	1F7127.D	09/19/23 23:14	n/a	Initial cal 1
V1F241-IC241	1F7129.D	09/19/23 23:49	n/a	Initial cal 2
V1F241-IC241	1F7131.D	09/20/23 00:24	n/a	Initial cal 4
V1F241-IC241	1F7133.D	09/20/23 00:59	n/a	Initial cal 8
V1F241-IC241	1F7135.D	09/20/23 01:34	n/a	Initial cal 20
V1F241-ICC241	1F7137.D	09/20/23 02:10	n/a	Initial cal 50
V1F241-IC241	1F7139.D	09/20/23 02:45	n/a	Initial cal 100
V1F241-IC241	1F7141.D	09/20/23 03:20	n/a	Initial cal 200
V1F241-ICV241	1F7147.D	09/20/23 05:05	n/a	Initial cal verification 50
V1F241-ICV241	1F7149.D	09/20/23 05:39	n/a	Initial cal verification 50
V1F241-BFB2	1F7156.D	09/22/23 17:56	n/a	BFB Tune
V1F241-ICV241	1F7158.D	09/22/23 18:31	n/a	Initial cal verification 50

Run Sequence Report

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Run ID: V1F245 **Method:** SW846 8260D **Instrument ID:** GCMS1F

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V1F245-BFB	1F7270.D	09/28/23 10:27	n/a	BFB Tune
V1F245-CC241	1F7270.D	09/28/23 10:27	n/a	Continuing cal 20
V1F245-CC241	1F7272.D	09/28/23 11:20	n/a	Continuing cal 1
V1F245-CC241	1F7274.D	09/28/23 11:55	n/a	Continuing cal 2
V1F245-BS	1F7276.D	09/28/23 12:30	n/a	Blank Spike
V1F245-MB	1F7280.D	09/28/23 13:42	n/a	Method Blank
JD73642-4	1F7282.D	09/28/23 14:18	n/a	TB-092723
ZZZZZZ	1F7284.D	09/28/23 14:53	n/a	(unrelated sample)
JD73642-3	1F7286.D	09/28/23 15:29	n/a	MW-05-092723
JD73642-5	1F7288.D	09/28/23 16:06	n/a	MW-06-092723
ZZZZZZ	1F7290.D	09/28/23 16:42	n/a	(unrelated sample)
JD73642-3MS	1F7292.D	09/28/23 17:18	n/a	Matrix Spike
JD73642-3MSD	1F7294.D	09/28/23 17:55	n/a	Matrix Spike Duplicate
ZZZZZZ	1F7296.D	09/28/23 18:31	n/a	(unrelated sample)
ZZZZZZ	1F7298.D	09/28/23 19:07	n/a	(unrelated sample)
ZZZZZZ	1F7300.D	09/28/23 19:43	n/a	(unrelated sample)
ZZZZZZ	1F7302.D	09/28/23 20:19	n/a	(unrelated sample)
ZZZZZZ	1F7304.D	09/28/23 20:55	n/a	(unrelated sample)
ZZZZZZ	1F7306.D	09/28/23 21:30	n/a	(unrelated sample)
ZZZZZZ	1F7308.D	09/28/23 22:06	n/a	(unrelated sample)

Run Sequence Report

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Run ID: V2F241 **Method:** SW846 8260D **Instrument ID:** GCMS2F

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V2F241-BFB	2F7122.D	09/19/23 21:45	n/a	BFB Tune
V2F241-IC241	2F7124.D	09/19/23 22:20	n/a	Initial cal 0.2
V2F241-IC241	2F7126.D	09/19/23 22:56	n/a	Initial cal 0.5
V2F241-IC241	2F7128.D	09/19/23 23:31	n/a	Initial cal 1
V2F241-IC241	2F7130.D	09/20/23 00:07	n/a	Initial cal 2
V2F241-IC241	2F7132.D	09/20/23 00:42	n/a	Initial cal 4
V2F241-IC241	2F7134.D	09/20/23 01:17	n/a	Initial cal 8
V2F241-IC241	2F7136.D	09/20/23 01:52	n/a	Initial cal 20
V2F241-ICC241	2F7138.D	09/20/23 02:27	n/a	Initial cal 50
V2F241-IC241	2F7140.D	09/20/23 03:02	n/a	Initial cal 100
V2F241-IC241	2F7142.D	09/20/23 03:37	n/a	Initial cal 200
V2F241-ICV241	2F7148.D	09/20/23 05:22	n/a	Initial cal verification 50
V2F241-ICV241	2F7150.D	09/20/23 05:57	n/a	Initial cal verification 50
V2F241-BFB2	2F7157.D	09/22/23 18:13	n/a	BFB Tune
V2F241-ICV241	2F7159.D	09/22/23 18:49	n/a	Initial cal verification 50

Run Sequence Report

Job Number: JD73642
Account: OBGNJ Ramboll US Corporation
Project: Former Cove & Maple MGP Site, 120 Maple Avenue, Haverstraw, NY

Run ID: V2F245 **Method:** SW846 8260D **Instrument ID:** GCMS2F

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
V2F245-BFB	2F7271.D	09/28/23 10:44	n/a	BFB Tune
V2F245-CC241	2F7271.D	09/28/23 10:44	n/a	Continuing cal 20
V2F245-CC241	2F7273.D	09/28/23 11:37	n/a	Continuing cal 1
V2F245-CC241	2F7275.D	09/28/23 12:12	n/a	Continuing cal 2
V2F245-BS	2F7277.D	09/28/23 12:48	n/a	Blank Spike
V2F245-MB	2F7279.D	09/28/23 13:24	n/a	Method Blank
JD73642-2	2F7281.D	09/28/23 14:00	n/a	FB-092723
ZZZZZZ	2F7283.D	09/28/23 14:36	n/a	(unrelated sample)
ZZZZZZ	2F7285.D	09/28/23 15:11	n/a	(unrelated sample)
JD73642-1	2F7287.D	09/28/23 15:47	n/a	MW-01-092723
JD73642-6	2F7289.D	09/28/23 16:24	n/a	DUP-092723
ZZZZZZ	2F7291.D	09/28/23 17:00	n/a	(unrelated sample)
JD73642-1MS	2F7293.D	09/28/23 17:36	n/a	Matrix Spike
JD73642-2DUP	2F7297.D	09/28/23 18:49	n/a	Duplicate
ZZZZZZ	2F7299.D	09/28/23 19:25	n/a	(unrelated sample)
ZZZZZZ	2F7301.D	09/28/23 20:01	n/a	(unrelated sample)
ZZZZZZ	2F7303.D	09/28/23 20:37	n/a	(unrelated sample)
ZZZZZZ	2F7305.D	09/28/23 21:12	n/a	(unrelated sample)
ZZZZZZ	2F7307.D	09/28/23 21:48	n/a	(unrelated sample)
ZZZZZZ	2F7309.D	09/28/23 22:24	n/a	(unrelated sample)

MS Volatiles

Raw Data

THE REMAINING PORTION OF THE DATA PACKAGE WASOMITTED DUE TO FILE SIZE. IT CAN BE PROVIDED UPON REQUEST

RAMBOLL

ENVIRONMENT
& HEALTH

MEMO

Project name Former Clove & Maple Haverstraw NY Site Data Validation Report
Project no. 1940102724
Client Orange and Rockland Utilities, Inc. (ORU)
Prepared by Ramboll

This report presents the results of data validation performed for samples collected at the Former Clove & Maple MGP Site in Haverstraw, New York. Sample collection activities were conducted by Ramboll in September 2023.

SGS North America, Inc. of Dayton, New Jersey (SGS Dayton) performed the laboratory analyses for the sampling event. The laboratory packages contain summary forms for quality control analysis and supportive raw data.

Table 1 below summarizes the sample analysis submitted for data validation.

Table 1. *Analytical Methods and References*

Analysis	Method	Reference
Volatile Organic Compounds (VOCs)	USEPA Methods 5030B/8000C/8260C	1
Semivolatile Organic Compounds (SVOCs)	USEPA Methods 3510C/8000C/8270D	1

Notes:

1. USEPA. 2018. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 3rd Edition, Update VI. Washington D.C.

The samples submitted for data validation are summarized in the attached Table 2. Table 3, attached, presents the specific data validation approach applied to data generated for this investigation. Table 4, also attached, presents the laboratory quality assurance/quality control (QA/QC) analyses definitions.

Full validation was performed on the samples collected for this investigation. The analytical data generated for this investigation were evaluated by Ramboll using the QA/QC criteria established in the methods and professional judgement.

Application of qualifiers to the data affected by excursions from the method criteria was based on guidance provided in the following documents and professional judgment:

- USEPA. 2010. USEPA Region II Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8270D, SOP HW-22 Revision 5.
- USEPA. 2014. USEPA Region II Standard Operating Procedure For the Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B & 8260C, SOP HW-24, Revision 4.

The following qualifiers are used in this type of data validation:

December 7, 2023

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USA

- "R" - Indicates that the reporting limit (RL) or sample result has been identified as unusable due to a major deficiency in the data generation process. The data were rejected and should not be used for any qualitative or quantitative purposes.
- "U" - Indicates that the analyte was not detected and the sample RL is presented. This qualifier is also used to signify blank excursions.
- "J" - Indicates that the concentration should be considered approximate. The target analyte was positively identified and the associated numerical value is the approximate concentration; either the data quality criteria were not met or the concentration of the target analyte was greater than the method detection limit (MDL) and below the RL.
- "UJ" - Indicates that the analyte was analyzed for and was not detected; however, the RL is presented and should be considered approximate. This qualifier is used when data quality criteria were not met.
- "JN" – Indicates that the target analyte has been "tentatively identified" as present and the associated numerical value is the estimated concentration in the sample. This qualifier may be applied due to data interpretation issues.

The data quality evaluation results in only one type of qualifier for each analyte; in a case when several qualifiers are applicable to the same analyte, the cumulative effect of the various QA/QC excursions is employed in assigning the final data qualifiers. For example, if a sample result is affected by low LCS recovery, for which the "UJ" qualifier is applied, but low MS/MSD recoveries result in the rejection of the sample result (application of the "R" qualifier), the final data qualifier is the "R" qualifier. QA/QC excursions that do not result in the qualification of an analyte are not discussed, with the exception of those excursions that provide useful information to the data user.

The data validation included an evaluation of the following parameters, where applicable:

- Documentation completeness
- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Calibrations
- Blank analysis
- Matrix spike/ matrix spike duplicate (MS/MSD) analysis
- Laboratory Control Sample (LCS) analysis
- Field duplicate analysis
- Surrogate recovery
- Internal standards performance
- Gas chromatography/mass spectrometry (GC/MS) instrument performance check
- Target analyte quantitation, identification, and quantitation limits (QLs)

The following sections of this memorandum present the results of the comparison of the analytical data to the QA/QC criteria specified above.

VOC DATA EVALUATION SUMMARY

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Documentation completeness
- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Calibrations
- Blank analysis
- MS/MSD analysis
- LCS analysis
- Field duplicate analysis
- Surrogate recovery
- Internal standards performance
- GC/MS instrument performance check
- Target analyte identification

Excursions from method or validation criteria were not identified. Additional observations are described below.

I. Target analyte quantitation and QLs

Sample results detected at concentrations greater than laboratory MDLs but less than laboratory RLs, the sample results are flagged as approximate (J) by the laboratory and the "J" qualifier is retained during data validation.

SVOC DATA EVALUATION SUMMARY

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Documentation completeness
- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Calibrations
- MS/MSD analysis
- LCS analysis
- Field duplicate analysis
- Surrogate recovery
- Internal standards performance
- GC/MS instrument performance check
- Target analyte identification

Excursions from method or validation criteria and additional observations are described below.

I. Target analyte quantitation and QLs

Sample results detected at concentrations greater than laboratory MDLs but less than laboratory RLs, the sample results are flagged as approximate (J) by the laboratory and the "J" qualifier is retained during data validation.

DATA USABILITY

The data from the samples presented in Table 2 were evaluated based on QA/QC criteria established by the USEPA methods. Data validation qualifiers were applied to data based on the general approach presented in Table 3.

Major deficiencies that would have resulted in rejected data were not identified for data from this sampling event. Minor deficiencies in the data generation process would have resulted in approximation of sample data.

This section summarizes the adherence of the analytical data to precision, accuracy, representativeness, comparability, completeness, and sensitivity data quality objectives. Data quality was evaluated using percent usability, defined as the percentage of sample results that are usable for qualitative and quantitative purposes.

Precision: Data usability with respect to precision is 100 percent.

Sensitivity: Sensitivity is established by RLs, which represent measurable concentrations of analytes that can be quantified with a designated level of confidence and are less than the project action limits established for the project. Dilutions were not performed for sample analyses. Data usability with respect to sensitivity is 100 percent.

Accuracy: Data usability with respect to accuracy is 100 percent.

Representativeness: Data usability with respect to representativeness is 100 percent.

Comparability: Comparability is not compromised provided that the analytical method approach did not change over time. A major component of comparability is the use of standard reference materials for calibration and QC. Since the modified analytical method approach and reporting procedures were consistently used by the laboratory, the comparability criteria for the analytical data were met.

Completeness: Overall, considering the complete data set, 100 percent of the data were usable for quantitative and quantitative purposes based on the data validation performed.

Table 2. Sample Cross Reference Table - Samples Collected and Submitted for Data Validation

Laboratory Name	Sample Delivery Group	Date Collected	Laboratory Identification	Client Identification	Matrix
SGS Dayton	JD73642	9/27/2023	MW-01_092723	JD73642-1	Groundwater
SGS Dayton	JD73642	9/27/2023	MW-05_092723	JD73642-3	Groundwater
SGS Dayton	JD73642	9/27/2023	MW-05_092723_MSD	JD73642-3D	Groundwater
SGS Dayton	JD73642	9/27/2023	MW-05_092723_MS	JD73642-3S	Groundwater
SGS Dayton	JD73642	9/27/2023	MW-06_0092723	JD73642-5	Groundwater
SGS Dayton	JD73642	9/27/2023	DUP_092723 [MW-06_092723]	JD73642-6	Groundwater
SGS Dayton	JD73642	9/27/2023	FB_092723	JD73642-2	Aqueous
SGS Dayton	JD73642	9/27/2023	TB_092723	JD73642-4	Aqueous

Notes:

SGS Dayton indicates SGS North America Inc. located in Dayton, New Jersey.

VOCs indicates volatile organic compounds.

FB indicats field blank.

TB indicates trip blank.

MS/MSD indicates matrix spike/matrix spike duplicate.

DUP indicates field duplicate.

Table 3

Ramboll Data validation approach based on USEPA Region II Data validation guidelines for the following SW-846 analytical methods: VOCs (8260C) **and** SVOCs (8270D).

	The validation approach taken by Ramboll is a conservative one; qualifiers are applied to sample data to indicate both major and minor excursions so that data associated with any type of excursion are identified to the data user. Major excursions result in data being rejected (R), indicating that the data are considered unusable for either quantitative or qualitative purposes. Minor excursions result in sample data being qualified as approximate (J, J-, J+, UJ, JN) or non-detected (U) that is otherwise usable for quantitative or qualitative purposes.
General Validation Approach	Excursions are subdivided into excursions that are within the laboratory's control and those that are out of the laboratory's control. Excursions involving laboratory control sample recovery, calibration response, method blank excursions, low or high spike recovery due to inaccurate spiking solutions or poor instrument response, holding times, interpretation errors, and quantitation errors are within the control of the laboratory. Excursions resulting from matrix spike recovery, serial dilution recovery, surrogate, and internal standard performance due to interference from the matrix of the samples are examples of those excursions that are not within the laboratory's control if the laboratory has followed proper method procedures, including performing appropriate cleanup techniques.
Applying professional judgment	USEPA data validation directs professional judgment to be used when applying qualifiers in some cases. When utilizing professional judgment, provide justification for actions taken in the associated validation notes.
Validation Parameter	Ramboll Data Validation Approach based on current Region II guidelines for SW-846 methods. For Region II guidelines that apply only to the CLP method, only the general approach to applying qualifiers was utilized.
Validation Qualifiers – Organics	U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the quantitation limit (QL). J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the QL). NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. UJ - The analyte was not detected at a level greater than or equal to the QL. However, the QL is approximate and may be inaccurate or imprecise. R - The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
Cooler Temperature	Results for samples submitted for organic and inorganic analyses that are impacted by coolers that did not contain ice, or if the ice melted upon receipt and the cooler temperatures are greater than 10°C, are qualified as approximate (UJ, J). If samples are delivered to the laboratory the same day as sample collection and samples did not have sufficient time to reach 10°C, samples are not qualified, unless proper preservation was not provided for samples between sample collection and sample receipt at the laboratory. Results for samples received at ambient temperature involved in extended shipment-day issues may be rejected, applying professional judgment.
Percent Solids	Results for samples submitted for organic and inorganic analyses that are impacted by percent solids of 50 percent or less are qualified as approximate (UJ, J).
Water sample collection for VOCs	If headspace or air bubbles are observed in VOC containers, the VOC data is qualified as approximate (UJ, J).
Soil sample collection for VOCs	Soil samples for VOCs submitted for low level analyses must be collected in accordance with EPA Method 5035A. If samples are not collected in encores or in weighed and preserved containers in the field, the VOC data are qualified as approximate (UJ, J).
Holding Time for Organics	Results for samples analyzed less than two times the holding time window established in the method or the QAPP for preparation and/or analysis are qualified as approximate (UJ, J). Non-detected results for samples analyzed greater than two times the holding time window for preparation and/or analysis are rejected (R). Detected results for samples analyzed greater than two times the holding time window for preparation and/or analysis are qualified as approximate (J).

Table 3

Ramboll Data validation approach based on USEPA Region II Data validation guidelines for the following SW-846 analytical methods: VOCs (8260C) **and** SVOCs (8270D).

General Calibration Actions	The entire sample target list for a VOC sample impacted by a holding time excursion is qualified. Due to relative standard deviation (RSD) calibration excursions, detected results for analytes in samples associated with the calibration are qualified as approximate (J). Non-detected results associated with RSD excursions may be qualified as approximate (UJ) based on professional judgment. If the RSD calibration excursion is greater than 90, detected results for analytes in samples associated with the calibration are qualified as approximate (J) and non-detected results may be rejected (R), applying professional judgment. Due to %D calibration verification excursions, detected and non-detected results for analytes in samples associated with the calibration are qualified as approximate (J, UJ). The response direction and detection of target analytes in associated sample may be considered in applying qualifiers (J- or J+) For response factor excursions, detected results are qualified as approximate (J) and non-detected results are rejected (R). For initial calibration verifications (ICV) excursions, detected and non-detected results for analytes in samples associated with the calibration are qualified as approximate (J, UJ). The response direction and detection of target analytes in associated sample may be considered in applying qualifiers (J- or J+).
VOCs Calibration Evaluation	VOC target analytes are evaluated using the criteria of 15 percent relative standard deviation (%RSD) or 20% RSD for USEPA 8260C or correlation coefficient of 0.990 for initial calibration curves. Calibration verifications are evaluated using a criterion of 20 percent difference (%D) for target analytes. Initial calibrations and calibration verifications are also evaluated using the response factor (RF) criteria described in the method 8260B for system performance check compounds and a minimum RF of 0.05 or in Table 4 for Method 8260C. The following exceptions are allowed: RFs ≥ 0.010 for poor purging target analytes such as ketones, acetonitrile, acrolein, propionitrile, vinyl acetate, 1,4-dioxane, methyl acetate, alcohols, tetrahydrofuran, and cyclohexanone. Other target analytes not listed on Table 4 - RFs ≥ 0.050. For Ketones and poor purging target analytes listed in Table 4 with RFs ≥ 0.010 and less than 0.100 results, data will be qualified as approximate (UJ, J). ICV recoveries are evaluated using laboratory control limits if available or 70 to 130% or less than 30%D.
VOCs by Method 8015	Target analytes are evaluated using the criteria of 20 %RSD or correlation coefficient of 0.990 for initial calibration curves. Calibration verifications are evaluated using a criterion of 20%D for target analytes for both columns. ICV recoveries are evaluated using laboratory control limits if available or 70 to 130%.
SVOCs Calibration Evaluation	SVOC target analytes are evaluated using the criteria of 15 %RSD (<20 %RSD Method 8270D) or correlation coefficient of 0.990 for initial calibration curves. Calibration verifications are evaluated using a criterion of 20 %D for the target analytes. Initial calibrations and calibration verifications are also evaluated using the criterion of a RF value of greater than or equal to a value of 0.05 for the target analytes using Method 8270C or Table 4 of 8270D. ICV recoveries are evaluated using laboratory control limits if available or 70 to 130%.
Associating samples with Field and Laboratory QC Samples	Trip blanks are associated with samples in the same sample cooler. Equipment blanks (Rinsate blanks) or Field Blanks are associated with samples collected in the same day (or sampling event) using the same sample collection equipment and decontamination solutions. When sampling equipment or decontamination solutions are changed, a new equipment blank should be collected. Each sample should be associated with one equipment blank, which is collected as close to the sample collection date/time as possible based on professional judgment. Field blanks are associated with the sample containers used to collect samples. When sampling container lots are changed, a new field blank should be collected. Method blanks are associated with samples prepared at the same time (if preparation is required) or analyzed in the same analytical batch as the samples. Method blanks should reflect the sample matrix type (aqueous, low level solid, medium level solid).

Table 3

Ramboll Data validation approach based on USEPA Region II Data validation guidelines for the following SW-846 analytical methods: VOCs (8260C) **and SVOCs (8270D).**

Associating samples with Field and Laboratory QC Samples	LCSs are associated with samples prepared at the same time (if preparation is required) or analyzed in the same analytical batch as the samples. MS/MSD and laboratory duplicate samples are collected in the field. The laboratory must prepare using project samples. MS/MSDs and laboratory duplicates are associated with samples prepared at the same time or close to the same time (if preparation is required) with the same matrix type. Field duplicates are collected in the field and are associated with samples of the same matrix type. In the case that insufficient QC samples are provided due to field or laboratory problems, use professional judgment to associate each sample with a QC sample that reflects the sample matrix and analysis conditions. If insufficient QC samples are available to properly associate samples, record the impact in the DV notes.
Evaluation and Action for MS/MSD, LCS, Surrogate and Laboratory Duplicate Data for VOCs and SVOCs	The laboratory control limit (CL) is used to assess MS/MSD, LCS, surrogate and laboratory duplicate data. Refer to Region II guidelines if laboratory control limits are not available. In the case that excursions are identified in more than one quality control sample of the same matrix within one sample delivery group, samples are batched according to sample preparation or analysis date and qualified accordingly (see batching description above). If percent recoveries are less than laboratory CLs but greater than 10%, non-detected and detected results are qualified as approximate (UJ, J). If percent recoveries are greater than laboratory CLs, detected results are qualified as approximate (J). If percent recoveries are less than 10%, detected results are qualified as approximate (J) and non-detected results are qualified as rejected (R). In the case of dual column analyses, usually only surrogate data are summarized for both columns. Method blanks, MS/MSD, laboratory duplicate, and LCS summary forms generally report results from one column, although both sets of results can be assessed from CLP Identification Form 10 and in the raw data. (Depending on the laboratory this may be the higher or lower of the two column results, or the column which meets calibration requirements). Results reported on the summary forms are used to qualify the data with consideration for confirmation data. In the case of dual column surrogate recovery failure, data are qualified when both surrogates are outside of the control limits. Non-detected sample results are not qualified if one of the two surrogates fail. Detected result associated with recovery of greater than upper laboratory CLs is qualified as approximate (J). Non-detected result is not qualified. Detected result associated with recovery of greater than or equal to 10% but less than the lower laboratory CL is qualified as approximate (J). Non-detected result is qualified as approximate (UJ). Detected result associated with recoveries of less than 10% is qualified as approximate (J). Non-detected result is rejected (R). If RPDs for MSDs or laboratory duplicates are outside of laboratory CLs, detected results are qualified as approximate (J). Non-detected results may not be qualified, applying professional judgment. Qualification is performed only when both MS and MSD recoveries are outside of laboratory CLs. Qualification is performed only when both surrogate recoveries are outside of laboratory CLs, unless interference is identified in the sample chromatography.
Evaluation of MS/MSD, Surrogate, and Field Duplicate Data for VOCs and SVOCS	Organic data are rejected (R) in the case that both MS/MSD recoveries are less than 10%. Qualification is not performed if MS/MSD or surrogate recoveries are outside of laboratory CLs with an analysis that applied a dilution factor of 10 times or more, applying professional judgment. Qualification of data associated with MS/MSD or field duplicate excursions is limited to the un-spiked sample or the field duplicate pair, respectively.

Table 3

Ramboll Data validation approach based on USEPA Region II Data validation guidelines for the following SW-846 analytical methods: VOCs (8260C), **and SVOCs (8270D).**

Evaluation and Actions for Blank Results for VOC, SVOC Data	Field duplicate data are evaluated against relative percent difference (RPD) criteria of less than 30 percent for aqueous samples and less than 50 percent for soils when results are greater than or equal to five times the QL. When a field duplicate result is less than five times the QL, a control limit of plus or minus two times the QL (difference criterion) is applied. If RPDs or differences are outside of criterion, detected and non-detected results are qualified as approximate (UJ, J) to indicate minor excursions. Blanks are not qualified due to contamination of another blank. Sample results qualified as non-detected (U) are treated as hits when qualifying for surrogate or calibration excursions. The following approach is utilized for applying qualifiers, using twice the quantitation limit (QL) for methylene chloride, 2-butanone and acetone: 1. For blank results less than the QL, samples with concentrations less than the QL are reported at the QL and qualified as non-detected (U). Samples with concentrations greater than or equal to the QL are not qualified or may apply the Blank Rule Option. 2. For blank results greater than the QL, samples with concentrations less than the QL are reported at the QL and qualified as non-detected (U). Samples with concentrations greater than or equal to the QL and less than the blank contamination level are reported and qualified as non-detected (U). Samples with concentrations greater than or equal to the QL and greater than or equal to the blank contamination level are not qualified or may apply the Blank Rule Option. 3. For blank results equal to the QL, sample concentrations less than the QL are reported at the QL value and qualified as non-detected (U). Samples greater than or equal to the QL are not qualified or may apply the Blank Rule Option. 4. For gross contamination in blanks (saturated peaks, interference peaks, poor baselines), all associated sample detected results are rejected (R) or qualified as non-detected (U) using professional judgment. Blank Rule Option: If methylene chloride, acetone or 2-butanone is detected in the sample at a concentration that is less than ten times the concentration in the associated blank, the sample result is qualified as "U". If other target analytes are detected in the sample at a concentration that is less than five times the concentration detected in the associated blank, the sample result is qualified as "U".
Evaluation of MS/MSD, Surrogate, and Field Duplicate Data for VOCs and SVOCS	Qualification is performed only when both MS and MSD recoveries are outside of laboratory CLs. Organic data are rejected (R) in the case that both MS/MSD recoveries are less than 10%. Qualification is not performed if MS/MSD or surrogate recoveries are outside of laboratory CLs with an analysis that applied a dilution factor of 10 times or more, applying professional judgment. Qualification of data associated with MS/MSD or field duplicate excursions is limited to the un-spiked sample or the field duplicate pair, respectively. Field duplicate data are evaluated against relative percent difference (RPD) criteria of less than 30 percent for aqueous samples and less than 50 percent for soils when results are greater than or equal to five times the QL. When a field duplicate result is less than five times the QL, a control limit of plus or minus two times the QL (difference criterion) is applied. If RPDs or differences are outside of criterion, detected and non-detected results are qualified as approximate (UJ, J) to indicate minor excursions.
Evaluation of Internal Standards for organic analyses	Internal standard recoveries are evaluated using control limits of from 50% of the lower standard area to 100% of the upper standard area of the associated calibration verification standard. The results associated with internal standard area recoveries 25% or greater but less than 50% are qualified as approximate (J, UJ). Non-detected results associated with internal standard area recoveries less than 25% are rejected (R), using professional judgment.

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Table 4. Laboratory Quality Assurance /Quality Control (QA/QC) Analyses Definitions.

QA/QC Term	Definition
Quantitation limit (QL)	The level above which numerical results may be obtained with a specified degree of confidence; the minimum concentration of an analyte in a specific matrix that can be identified and quantified above the method detection limit and within specified limits of precision and bias during routine analytical operating conditions.
Method detection limit (MDL)	The minimum concentration of an analyte that undergoes preparation similar to the environmental samples and can be reported with a stated level of confidence that the analyte concentration is greater than zero.
Instrument detection limit (IDL)	The lowest concentration of a metal target analyte that, when directly inputted and processed on a specific analytical instrument, produces a signal/response that is statistically distinct from the signal/response arising from equipment "noise" alone.
Gas chromatography/mass spectrometry (GC/MS) instrument performance check	Performed to verify mass resolution, identification, and to some degree, instrument sensitivity. These criteria are not sample specific; conformance is determined using standard materials.
Calibration	Compliance requirements for satisfactory instrument calibration are established to verify that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of analysis and calibration verifications document satisfactory maintenance and adjustment of the instrument on a day-to-day basis.
Relative Response Factor (RRF)	A measure of the relative mass spectral response of an analyte compared to its internal standard. Relative Response Factors are determined by analysis of standards and are used in the calculation of concentrations of analytes in samples.
Relative standard deviation (RSD)	The standard deviation divided by the mean; a unit-free measure of variability.
Correlation coefficient (CC)	A measure of the strength of the relationship between two variables.
Relative Percent Difference (RPD)	Used to compare two values; the relative percent difference is based on the mean of the two values, and is reported as an absolute value, i.e., always expressed as a positive number or zero.
Percent Difference (%D)	Used to compare two values; the percent difference indicates both the direction and the magnitude of the comparison, i.e., the percent difference may be either negative, positive, or zero.
Percent Deviation (%DEV)	The RF must be within 30% of the mean value measured in the initial calibration or the true value of the calibration verification standard.
Percent Recovery (%R)	The act of determining whether or not the methodology measures all of the target analytes contained in a sample.

Table 4. Laboratory Quality Assurance /Quality Control (QA/QC) Analyses Definitions.

QA/QC Term	Definition
Calibration blank (CB)	Consists of acids and reagent water used to prepare metal samples for analysis. This type of blank is analyzed to evaluate whether contamination is occurring during the preparation and analysis of the sample.
Method blank (MB)	A water or soil blank that undergoes the preparation procedures applied to a sample (i.e., extraction, digestion, clean-up). These samples are analyzed to examine whether sample preparation, clean-up, and analysis techniques result in sample contamination.
Field/equipment (FB/EB)	Collected and submitted for laboratory analysis, where appropriate. Field/equipment blanks are handled in the same manner as environmental samples. Field/equipment blanks are analyzed to assess contamination introduced during field sampling procedures.
Trip blank (TB)	Consist of samples of analyte-free water that have undergone shipment from the sampling site to the laboratory in coolers with the environmental samples submitted for volatile organic compound (VOC) analysis. Trip blanks will be analyzed for VOCs to determine if contamination has taken place during sample handling and/or shipment. Trip blanks will be utilized at a frequency of one each per cooler sent to the laboratory for VOC analysis.
Internal standards (IS) performance	Compounds not found in environmental samples which are spiked into samples and quality control samples at the time of sample preparation for organic analyses. Internal standards must meet retention time and recovery criteria specified in the analytical method. Internal standards are used as the basis for quantitation of the target analytes.
Surrogate recovery	Compounds similar in nature to the target analytes but not expected to be detected in the environmental media which are spiked into environmental samples, blanks, and quality control samples prior to sample preparation for organic analyses. Surrogates are used to evaluate analytical efficiency by measuring recovery.
Laboratory control sample (LCS) Matrix spike blank analyses (MSB)	Standard solutions that consist of known concentrations of the target analytes spiked into laboratory analyte-free water or sand. They are prepared or purchased from a certified manufacturer from a source independent from the calibration standards to provide an independent verification of the calibration procedure. They are prepared and analyzed following the same procedures employed for environmental sample analysis to assess method accuracy independently of sample matrix effects.
Laboratory duplicate	Two or more representative portions taken from one homogeneous sample by the analyst and analyzed in the same laboratory.
Matrix	The material of which the sample is composed or the substrate containing the analyte of interest, such as drinking water, waste water, air, soil/sediment, biological material.
Matrix Spike (MS)	An aliquot of a matrix (water or soil) fortified (spiked) with known quantities of specific target analytes and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery.

Table 4. Laboratory Quality Assurance /Quality Control (QA/QC) Analyses Definitions.

QA/QC Term	Definition
Matrix spike duplicate (MSD)	A second aliquot of the same matrix as the matrix spike that is spiked in order to determine the precision of the method.
Retention time (RT)	The time a target analyte is retained on a GC column before elution. The identification of a target analyte is dependent on a target compound's retention time falling within the specified retention time window established for that compound.
Relative retention time (RRT)	The ratio of the retention time of a compound to that of a standard.

Source: Ramboll