2021 ANNUAL MONITORING/INSPECTION REPORT

SNPE-VDM CREEK BANK CORRECTIVE ACTIONS ORDER ON CONSENT R9-20080205-5

SNPE, INC.
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PRINCETON, NEW JERSEY 08540

PROJECT NO.: 21452459
DATE: MARCH 2022

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

WSP USA INC. (WSP) (formerly Golder Associates Inc. [Golder]) under contract to SNPE Inc. (SNPE) and in close cooperation with VanDeMark Chemical Inc. (VDM), the Site owner, has prepared this annual monitoring and inspection summary report for 2021, in support of the Operations and Maintenance Plan (OMP) that was prepared for the VDM Lockport facility by Golder Associates Inc. (Golder, April 2013) and approved revisions. This summary report describes the activities that were undertaken during 2021 to maintain and monitor the effectiveness of the remedial system that was implemented at the VDM site along a portion of VDM's property adjacent to the north bank of Eighteen Mile Creek Bank (hereafter referred to as the "Creek Bank Area") and associated groundwater/DNAPL impacts at VDM's manufacturing facility in Lockport, New York. The VDM facility is located in the north central sector of the City of Lockport city limits, as shown on Figure 1.

The purpose of the constructed remedial system was twofold: create a barrier to restrict and contain the migration of dense non-aqueous phase liquid (DNAPL) consisting of coal tar residuals that have been exiting the fractured bedrock formation at, or near, the toe of the Creek Bank Area slope; and promote the collection of the DNAPL in a defined permeable trench for subsequent mechanical removal, if required. This annual monitoring/inspection report documents the extent to which these objectives are being met based on the following primary activities that were conducted throughout the 2021 monitoring period:

- Two visual inspections for presence of DNAPL in the passive upgradient permeable collection trench installed along the grout cutoff wall alignment including: inspection of the four observation sumps and temporary test pits placed in the collection trench permeable stone media;
- Two visual inspections for presence of DNAPL along the Eighteen Mile Creek bank areas where coal tar residuals have previously been observed;
- Annual groundwater sampling of the four piezometers installed upgradient and downgradient of the grout cutoff wall;
- Annual sampling of the water discharge from the collection trench Filter Sump overflow chamber;
- Annual groundwater sampling of two representative monitoring wells located within the VDM Plant at the top of the Niagara Escarpment; and,
- Visual inspection of the Filter Sump media (i.e., filter sand and activated carbon) and sump chamber.

Figure 3 shows the locations of the areas both within the active VDM facility and to the south along the Creek Bank Area that were monitored as part of this annual report.

The following sections present details on the frequency and methodologies employed for the inspections, monitoring and maintenance activities described above. The documentation and reporting associated with these activities are also described and provided.

2 SEMI-ANNUAL INSPECTIONS AND ANNUAL MONITORING

On March 18, 2015, the NYSDEC approved the petition dated March 5, 2015 from SNPE to reduce O&M inspections from quarterly to semi-annually to coincide with the semi-annual groundwater sampling events. The semi-annual inspection frequency was continued for the 20201 O&M reporting period.

On January 22, 2018 the NYSDEC approved the petition letter dated January 18, 2018 from SNPE to reduce the groundwater sampling from semi-annual to annual frequency. It was proposed that the annual groundwater sampling event be performed to coincide with the spring semi-annual inspection event, which is typically conducted in May each year. As a result of this approved change only one groundwater sampling event has been conducted per year since 2018.

2.1 PASSIVE DNAPL COLLECTION TRENCH

WSP personnel performed visual inspections of the DNAPL collection trench in May and November 2021. The following observations were recorded and summarized on written inspection reports, included in this report as Appendix A. Photos taken during the inspections were also recorded and are included as Appendix B.

2.1.1 MAY 2021 INSPECTION

DNAPL accumulation was not observed during the May 18, 2021 inspection event within the observation sumps located within the DNAPL collection trench. WSP visually inspected and inserted a wooden probe to the bottom of four, 4-inch diameter PVC DNAPL observation sumps (OS-1, OS-2, OS-3 and OS-4). Sumps OS-2, and OS-4 were dry, while OS-1 (approx. 48" water and 12-14" of light brown sediment), and OS-3 (approx. 15" water and 5" of black sediment) contained groundwater without a sheen or odor.

WSP dug a test hole in the DNAPL Collection trench stone media approximately 20 feet east of the Filter Vault to visually inspect trench drainage stone materials for the presence of DNAPL. The test hole was dug approximately 14" deep with groundwater encountered at a depth of 8" below ground surface (bgs). No DNAPL was observed during this activity and the groundwater in the test pit did not exhibit a sheen.

2.1.2 NOVEMBER 2021 INSPECTION

DNAPL accumulation was not observed during the November 23, 2021 inspection period within the observation sumps located within the DNAPL collection trench. WSP performed a visual inspection using a wood probe inserted to the bottom of four, 4-inch diameter PVC DNAPL observation sumps (OS-1, OS-2, OS-3 and OS-4). Groundwater was encountered in OS-1 (approx. 52" water and 6-8" of brown sediment) and OS-3 (approx. 16" water and 6" black sediment) without a sheen or odor, while OS-2 and OS-4 were both dry.

During the November inspection, a significant amount of soil and vegetative debris had been deposited along the western end of the DNAPL collection trench, resulting from significant precipitation events that occurred since the May 2021 inspection (most likely in July according to VDM observations). OS-1 was covered in approximately four to five inches of mixed soil debris which was removed to access the observation sump.

WSP dug a test hole in the DNAPL Collection trench stone media approximately 20 feet east of the Filter Vault to visually inspect trench drainage stone materials for the presence of DNAPL. The test hole was dug approximately

12” deep with groundwater encountered at a depth of 6” below ground surface (bgs). No DNAPL was observed during this activity and the groundwater in the test pit did not exhibit a sheen.

2.2 CREEK BANK AREA

Visual inspections were performed along approximately 300 feet of the Creek Bank Area down gradient of the DNAPL collection trench in May and November 2021. The following observations were recorded and summarized on written inspection reports, included in this report as Appendix A. Photos taken during the inspections were also recorded and are included as Appendix B.

2.2.1 MAY 2021 INSPECTION

WSP personnel inspected both the up-gradient slope (north of the DNAPL collection trench) and down-gradient slope (south of the collection trench) for signs of DNAPL accumulation. DNAPL accumulations were observed along a 15 to 25-foot section of the steeply graded edge of the creek bank south of OS-3. This area is located on the south-southwest side of the buried stone mill race structure adjacent to the creek where small quantities of DNAPL residuals have been observed and removed over the past seven years of monitoring and inspection.

During the 2012 creek bank remediation, it was evident that some residual coal tar likely remained trapped within the buried stone structure interstices, however due to the massive size of the structure and its location directly adjacent to the creek it was determined that intrusive remediation of the structure (former water mill raceway) was not practical and would most likely result in significant negative impacts to the creek due to its proximity and potential for destabilization of a significant section of the creek bank. In addition, significant disturbance of the structure would have required an Army Corps of Engineers stream bank disturbance permit due to its location directly adjacent to the creek. It was collectively determined at that time to proceed with the planned remediation without disturbing the buried structure.

During the May 2021 inspection, residual DNAPL accumulations were observed in the same general locations as noted in 2020, along the south side of the stone structure. Evidence of new accumulations were observed since the November 2020 inspection. Where feasible with hand tools, residual DNAPL was removed for disposal, and one (1) 5-gallon bucket was collected from the sample locations that were addressed in November of 2020. DNAPL removal was discontinued where it would undermine the steep slope and underlying stone structure or result in deposition of residuals in the creek.

No evidence of DNAPL accumulation was observed on the up-gradient slopes, vegetative cover was heavy at this time which made visual observation difficult.

2.2.2 NOVEMBER 2021 INSPECTION

No evidence of DNAPL accumulation was observed during the November 2021 inspection along the up-gradient slopes. A significant amount of soil and rock has subsided adjacent and north of the west end of the DNAPL collection trench due to a heavy rain event in late July. No DNAPL residuals were exposed as a result of this slide.

On the down-gradient slope, Further DNAPL residuals were observed in the area located on the south/southwest side of the buried stone mill race adjacent to the creek where small quantities of DNAPL residuals have been observed and removed over the past seven years of monitoring and inspection. Removal of two (2) 5-gallon buckets of residual DNAPL material was performed using hand tools. The DNAPL volume totals were added to Table 3-3 for tracking purposes. DNAPL removal was discontinued where it would undermine the steep slope and underlying stone structure or result in deposition of residuals in the creek. Observation of these areas will continue in the spring of 2022 to address any changes or new seeps.

2.3 COLLECTION TRENCH OVERFLOW FILTER SUMP STRUCTURE

Inspections of the collection trench drainage/filtration system including the Filter Sump and gravel filled sump drain were performed during the May and November 2021 inspections. Visual observations included noting the general condition of the drainage sump filter media and any evidence of excessive solids accumulation, presence of DNAPL residuals, a water sheen, or filter media washout. The following observations were recorded and summarized on written inspection reports, included in this report as Appendix A. Photos captured during the May and November 2021 inspections are included in Appendix B.

2.3.1 MAY 2021 INSPECTION

No DNAPL, nor other evidence of contamination, was present on the surface of accumulated water or filter media in the filter sump. There was no erosion or disturbance of the drainage sump filter media, with only minor sediment present (approximately ½ - inch layer) on the top of the sand media. The overflow section (filtered water discharge chamber) of the sump structure was clear and free of any sediment or solids. Minimal water overflow to the discharge pipe was observed at time of visual inspection.

The gravel filled sump drainage area adjacent to the filter sump was observed to be in good condition with no evidence of surficial water overflow, silting or DNAPL. A minor amount of vegetative overgrowth and dead vegetation was removed from this area to enhance visual inspection of the drainage.

2.3.2 NOVEMBER 2021 INSPECTION

During the November 2021 inspection period, DNAPL or other signs of contamination were not present on the surface of accumulated water or filter media in the filter sump. There was no erosion or disturbance of the drainage sump filter media, with only a small (approximately ¼ - inch layer) amount sediment present on the top of the sand media. The overflow section (filtered water discharge chamber) of the sump structure was clear and free of any sediment or solids. A steady water overflow to the discharge pipe was observed at the time of visual inspection.

The gravel filled sump drainage area adjacent to the filter sump was observed to be in good condition with no evidence of surficial water overflow, silting or DNAPL. A relatively thick layer of dead vegetation (leaves) was present and partially removed from this area in an attempt to enhance visual inspection of the drainage.

3 ANNUAL GROUNDWATER MONITORING

3.1 INTRODUCTION

A total of four (4) piezometers, located in the Creek Bank Area, were installed in 2012 and two (2) bedrock monitoring wells, located at the top of the escarpment within the VDM plant site, were installed in 1999 and 2006. The six wells have been monitored to establish a groundwater quality data set at the site as described below. A table summarizing the piezometer, monitoring well and DNAPL Observation Sump installation information (Table 3-1) was provided in the Operations & Maintenance Plan (OMP) report previously submitted by Golder Associates (Golder, April 2013).

3.2 GROUNDWATER PURGING

To ensure the collection of representative groundwater samples, each well (1-inch diameter piezometers and 2-inch monitoring wells) was purged of standing water prior to sampling. The purging process was conducted by measuring the depth to water, calculating the standing water volume present, and removing a minimum of three well volumes at each well (or until well was purged dry).

Purging methods employed by WSP personnel involved the use of dedicated polyethylene bailers suspended by nylon string or jute twine. Wells were purged into graduated containers and discharged into VDM's process sewer manhole. After the wells were purged, field measurements for pH, specific conductance and temperature were documented.

Well purging data, including the duration of the purging process, methods employed, volume of water removed, and measured field parameters are included in Appendix C on the Sample Collection Information Logs.

3.3 CREEK BANK PIEZOMETER SAMPLING AND ANALYTICAL RESULTS

Annual groundwater sampling was performed on May 19, 2021 on the four (4) piezometers (PZ-1, PZ-2, PZ-3 and PZ-4) installed as part of the Creek Bank Corrective Measures in 2012 (refer to Figure 2) as described below. Due to a loss of VOA vial sample volume from the May 19, 2021 sampling event, PZ-4 was resampled for VOCs on June 4, 2021. Two separate sampling forms for PZ-4 are included in Appendix B for the corresponding SVOCs collected on May 19, 2021 and the VOCs re-sampled on June 4, 2021.

Following the purging of each piezometer, groundwater samples were collected at each location to assess the general groundwater quality up gradient and down gradient of the grout wall and bedrock cutoff system. Pre-sampling activities included a piezometer-maintenance check, and non-aqueous phase liquid (NAPL) determination. Piezometer PZ-1 was found to be dry to bottom of the screened zone during the sampling event, and therefore, no field parameters or samples could be obtained.

Groundwater samples were then collected from the remaining three piezometers for chemical analysis at Eurofins TestAmerica Laboratories, Inc. (ETA) in Buffalo, New York, a New York State Department of Health Environmental Laboratory Accreditation Program (ELAP) certified laboratory. The groundwater samples were shipped via courier under proper preservation and chain of custody procedures, within eight hours of collection.

At the conclusion of the annual sampling event, the physical condition of the piezometers and protective casings/locks was also noted, and any recommended repairs or maintenance required (if necessary) was documented on the sample collection field logs provided in Appendix C. No condition issues were identified during the 2021 sampling event.

All piezometer groundwater samples collected were analyzed for TCL Volatile Organic Compounds (VOCs) in accordance with USEPA Method 8260C and TCL Semi-volatile Organic Compounds (SVOCs) in accordance with USEPA Method 8270C and the analytical results are presented in Table 3-1. This was the ninth year of Site monitoring following the completion of the Corrective Measures. The 2021 sample results are presented in Table 3-2 comparing this year's analytical results to the 2013 - 2020 groundwater sampling events analytical results.

The analytical results of PZ-3 during for annual sampling event on May 19, 2021 identified two SVOCs, phenol and naphthalene as exceeding the NYSDEC Part 703 Groundwater Quality Standards (GWQS). Phenol was detected during the May 2021 sampling event at a concentration of 40 ug/L. Phenol has been detected in this piezometer sporadically since monitoring began in 2013 with previous detections ranging from non-detect to 130 ug/L. Naphthalene was detected during the May 2021 sampling event at a concentration of 12 ug/L, which is a decrease from 19 ug/L detected during the May 2020 event. Historically, low-level detections of naphthalene were found in PZ-3 all below the GWQS of 10 ug/L since monitoring began in 2013, however, the naphthalene concentration has exceeded GWQS of 10 ug/L for the past five consecutive sampling events (November 2017, May 2018, May 2019, May 2020 and May 2021). 4-Methylhenol was also detected during the May 2021 sampling event at a concentration of 0.95 ug/L, a decrease from 2.0 ug/L detected during the May 2020 event and this compound is now below the GWQS. No other compounds were detected above the GWQS in the piezometers.

WSP continues to assess the piezometer groundwater data for trends and evaluate the effectiveness of the Corrective Measures as additional analytical data is collected during future annual monitoring events. The data collected to date from historical groundwater sampling events demonstrates that the DNAPL source in the upgradient bedrock appears to be contributing to phenol and naphthalene exceedances in PZ-3, which could impact on the creek water quality.

3.4 PLANT MONITORING WELL SAMPLING AND ANALYTICAL RESULTS

Annual groundwater sampling was performed on two (2) existing monitoring wells, MW-3D and MW-7D, located within the operational portion of the VDM facility at the top of the escarpment, to assess the general groundwater quality at these upgradient locations on the top of the escarpment.

Monitoring Well MW-7D was installed in 2006 by Benchmark as part of voluntary site investigations associated with the sale of the facility. During the June 2014 sampling event, the presumed location of MW-3D, installed in 1999 by Dames and Moore and located within the operational portion of the VDM facility, was noted as being damaged by plant snow removal activities the previous winter/spring, therefore no samples were obtained from what was previously thought to be MW-3D between the 2014 and 2019 sampling events. However, VDM uncovered a flush mounted well further west and directly south of the D-Building which is intact and appears to be consistent with the location of MW-3D on original Dames and Moore investigation figures. Beginning with the May 2020 monitoring event, this newly discovered flush-mount well was redeveloped and sampled. Location of the wells is presented on Figure 3.

Pre-sampling activities included measuring the well's water elevation and non-aqueous phase liquid (NAPL) determination. Following the purging of each well, groundwater samples were collected for chemical analysis and shipped via courier under proper preservation and chain of custody procedures to Eurofins Test America within eight hours of collection.

All monitoring well groundwater samples collected were analyzed for TCL Volatile Organic Compounds (VOCs) in accordance with USEPA Method 8260B and TCL Semi-volatile Organic Compounds (SVOCs) in accordance with

USEPA Method 8270C and the analytical results are presented in Table 3-1. This is the ninth year of Site monitoring following the completion of the Corrective Measures. Table 3-2 presents the 2021 analytical results alongside results from the 2013 - 2020 groundwater sampling events for comparison purposes. A copy of the analytical report is provided in Appendix D.

3.4.1 MW-3D RESULTS

The analytical results of the MW-3D monitoring well samples collected during the May 2021 sampling event identified one detected compound, chlorobenzene, which exceeded the GWQS with a concentration of 12.00 ug/L .

3.4.2 MW-7D RESULTS

The analytical results of the MW-7D monitoring well samples collected during the May 2021 sampling event identified six (6) VOCs and five (5) SVOCs as exceeding the GWQS. Eight (8) other Polycyclic Aromatic Hydrocarbon (PAH) compounds were also detected at the concentrations which exceed their respective NYS Division of Water Technical and Operational Guidance Series (TOGS) guidance values.

Biphenyl was detected in MW-7D at a concentration of 1,000 ug/L during the May 2021 sampling event, which is approximately 5 times the previous highest detected concentration. It had been detected intermittently at five prior “spring” sampling events and one prior “fall” sampling event, exceeding GWQS four times. Acenaphthene was detected at 3,300 ug/L during the May 2021 sampling event, which is approximately 6 times the previous highest concentration. Naphthalene was detected at 1,800 ug/L during the May 2021 sampling event, which is approximately 6 times the previous highest concentration. A naphthalene odor and initial sheen was observed during purging and sampling of MW-7D. Phenanthrene was detected in MW-7D at a concentration of 7,100 ug/L, approximately 5 times higher than the 1,300 ug/L detection in 2020. Benzo(a)pyrene was detected at a concentration of 59 ug/L during the May 2021 sampling event, which is 4 times the previous highest detection. These detections were all qualified due to MS/MSD control limit exceedances. Benzo(k)fluoranthene, and Methylene Chloride were detected for the first time in this well. Six (6) VOCs (1,1-DCA, 1,2-DCA, Ethylbenzene, Chloroethane, Vinyl Chloride, and Xylenes) were detected at MW-7D that exceeded their respective GWQSs. MW-7D samples were diluted to bring the concentration of target analytes within the calibration range and therefore, elevated reporting limits (RLs) are provided.

3.4.3 PLANT MONITORING WELL ANALYTICAL SUMMARY

Naphthalene was the only VOC or SVOC detected upgradient at MW-7D within the operational portion of the VDM facility that was also detected in the down-gradient piezometer PZ-3 at low concentrations and exceeded GWQS. Although the total PAH concentrations detected in MW-7D are much higher in 2021 than previous monitoring events, the detection of these compounds in the downgradient creek bank piezometers above GWQS was limited to the noted concentration of naphthalene at levels just above its respective GWQS.

We continue to carefully observe the detected compounds in both the upgradient wells and the downgradient piezometers, however we do not believe further actions are warranted at this time based on the lack of an increased trend in downgradient detections and total concentrations of PAHs. WSP will continue to assess Plant monitoring well groundwater data for trends and evaluate potential impacts of the up-gradient groundwater on the Corrective Measures as additional analytical data is collected from future annual monitoring events.

At the conclusion of the annual sampling event, the physical condition of the monitoring wells and protective casings or covers was noted, and any recommended repairs or maintenance required (if necessary) was

documented on the sample collection field logs provided in Appendix C. No condition issues were identified during the 2021 sampling event.

3.5 FILTER SUMP STRUCTURE SAMPLING AND ANALYTICAL RESULTS

Annual sampling was performed on the collection trench drainage/filtration system overflow chamber (Filter Sump) as part of the semi-annual site inspection activities in May 2021. One aqueous sample was collected from the overflow chamber of the Filter Sump to assess the general performance of the grout wall and bedrock cutoff system. Pre-sampling activities included inspection of the vault filter media, a vault-maintenance check, and non-aqueous phase liquid (NAPL) determination.

After completion of these pre-sampling activities, a sample of the Filter Sump effluent water was measured for the following field parameters: pH, temperature, and specific conductivity. Aqueous grab samples were then collected for chemical analysis by direct fill methods. The aqueous samples were delivered to the laboratory under proper preservation and chain of custody procedures within eight hours of collection.

Samples collected from the Filter Sump overflow chamber were analyzed for TCL Volatile Organic Compounds (VOCs) in accordance with USEPA Method 8260B and TCL Semi-volatile Organic Compounds (SVOCs) in accordance with USEPA Method 8270C. Analytical results are presented in Table 3-1. Table 3-2 presents the 2021 results alongside results from the 2013 - 2020 Filter Sump sampling for comparison purposes.

The analytical results of the Filter Sump samples collected during the May 2021 sampling event identified one VOC exceeding the GWQS. Chloroform was detected at 8.00 ug/L exceeding the GWQS. The detected concentration of this contaminant is consistent with previous sampling results since the 2014 monitoring event. No other VOCs or SVOCs were detected above the GWQS or TOGS. WSP will continue to assess the Filter Sump system overflow chamber data for trends and evaluate the effectiveness of the Corrective Measures as appropriate.

At the conclusion of the annual sampling event, the physical condition of the Filter Vault was noted, and any recommended repairs or maintenance required (if necessary) was documented on the sample collection field logs provided in Appendix C. No condition issues with the Filter Vault were identified during the 2021 sampling event.

4 MAINTENANCE & CLEAN-OUT ACTIVITIES

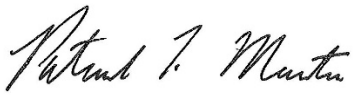
As described in Section 2.0 above, the inspections conducted in 2021 did not find evidence of DNAPL impacts to the DNAPL Collection Trench or Filter Sump, therefore maintenance or clean-out activities were not necessary or performed on these components of the Creek Bank Area remedial system. Repairs to the piezometers and monitoring wells were not required since no damage was observed to the protective casings, locks or the monitoring well or piezometer risers.

5 REFERENCES

1) Golder Associates Inc., SNPE-VanDeMark Corrective Actions, Operation & Maintenance Plan, prepared for SNPE Inc., April 2013.

WSP USA INC.

Joshua Vernold
Staff Geologist



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https://golderassociates.sharepoint.com/sites/140690/project files/6 deliverables/annual report/snpe-vdm corrective measures 2021 monitoring and inspection report (rev 03-03-22).docx

TABLES

TABLE 3-1
SNPE-VANDEMARK SITE
2021 GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS T.O.G.S Groundwater Guidance Values	480-184953-4	480-184953-7	480-169674-5	480-184953-1	480-184953-2	480-184953-3	480-185643-1	480-184953-6
Sample Date			5/19/2021	5/19/2021	5/19/2021	5/19/2021	5/19/2021	5/19/2021	6/4/2021	5/19/2021
Sample ID			Vault Effluent	MW-3D	MW-7D	PZ-2	PZ-3	PZ-4	PZ-4	Blind Duplicate
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	(MW-3D) ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)										
1,1,1-Trichloroethane	5.0	NV	-	-	-	-	-	N/A	-	-
1,1-Dichloroethane	5.0	NV	-	-	**8.9**	-	-	N/A	-	-
1,1-Dichloroethene	5.0	NV	-	-	4.9	-	-	N/A	-	-
1,2-Dichloroethane	0.6	NV	-	-	**1.4** J	-	-	N/A	-	-
2-Butanone	NV	50.0	-	-	-	-	-	N/A	-	-
Acetone	NV	50.0	-	-	-	-	-	N/A	-	-
Benzene	1.0	NV	-	-	-	-	-	N/A	-	-
Carbon disulfide	60.0	NV	-	-	-	-	-	N/A	-	-
Carbon tetrachloride	5.0	NV	-	-	-	-	-	N/A	-	-
Chlorobenzene	5.0	NV	-	**12**	-	-	-	N/A	-	1.5 J
Chloroethane	5.0	NV	-	-	**19**	-	-	N/A	-	-
Chloroform	7.0	NV	**8.2**	-	-	0.93 J	-	N/A	-	-
cis-1,2-Dichloroethene	5.0	NV	-	-	-	-	-	N/A	-	-
Ethylbenzene	5.0	NV	-	-	**8.0**	-	-	N/A	-	-
Isopropylbenzene	5.0	NV	-	-	3.6	-	-	N/A	-	-
Methylene Chloride	5.0	NV	-	-	0.93 J	-	-	N/A	-	-
Trichloroethene	5.0	NV	-	-	-	-	-	N/A	-	-
Vinyl chloride	2.0	NV	-	-	**7.2**	-	-	N/A	-	-
Xylenes, Total	5.0	NV	-	-	**8.4**	-	-	N/A	-	-
Semivolatile Organics by GC/MS (US EPA Method 8270C)										
Biphenyl	5.0	NV	-	-	**1000** F2	-	-	-	N/A	-
2,4-Dimethylphenol	1.0	50.0	-	-	-	-	-	-	N/A	-
2-Methylphenol	1.0	NV	-	-	-	-	-	-	N/A	-
2-Methylnaphthalene	NV	NV	-	-	1600 F2	-	4.10 J	-	N/A	-
2-Nitroaniline	5.0	NV	-	-	-	-	-	-	N/A	-
4-Methylphenol	1.0	NV	-	-	-	-	0.95 J	-	N/A	-
4-Methylphenol & 3-Methlyp	1.0	NV	-	-	-	-	-	-	N/A	-
Acenaphthene	20.0	NV	-	-	**3300** F2	-	5.40 J	-	N/A	-
Acenaphthylene	NV	NV	-	-	41.0 J F1 F2	-	-	-	N/A	-
Anthracene	NV	50.0	-	-	**460** F2	-	-	-	N/A	-
Benzaldehyde	NV	NV	-	-	-	-	0.40 J	-	N/A	-
Benzo(a)anthracene	NV	NV	-	-	250 J F1 F2	-	-	-	N/A	-
Benzo(a)pyrene	ND	ND	-	-	59 J F1 F2	-	-	-	N/A	-
Benzo(b)fluoranthene	NV	0.002	-	-	**100** J F1 F2	-	-	-	N/A	-
Benzo(k)fluoranthene	NV	0.002	-	-	**27.0** J F1 F2		-	-	N/A	-
Benzo(g,h,i)perylene	NV	NV	-	-	16.0 J F2	-	-	-	N/A	-
Bis(2-ethylhexyl)phthalate	5.0	NV	-	2.2 J	-	-	-	-	N/A	2.5 J
Butyl benzyl phthalate	5.0	50.0	-	-	-	-	-	-	N/A	-
Caprolactam	NV	NV	-	-	-	-	-	-	N/A	-
Carbazole	NV	NV	-	-	62 J * F1 F2	-	0.63 J	-	N/A	-
Chrysene	NV	0.002	-	-	**210** F2	-	-	-	N/A	-
Dibenzofuran	NV	NV	-	-	3200 F2	-	-	-	N/A	-
Di-n-butyl phthalate	50.0	NV	0.35 J B	3.70 J B	-	0.32 J B	-	0.57 J B	N/A	4.5 J B
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-	N/A	-
Diethyl phthalate	NV	50.0	-	0.29 J	-	-	-	-	N/A	0.31 J
Fluoranthene	NV	50.0	-	-	**2400** F2	-	-	-	N/A	-
Fluorene	NV	50.0	-	-	**2800** F2	-	1.00 J	-	N/A	-
Indeno[1,2,3-cd]pyrene	NV	0.002	-	-	**16.0** J F2	-	-	-	N/A	-
Isophorone	NV	50.0	-	-	-	-	-	-	N/A	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	N/A	-
Naphthalene	10.0	NV	-	-	**1800** F2	-	**12** J	-	N/A	-
Nitrobenzene	0.4	NV	-	-	-	-	-	-	N/A	-
Phenanthrene	50.0	NV	-	-	**7100** F2	0.47 J	**0.70** J	-	N/A	0.49 J
Phenol	1**	NV	-	-	-	-	**40** J	-	N/A	-
Pyrene	NV	50.0	-	-	**1600** F2	-	-	-	N/A	-
Phenanthrene - DL	NV	50.0	-	-	-	-	-	-	N/A	-

Unable to alayze VOA vials due to insufficent volume. Resampled on 6/4/21

See SVOC results from 5/19/21

Key:

Vault Effluent Sample Results

Plant Monitoring Well Sample Results

Piezometer Sample Results

Footnotes:

- = Compound not detected above the Analytical Method Detection Limit

BOLD = Value exceed the groundwater quality standards.

BOLD = Value exceed the groundwater (GA) guidance values

** = The sum of all phenols

NV = No GW Quality Standard

ND = Non-Detect

Qualifications:

* = LCS or LCSD is outside acceptance limits

J = Analyte detected at a level less that Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations in this range are estimated.

B = Analyte detected in the method blank.

F1 = MS and/or MSD Recovery is outside acceptance limits.

F2 = F2 MS/MSD RPD exceeds control limits

TABLE 3-2
SNPE-VANDEMARK SITE
HISTORICAL GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID		NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	130617007-001	130930005-006B	480-62067-2	480-71961-4	480-80722-4	480-90488-4	480-101786-4	480-109820-4	480-117975-4	480-127262-4	480-136146-4	480-154189-3	480-169674-4	480-184953-4
Sample Date				6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015	6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	05/29/2019	05/07/2020	5/19/2021
Sample ID				Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent	Vault Effluent
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)																	
1,1,1-Trichloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane		0.6	NV	-	-	-	-	-	-	-	-	-	-	-	**0.62** J	-	-
2-Butanone		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone		NV	50.0	1.8 J, B	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene		1	NV			-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide		60	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene		6	NV			-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform		7	NV	4.2 J	-	3.7	**9.6**	2.4	**11**	1.7	3.6	**16**	**27**	**9.70**	**19.00**	**17.00**	**8**
cis-1,2-Dichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-		-
Methylene Chloride		5.0	NV														-
Trichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride		2	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes, Total		5	NV	-	-	-	-	-	-	-	-	-	-	-	-		-
Semivolatile Organics by GC/MS (US EPA Method 8270C)																	
Biphenyl		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol		1	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylphenol		1	NV			-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol		1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol & 3-Methlyphenol		1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene		20	NV	-	-	-	0.86 JB*	-	-	-	-	-	-	-	-	-	-
Acenaphthylene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzaldehyde		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene		NV	NV	-	-	-	3.1 J	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene		ND	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene		NV	NV	-	-	-	-	-	-		-		-	-	-	-	-
Bis(2-ethylhexyl)phthalate		5	NV	-	-	-	-	**7.9**	3.2 J	-	-	-	-	-	-	-	-
Butyl benzyl phthalate		5	50.0	-	-	-	-	-	0.47 JB	-	-	-	-	-	-	-	-
Caprolactam		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate		50	NV	1.2 J, B	-	-	-	-	-	-	-	-	-	-	-	-	0.35 J B
Di-n-octyl phthalate		NV	50.0		-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-cd]pyrene		NV	0.002		-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene		10	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene		0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene		50	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol		1*	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene - DL		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
- Vault Effluent Sample Results
- Plant Monitoring Well Sample Results
- Piezometer Sample Results

Footnotes:
- \- = Compound not detected above the Analytical Method Detection Limit
- **BOLD** = Value exceed the groundwater quality standards.
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TABLE 3-2
SNPE-VANDEMARK SITE
HISTORICAL GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	130617007-003	130930005-001B	480-169674-7	480-184953-7	130617007-002	130930005-002B	480-62067-1	480-71961-5	480-80722-5	480-90488-5	480-101786-5	480-109820-5	480-117975-5	480-127262-5	480-136146-5	480-154189-1	480-169674-5	480-184953-5
Sample Date			6/13/2013	9/26/2013	05/07/2020	5/19/2021	6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015	6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	5/29/2019	05/07/2020	5/19/2021
Sample ID			MW-3D	MW-3D	MW-3D	MW-3D	MW-7D±	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)																				
1,1,1-Trichloroethane	5	NV	**11**	**13**	-	-	**19**	**71**	**97**	**140**	**52**	**59**	**71**	**41**	**36**	**64**	**44** F1 F2	**20**	**12.0**	-
1,1-Dichloroethane	5	NV	**87**	**120**	0.66 J	-	**79**	**260**	-	**350**	**180**	**210**	**230**	**140**	**150**	**210**	-	**96** F1	**70.0** F1	**8.9**
1,1-Dichloroethene	5	NV	**27**	**38**	-	-	**21**	**70**	**77**	**110**	**54**	**60**	**76**	**48**	**50**	**80**	**51** F1 F2	**43**	**27.0**	4.9
1,2-Dichloroethane	0.6	NV	**17**	**23**	**1.20**	-	**2** J	-	**4.8**	**6.6**	**3.6** J	**4.2** J	**4.9** J	**3.5** J	**3.6** J	**5.5**	**4.4**	**4.3**	**3.3**	**1.4** J
2-Butanone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	7.00 J*	-	-	-
Benzene	1	NV			0.76 J	-	-	-	-	-	-	-	-	-	-	0.33	-	-	-	-
Carbon disulfide	60	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.85 J B	-	-
Carbon tetrachloride	5	NV	-	-	-	-	-	-	0.53 J	-	-	-	-	-	-	0.29	0.32 J F2	-	-	-
Chlorobenzene	6	NV			**11.00**	**12**					-	-	-	-	-	0.62	-	-	-	-
Chloroethane	5	NV	-	-	-	-	**20**	**58**	**73**	**100**	**68**	**110**	**95**	**88** F1	**54**	**88**	**63** F1 F2	**65** F1	**47.0** F1	**19**
Chloroform	7	NV	-	-	-	-	-	-	0.8 J	-	-	-	-	-	-	0.49	0.57 J	-	-	-
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	0.98 J	-	-	-	-	0.12 J	-	1.0	0.93 J	-	-	-
Ethylbenzene	5	NV	-	-	-	-	2.9 J	-	2	-	-	-	-	2.0	4.2	1.6	1.60 F2	-	3.4	**8.0**
Isopropylbenzene	5	NV	-	-	0.81 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
Methylene Chloride	5.0	NV				-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.93 J
Trichloroethene	5	NV	-	-	-	-	-	-	1.1	-	-	-	-	-	-	0.88	0.68 J	-	-	-
Vinyl chloride	2	NV	**17**	**26**	-	-	**5.3** J	**23**	**21**	**19**	**13**	**15**	**23**	**21** F1	**16**	**26**	**26** F1 F2	**24** F1	**17.0**	**7.2**
Xylenes, Total	5	NV	-	-		-	-	-	-	-	-	-	-	-	3.2 J	-	0.97	-	1.8 J	**8.4**
Semivolatile Organics by GC/MS (US EPA Method 8270C)																				
Biphenyl	5	NV	-	-	-	-	-	-	-	5	3.3 J	-	**18** F1	-	**77**	-	**24** J F1 F2	-	**170.0** F2	**1000** F2
2,4-Dimethylphenol	1	50.0	-	-	-	-	-	-	-	0.48 J	-	-	-	-	-	-	-	-	-	-
2-Methylphenol	1	NV	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	NV	NV	-	-	-	-	-	1.1 J	-	-	-	-	24 F1	-	72	3.6	31 J F1 F2	-	300.0 F2	1600 F2
2-Nitroaniline	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol & 3-Methlyphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	20	NV	2.5 J	2.9 J	**44.00**	-	**27**	**28**	12	**39**	**42** DL	-	**87** J	**71**	**260**	**38**	**95** F1 F2	**63** F1 F2	**570.0** F2	**3300** F2
Acenaphthylene	NV	NV	-	-	-	-	1.2 J	-	-	0.56 J	0.54 J	-	-	-	-	-	-	-	9.9 J F1 F2	41.0 J F1 F2
Anthracene	NV	50.0	-	-	-	-	-	-	0.22 J	1 J	0.84 J	-	3 J	7.2 J F1	26	-	15 J F1	10 J F1	**99** F1 F2	**460** F2
Benzaldehyde	NV	NV	-	-	-	-	-	-	-	0.84 JB*	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	-	-	-	-	-	-	-	-	-	-	1.5 J	4.8 J F1	8.0 J	-	7.1 J	11 J, F2	52.0 F1 F2	250 J F1 F2
Benzo(a)pyrene	ND	NV	-	-	-	-	-	-	-	-	-	-	**0.53** J	-	**3.6** J	-	-	**9.2** J, F3	**15.0** J F1 F2	**59** J F1 F2
Benzo(b)fluoranthene	NV	0.002	-	-	-	-	-	-	-	**0.28** J	-	-	**1** J	**4.7** J F2 F1	**4.9** J	-	**5.2** J	**14** J, F4	**22** J F1 F2	**100** J F1 F2
Benzo(k)fluoranthene	NV	0.002	-	-		-		-	-	-	-	-	-	-	-	-	-	-	-	**27** J F1 F2
Benzo(g,h,i)perylene	NV	NV	-	-	-	-	-				-	-	0.36 J	-	-	-	-	7.1 J, F5	4.8 J F1	16.0 J F2
Bis(2-ethylhexyl)phthalate	5	NV	-	-	-	2.2 J	-	2.5 J	**6.7** J	3.5 J	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	5	50.0	-	-	-	-	-	-	-	-	0.48 J	-	-	-	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	2.80 J	-	-	-	-	-	-	2200	-	-	-	27	-	-	-	-
Carbazole	NV	NV	-	1.2 J	-	-	2.3 J	5.1	2.2 J	10 *	5.2	-	7	-	14 J	5.7	5.4 J	3.9 J	19.0 J * F1 F2	62 J * F1 F2
Chrysene	NV	0.002	-	-	-	-	-	-	-	-	-	-	**1.6** J F1	**4.7** J F1	**7.4** J	-	**7.7** J	**14** J	**46** J F1 F2	**210** F2
Dibenzofuran	NV	NV	-	1.2 J	-	-	16	18	6.5 J	-	32	-	71 J	49 J F1	230	25	87 J F1 F2	35 J F1 F2	510.0 F2	3200 F2
Di-n-butyl phthalate	50	NV	2 J, B	1.4 J	-	3.70 J B	1.5 J, B	2.5 J	-	27	-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Diethyl phthalate	NV	50.0	1 J	-	-	0.29 J	-	-	-	-	-	-	0.25 J	-	-	-	-	-	-	-
Fluoranthene	NV	50.0	-	-	-	-	-	1.5 J	0.34 J	1.3 J	1.2 J	-	19 F1	36 J F2 F1	**100**	5.2	**66** F1 F2	**65** F1 F2	**450** F2	**2400** F2
Fluorene	NV	50.0	-	-	-	-	8.9	9.7	4.3	18	22	-	46 J	41 J F1	**200**	17	**80** F1 F2	36 J F1	**490** F2	**2800** F2
Indeno[1,2,3-cd]pyrene	NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**6.4** J F1 F2	-	**16** J F2
Isophorone	NV	50.0	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	10	NV	-	-	-	-	8.2	9.8	2.5	8	1.4 JB	-	**70** J	**11** J F2 F1	**190**	**59**	**72.00** F1 F2	-	**280** F2	**1800** F2
Nitrobenzene	0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	-	-	-	-	1.8 J	4.2 J	1.1 J	7.5	6.2	-	**76** J	**62** F2 F1	**420**	9.2	**210** F2	**61** F2	-	**7100.0** F2
Phenol	1*	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	NV	50.0	-	-	-	-	-	1.1 J	-	0.74 J	0.47 J	-	11 F1	21 J F2 F1	**59**	3.6	43.00 J F1 F2	45.00 J F1 F2	**300** F2	**1600** F2
Phenanthrene - DL	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1300** F2	-

Key:
Vault Effluent Sample Results
Plant Monitoring Well Sample Results
Piezometer Sample Results

Footnotes:
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HISTORICAL GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	130617007-004	130930005-003B	480-62067-6	480-71961-1	480-80722-1	480-90488-1	480-101786-1	480-109820-1	480-117975-1	480-127262-1	480-136146-1	480-154189-4	480-169674-1	480-184953-1
Sample Date			6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015	6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	5/29/2019	5/7/2020	5/19/2021
Sample ID			PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2	PZ-2
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)																
1,1,1-Trichloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	NV	50.0	-	35	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	NV	50.0	-	12	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	60	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	7	NV	**12**	**14**	3.2	0.6 J	1.6	0.54 J	0.75 J	0.9 J	1.5	0.3	-	0.61 J	-	0.93 J
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	5	NV	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-
Isopropylbenzene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	5.0	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	2	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes, Total	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS (US EPA Method 8270C)																
Biphenyl	5	NV	-	-	-	0.1 J	-	-	0.86 J	0.65	-	-	-	-	-	-
2,4-Dimethylphenol	1	50.0	-	-	-	0.9 J	-	0.56 J	**2.6** J	**1.7** J	-	**1.6**	-	-	-	-
2-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	NV	NV	-	-	-	-	-	-	1.5 J	0.94	-	-	-	-	-	-
2-Nitroaniline	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol & 3-Methlyphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	20	NV	-	1.4 J	0.88 J	4.1 J	3.5 J	5	11	11	3.9 J	7.8	-	-	-	-
Acenaphthylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	NV	50.0	-	-	0.23 J	1.2 J	0.75 J	-	1.6 J	1.3	0.54 J	0.97	-	-	-	-
Benzaldehyde	NV	NV	-	-	-	0.87 JB	-	0.26 J	-	- J	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	-	2.0 J	0.38 J	0.53 J	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ND	NV	-	**1.6** J	-	**0.5** J	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	**0.43** J	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	NV	0.002	-	-	-	-	-	-	-	-						
Benzo(g,h,i)perylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-ethylhexyl)phthalate	5	NV	1.5 J	1.1 J	-	3.4 J	-	1.8 J	-	3.5 JB	-	-	-	-	-	-
Butyl benzyl phthalate	5	50.0	-	-	-	-	-	0.47 JB	-	-	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	-	-	-	140 DL	-	-	-	-	-	-	-	-
Carbazole	NV	NV	-	-	-	1.1 J*	0.88 J	1.2 J	2.8 J	2.7 J	1 J	2.5	-	-	-	-
Chrysene	NV	0.002	**1.1** J	**2.2** J	**0.42** J	**0.59** J	**0.42** J	**0.33** J	-	-	-	-	-	-	-	-
Dibenzofuran	NV	NV	-	-	-	-	-	0.51 J	0.72 J	0.73 J	-	0.55	-	-	-	-
Di-n-butyl phthalate	50	NV	-	-	-	-	0.48 JB	-	-	-	-	-	-	-	-	0.32 J B
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	NV	50.0	-	-	-	-				-	-	-	-	-	-	-
Fluoranthene	NV	50.0	1.1 J	2.6 J	0.47 J	1.7 J	0.96 J	1.4 J	1.6 J	1.3 J	0.72 J	0.89	-	-	0.43 J	-
Fluorene	NV	50.0	-	-	0.32 J	1.9 J	1.5 J	2.2 J	4.2 J	4.2 J	1.4 J	3.0	-	-	-	-
Indeno[1,2,3-cd]pyrene	NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	4.1 JB	-	-	1 J	-	-	-	-	-	-	-
Naphthalene	10	NV	-	1.5 J	0.54 J	1.3 J	2.4 JB	1.4 J	3.7 J	2.3 J	-	1.6	-	-	-	-
Nitrobenzene	0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	1.2 J	3.3 J	1 J	5.4	3.1 J	6.1	8.6	6.8	2.5 J	4.5	-	-	0.76 J	0.47 J
Phenol	1*	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	NV	50.0	1.9 J	4.4 J	0.74 J	2.9 J	1.7 J	2 J	2.2 J	1.9 J	0.96 J	1.3	-	0.43 J	0.38 J	-
Phenanthrene - DL	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
Vault Effluent Sample Results
Plant Monitoring Well Sample Results
Piezometer Sample Results

Footnotes:
- = Compound not detected above the Analytical Method Detection Limit
BOLD = Value exceed the groundwater quality standards.
BOLD = Value exceed the groundwater (GA) guidance values
** = The sum of all phenols
NV = No GW Quality Standard
ND = Non-Detect

Qualifications:
* = LCS or LCSD is outside acceptance limits
J = Analyte detected at a level less that Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations in this range are estimated.
B = Analyte detected in the method blank.
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = F2 MS/MSD RPD exceeds control limits

TABLE 3-2
SNPE-VANDEMARK SITE
HISTORICAL GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	130617007-005	130930005-004B	480-62067-3	480-71961-2	480-80722-2	480-90488-2	480-101786-2	480-109820-2	480-117975-2	480-127262-2	480-136146-2	480-154189-5	480-169674-2	480-184953-2
Sample Date			6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015	6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	5/29/2019	05/07/2020	5/19/2021
Sample ID			PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)																
1,1,1-Trichloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	NV	50.0	-	8.6 J	16 ^	6 J	9.1 J	4.9 J	5.4 J	-	-	4.1	5 J*	-	-	-
Benzene	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	60	NV	-	-	0.61 J	-	-	3.0	-	-	0.58 J	0.7	-	-	-	-
Carbon tetrachloride	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	7	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	5	NV	-	-	-	-	-	-	-	-	-	0.24	-	-	-	-
Isopropylbenzene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	5.0	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	2	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes, Total	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS (US EPA Method 8270C)																
Biphenyl	5	NV	-	-	-	-	-	-	-	-	-	0.69	-	-	-	-
2,4-Dimethylphenol	1	50.0	-	-	-	-	-	-	-	-	-	0.85	-	-	-	-
2-Methylphenol	1	NV	-	-	-	-	-	-	-	-	0.45 J H	0.44			-	-
2-Methylnaphthalene	NV	NV	-	-	0.79 J	1.3 J	1.9 J	2.0 J	0.72 J	-	-	4.6	3.8 J	4.8 J	5.90 J	4.10 J
2-Nitroaniline	5	NV	-	-	-	1.1 J	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	-	**2.6** J	-	**1.2** J	**1.5** J	**1.4** J	0.49 J	-	-	**3.3**	**3.3** J	**1.7** J	**2.0** J	0.95 J
4-Methylphenol & 3-Methlyphenol	1	NV	-	-	-	-	-	-	-	-	-	-	**1.7** J		-	-
Acenaphthene	20	NV	-	3.7 J	1.6 J	2.7 J	4.2 J	3.7 J	1.0 J	-	1.2 J	5.5	3.9 J	6.1	7.5 J	5.4
Acenaphthylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	NV	50.0	1.1 J	- J	-	-	0.32 J	0.38 J	-	-	-	-	-	-	-	-
Benzaldehyde	NV	NV	-	-	-	1.5 JB*	-	-	0.33 J	-	-	0.39	0.52 J	-	-	0.40 J
Benzo(a)anthracene	NV	NV	1.3 J	- J	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ND	NV	**1** J	- J	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	-	-	-	-	**0.44** JK	-	-	-	-	-	-
Benzo(k)fluoranthene	NV	0.002					-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NV	NV					-	-	-	-	-	-	-	-	-	-
Bis(2-ethylhexyl)phthalate	5	NV	1.2 J	- J	-	**6.3**	-	2.7 J	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	5	50.0	-	-	-	-	-	0.48 J B	-	-	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	-	-	-	280	3.9 J	-	-	-	-	6.5	-	-
Carbazole	NV	NV	-	-	-	-	0.62 J	0.48 J	-	-	0.39 J	1.2	0.63 J	0.99 J	-	0.63 J
Chrysene	NV	0.002	**1.4** J	- J	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	50	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-	1 J	-	-	0.77	-	-	-	-
Diethyl phthalate	NV	50.0	-	-	-	-	-	-	1 J	-	-	-	-	-	-	-
Fluoranthene	NV	50.0	1.6 J	- J	-	-	-	-	-	0.52 J	-	-	-	-	-	-
Fluorene	NV	50.0	-	-	0.34 J	0.64 J	1.1 J	0.76 J	-	-	-	1.2	0.94 J	1.20 J	-	1.00 J
Indeno[1,2,3-cd]pyrene	NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	10	NV	-	3.4 J	2.5	4.4 J	7 B	6.6 B	2.2 J	1.3 J	-	**15**	**12**	**16**	**19** J	**12**
Nitrobenzene	0.4	NV	-	-	-	**0.49** J	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	3.3 J	2.4 J	0.52 J	1.4 J	1.6 J	1.5 J	-	0.89 J	0.44 J	0.73	0.58 J	1 J	-	0.70 J
Phenol	1*	NV	-	**130**	**38**	**53**	**50**	**73**	**19**	-	**7.2**	-	**56**	**59**	**84**	**40**
Pyrene	NV	50.0	2.8 J	-	-	-	-	0.46 J	-	0.65 J	-	-	-	-	-	-
Phenanthrene - DL	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
Vault Effluent Sample Results
Plant Monitoring Well Sample Results
Piezometer Sample Results

Footnotes:
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BOLD = Value exceed the groundwater (GA) guidance values
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TABLE 3-2
SNPE-VANDEMARK SITE
HISTORICAL GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID		NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	130617007-006	130930005-005B	480-62067-5	480-62067-3	480-80722-3	480-90488-3	480-101786-3	480-109820-3	480-117975-3	480-127262-3	480-136146-3	480-136146-3	480-169674-3	480-184953-3	
Sample Date				6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015	6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	5/29/2019	05/07/2020	5/19/21 & 6/4/21	
Sample ID				PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Volatile Organics by GC/MS (US EPA Method 8260B)																		
1,1,1-Trichloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VOC sample results are from resampling event on 6/4/21, due to loss of original sample volume on 5/19/21
1,1-Dichloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,1-Dichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,2-Dichloroethane		0.6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2-Butanone		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acetone		NV	50.0	8.3 J, B	-	-	-	-	-	3.1 J	-	-	-	-	-	-	-	
Benzene		1	NV			-		-	-	-	-	-	-	-	-	-	-	
Carbon disulfide		60	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carbon tetrachloride		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chlorobenzene		6	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chloroethane		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chloroform		7	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
cis-1,2-Dichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ethylbenzene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Isopropylbenzene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Methylene Chloride		5.0	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Trichloroethene		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vinyl chloride		2	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Xylenes, Total		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Semivolatile Organics by GC/MS (US EPA Method 8270C)																		
Biphenyl		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SVOC results are from the 5/19/21 sampling event. VOCs were resampled on 6/4/21 due to loss of original sample volume.
2,4-Dimethylphenol		1	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2-Methylphenol		1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2-Methylnaphthalene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2-Nitroaniline		5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-Methylphenol		1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-Methylphenol & 3-Methlyphenol		1	NV	**5.9** J	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthene		20	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthylene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Anthracene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzaldehyde		NV	NV	-	-	-	0.89 JB*	-	-	-	-	-	-	-	-	-	-	
Benzo(a)anthracene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene		ND	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(b)fluoranthene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bis(2-ethylhexyl)phthalate		5	NV	-	-	**15** J	3.1 J	-	1.7 J	-	-	-	-	-	-	-	-	
Butyl benzyl phthalate		5	50.0	-	-	-	-	-	0.61 JB	-	-	-	-	-	-	-	-	
Caprolactam		NV	NV	-	-	-	-	-	110	-	-	-	-	-	-	-	-	
Carbazole		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenzofuran		NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Di-n-butyl phthalate		50	NV	-	-	-	0.31 J	-	-	-	-	-	-	-	-	-	0.57 J B	
Di-n-octyl phthalate		NV	50.0	-	-	-				1 J	-	-	0.77	-	-	-	-	
Diethyl phthalate		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno[1,2,3-cd]pyrene		NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Isophorone		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N-Nitrosodi-n-propylamine		NV	NV	-	-	-	4.2 JB	-	-	-	-	-	-	-	-	-	-	
Naphthalene		10	NV	4.3 J	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nitrobenzene		0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene		50	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenol		1*	NV	**260**	**1.4** J	-	0.61 J	-	-	-	-	-	-	0.49 J	-	-	-	
Pyrene		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene - DL		NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Key:
- Vault Effluent Sample Results
- Plant Monitoring Well Sample Results
- Piezometer Sample Results

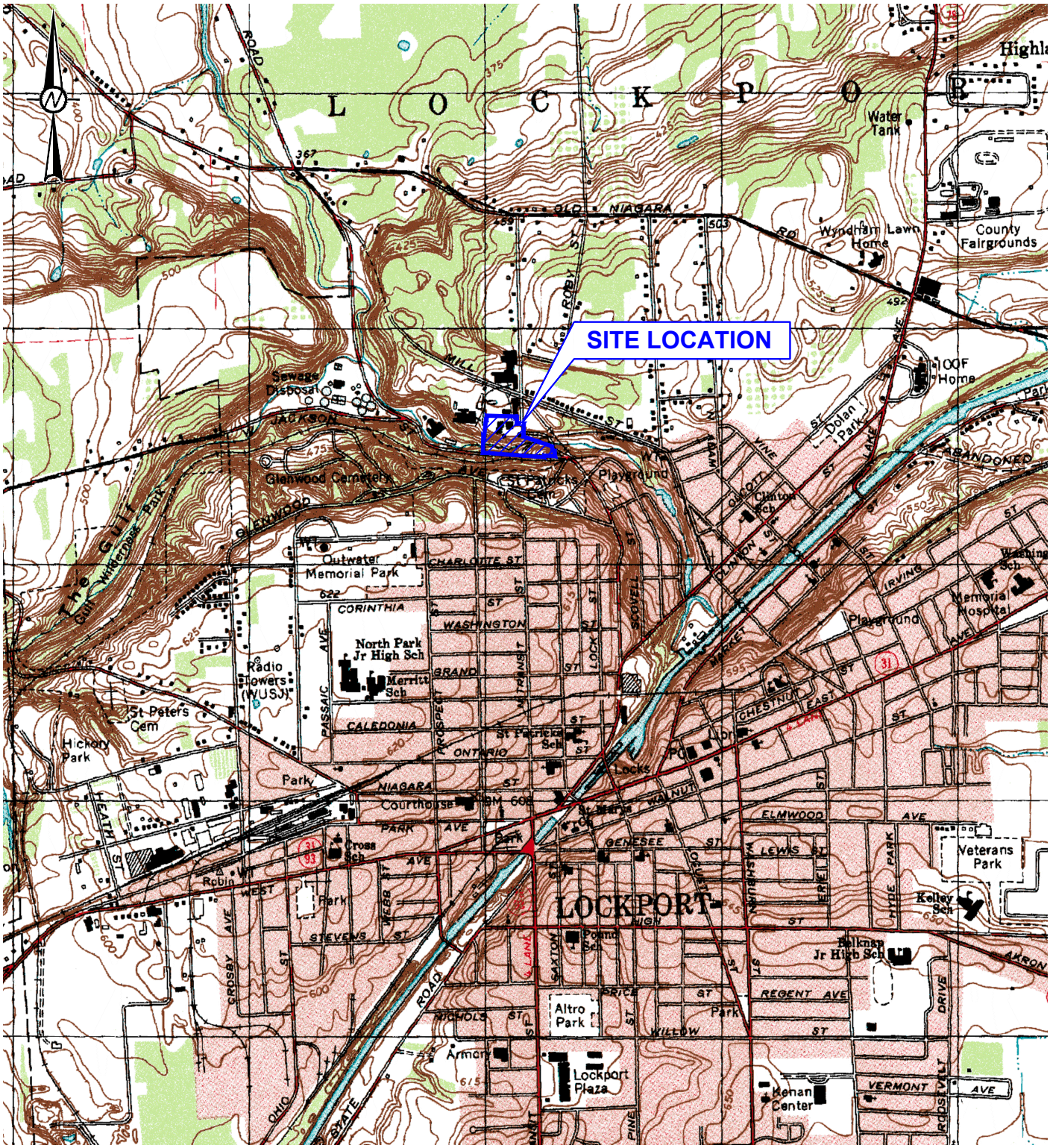
Footnotes:
- \- = Compound not detected above the Analytical Method Detection Limit
- **BOLD** = Value exceed the groundwater quality standards.
- **BOLD** = Value exceed the groundwater (GA) guidance values
- ** = The sum of all phenols
- NV = No GW Quality Standard
- ND = Non-Detect

Qualifications:
- * = LCS or LCSD is outside acceptance limits
- J = Analyte detected at a level less that Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations in this range are estimated.
- B = Analyte detected in the method blank.
- F1 = MS and/or MSD Recovery is outside acceptance limits.
- F2 = F2 MS/MSD RPD exceeds control limits

Table 3-3
SNPE-VANDMARK SITE
SUMMARY of CREEK BANK DNAPL REMOVALS
Lockport, NY

Inspection Event	Approximate Volume of Manually Collected DNAPL (Gallons)
2015	15
Fall 2016	25
Spring/Fall 2017	25
Spring/Fall 2018	25
Spring/Summer 2019	127.5
Fall 2020	15
Spring 2021	5
Fall 2021	10
Total DNAPL Recovered (Approx.)	**247.5**

FIGURES



NOTE(S)

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE OF LOCKPORT, NEW YORK DATED 1980.

CLIENT
SNPE - VANDEMARK

PROJECT
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

CONSULTANT
wsp

YYYY-MM-DD	2020-02-19
DESIGNED	PTM
PREPARED	MPB
REVIEWED	JMV
APPROVED	PTM

TITLE
SITE LOCATION MAP

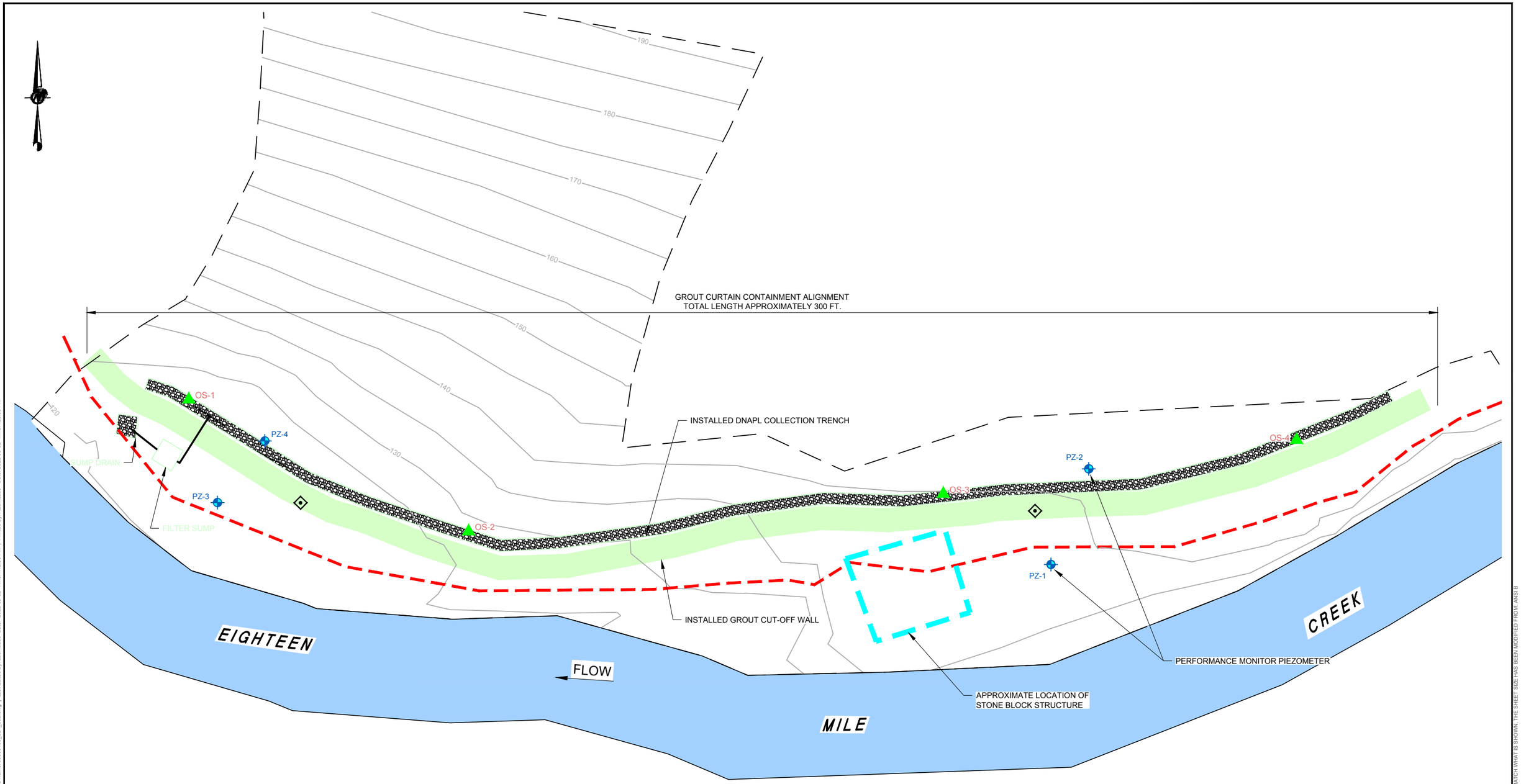
PROJECT NO.	PHASE	REV.	FIGURE
093-89168	024	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A

1 in

0

Last Edited By: mboisvert Date: 2020-02-17 Time:4:41:43 PM | Printed By: mboisvert Date: 2020-02-17 Time:5:09:02 PM
Path: \\manchester\SIMS\SNPE\VanDeMark\99_PROJ\09389168_VanDeMark_OandM\024\40_PROD\ | File Name: 093891168_024_001.dwg



0 10 20
1" = 20' FEET

LEGEND

- APPROXIMATE LOCATION OF EROSION CONTROL MEASURES (SILT FENCE, STRAW BALES, AND SAND BAGS). TO REMAIN IN PLACE UNTIL SPRING OF 2013
- PZ-1 — PERFORMANCE MONITORING PIEZOMETER
- OBSERVATION SUMPS
- IN-SITU GROUT WALL PERMEABILITY SAMPLE LOCATION
- FLOWABLE FILL AND CEMENT GROUT
- No. 2 WASHED STONE
- EIGHTEEN-MILE CREEK

REFERENCES

1.) TOPOGRAPHY SHOWN ON THIS PLAN WAS TAKEN FROM SURVEY FILE xve-vandemark base.dwg, DATED 06-21-2010.

2.) CORE LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE.

3.) MAP DIGITIZED FROM HARD COPY OF FIGURE 1 ENTITLED "SITE PLAN," PREPARED BY BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC.

4.) CONCRETE VAULT, PIEZOMETERS, GRAVEL COLLECTION TRENCH, OBSERVATION SUMPS, AND FRENCH DRAIN FROM 121205 FIELD DATA REVISED.XLSX, PREPARED BY WENDEL IN NOVEMBER 30, 2012.

CLIENT
SNPE - VANDEMARK

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-03-02
DESIGNED	PTM
PREPARED	MPB
REVIEWED	AML
APPROVED	PTM

PROJECT
CREEK BANK AREA CORRECTIVE MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE
CREEK BANK AREA SITE PLAN OPERATION & MAINTENANCE PLAN

PROJECT NO.	PHASE	REV.	FIGURE
093-89168	024	0	2

LEGEND

- FENCE
- SILT FENCE
- STRAW BALES
- SAND BAGS
- FLOWABLE FILL AND CEMENT GROUT
- No. 2 WASHED STONE
- OS-2 — 4-INCH DNAPL OBSERVATION SUMP (IN COLLECTION TRENCH)
- PZ-1 — 1-INCH PERFORMANCE MONITORING PIEZOMETER
- 1999 INVESTIGATION BEDROCK MONITORING WELL
- 2006 BEDROCK MONITORING WELL
- MONITORING WELL (UNKNOWN INSTALLATION DATE)
- EIGHTEEN-MILE CREEK

REFERENCES

1.) TOPOGRAPHY SHOWN ON THIS PLAN WAS TAKEN FROM SURVEY FILE xve-vandemark base.dwg, DATED 06-21-2010.

2.) BOREHOLE AND CORE LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE.

3.) MAP DIGITIZED FROM HARD COPY OF FIGURE 1 ENTITLED "SITE PLAN," PREPARED BY BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC.

4.) CONCRETE VAULT, PIEZOMETERS, GRAVEL COLLECTION TRENCH, OBSERVATION SUMPS, AND FRENCH DRAIN FROM 121205 FIELD DATA REVISED.XLSX, PREPARED BY WENDEL IN NOVEMBER 30, 2012.

0 20 40
1" = 40' FEET

CLIENT
SNPE - VANDEMARK

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-03-04
DESIGNED	PTM
PREPARED	MPB
REVIEWED	AML
APPROVED	PTM

PROJECT
CREEK BANK AREA CORRECTIVE MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE
OMP SITE PLAN -VDM PLANT & CREEK BANK AREA

PROJECT NO.	PHASE	REV.	FIGURE
093-89168	024	0	3

APPENDIX

A OPERATIONS AND MONITORING SUMMARY INSPECTION FORMS

OPERATIONS & MONITORING SUMMARY

SHEET 1 OF 2

PROJECT NUMBER: 21452243
PROJECT TITLE: Creek Bank Corrective Measures -Site No. 932149
OWNER: SNPE - VanDeMark Chemical
CONTRACTOR:
LOCATION: Lockport, New York
SUB CONTRACTOR(S):

DATE: 5/18/21

WEATHER: CLEAR
TEMPERATURE: LOW: 60 @ 8:30 HIGH 68 @ 10:30
CLOUD COVER
PRECIPITATION NONE
WIND LIGHT

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

1. Effluent Vault: WATER WAS CLEAR, NO SHEEN OR DNAPL OBSERVED, WATER LEVEL IN DISCHARGE CHAMBER WAS AT TOP OF OUTLET PIPE. SEDIMENT ACCUMULATION ON TOP OF SAND BEDDING WAS APPROX 1/2" THICK.

2: Observation Sumps:

OS-1: APPROX 48" WATER, APPROX 12-14" LIGHT BROWN SED. NO ODOR/NO SHEEN ON WATER.

OS-2: - DRY

OS-3: APPROX 15" WATER ; 5" OF BLACK SEDIMENT. NO ODOR OR SHEEN ON WATER

OS-4: - DRY

3. Upgradient Slope Observations:

NO OBSERVABLE DNAPL ACCUMULATIONS. HEAVY VEGETATIVE COVER WAS ALREADY PRESENT AND MADE VISUAL OBSERVATIONS DIFFICULT.

4: Downgradient Slope Observations:

RESIDUAL DNAPL ACCUMULATIONS WERE OBSERVED IN SAME GENERAL LOCATIONS AS NOTED IN 2020 ON SOUTH SIDE OF STONE STRUCTURE. NO SIGNIFICANT NEW ACCUMULATIONS WERE NOTED SINCE NOV. 2020 INSPECTION. WHERE FEASIBLE, W/ HAND TOOLS, RESIDUAL DNAPL WAS REMOVED FOR DISPOSAL. ONE (1) 5 GAL PAIL WAS COLLECTED. REMOVALS WERE PERFORMED AT SAME LOCATIONS THAT WERE ADDRESSED IN NOV. 2020.

GOLDER ACTIVITIES AND TEST RESULTS:

- MET W/ STEVE MOELLER (NYSDEC) AND JIM WARREN (VDM). THEY OBSERVED ~~SAMPLING~~ INSPECTION ACTIVITIES. JIM ASSISTED W/ DNAPL REMOVALS

- A TEST PIT WAS MANUALLY DUG INTO THE GRAVEL DNAPL COLLECTION TRENCH APPROX 20' EAST OF FILTER VAULT. THE TEST PIT WAS DUG TO AN APPROX. DEPTH OF 14" BELOW GRADE. GROUNDWATER ENCOUNTERED AT APPROX 8" BELOW GRADE SURFACE. NO SHEEN ON WATER, NO DNAPL OBSERVED.

GOLDER
MEMBER OF WSP

SUBMITTED BY:

Patrick J. Martin

Date: 5/18/21

GOLDER FORM: R4-0699
(Rev: May 2021)

OPERATIONS & MONITORING SUMMARY

SHEET 1 OF 2

PROJECT NUMBER: 21452243 | PROJECT TITLE: Creek Bank Corrective Measures -Site No. 932149
OWNER: SNPE - VanDeMark Chemical | CONTRACTOR:
LOCATION: Lockport, New York | SUB CONTRACTOR(S):

DATE: 11/23/21

WEATHER: CLOUD COVER: PARTLY CLOUDY | TEMPERATURE: LOW: 32 @ 0830 HIGH 38 @ 1030 | PRECIPITATION: INT. SNOW | WIND: LIGHT

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

1. Effluent Vault: WATER WAS CLEAR, NO SHEEN OR DNAPL OBSERVED, OVERFLOW IN DISCHARGE CHAMBER WAS OCCURING. SEDIMENT ACCUMULATION ON TOP OF SAND BED REMAINS UNCHANGED AT APPROX. 1/4" THICK

2: Observation Sumps:

OS-1: APPROX 52" WATER, CLEAR, NO SHEEN. 6-8" BROWN SEDIMENT AT BOTTOM

OS-2: DRY

OS-3: APPROX 16" WATER AND APPROX. 6" BLACK SEDIMENT, NO ODOR OR SHEEN

OS-4: DRY

3. Upgradient Slope Observations: NO OBSERVABLE DNAPL ACCUMULATIONS WERE NOTED. A SIGNIFICANT AMOUNT OF SOIL AND ROCK HAS SUBSIDED AT THE WEST END OF THE DNAPLE COLLECTION TRENCH, DUE TO A HEAVY RAIN EVENT IN LATE JULY.

4: Downgradient Slope Observations:
ADDITIONAL REMOVAL OF RESIDUAL DNAPL ACCUMULATIONS WERE PERFORMED WHERE FEASIBLE ON THE SOUTH SIDE OF THE STONE STRUCTURE. HAND TOOLS WERE USED TO REMOVE APPROX. 2 x 5 CAL PAILS OF RESIDUALS. REMOVAL WAS DISCONTINUED WHERE IT WOULD UNDERMINE THE SLOPE OR RESULT IN DEPOSITION OF RESIDUALS IN THE CREEK. OBSERVATION OF THESE AREAS WILL CONTINUE IN SPRING OF 2022 TO ASSESS ANY CHANGE IN AMOUNTS OR NEW SEEPS.

GOLDER ACTIVITIES AND TEST RESULTS:

- MET W/ STEVE MOELLER, NYSDEC & J. WRAZEN OF VDM. THEY OBSERVED INSPECTION ACTIVITIES, JIM ASSISTED WITH COAL TAR REMOVAL.
- A TEST PIT WAS MANUALLY DUG INTO THE GRAVEL DNAPL TRENCH 20 FT EAST OF FILTER VAULT. THE TEST PIT WAS DUG TO A DEPTH OF APPROX. 12" BELOW GRADE. NO DNAPL WAS ENCOUNTERED, STONE WAS CLEAN & GROUNDWATER DID NOT HAVE A SHEEN.

WSP

SUBMITTED BY:

Patrick J. Martin

Date: 11/23/21

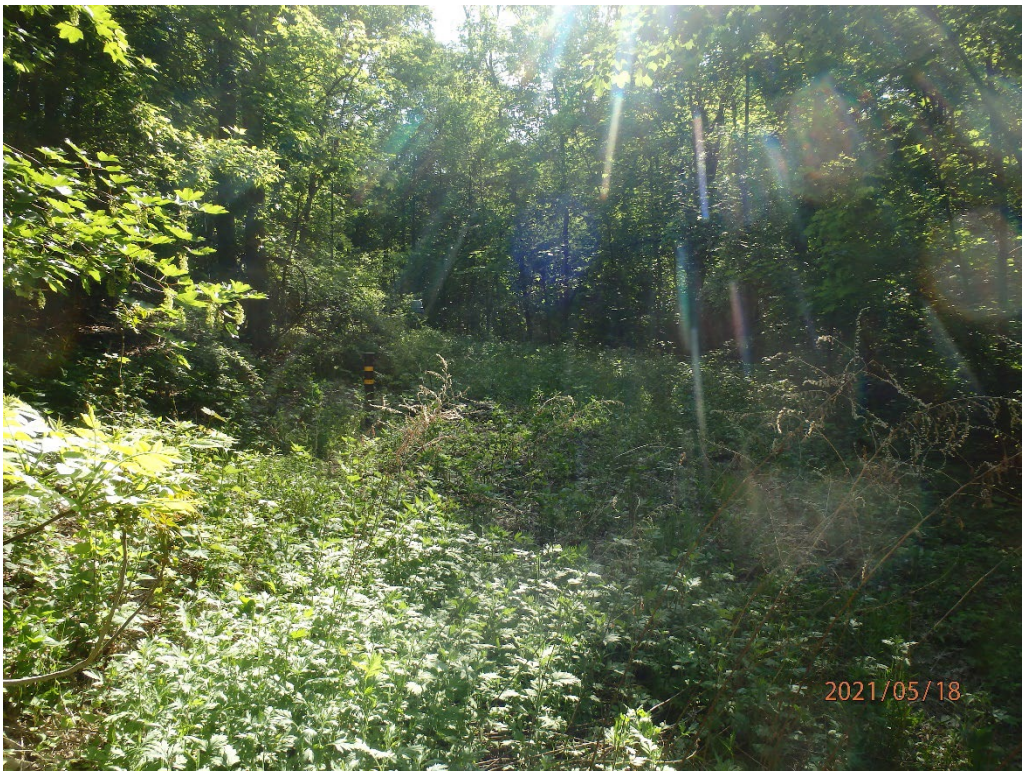
GOLDER FORM: R4-0699
(Rev. May 2021)

WSP USA Inc.

APPENDIX

B INSPECTION PHOTOGRAPHS

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 1: East end of DNAPL collection trench, facing east. (May 18, 2021)	
Photo 2: DNAPL collection trench from OS-2, looking east up slope. (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 3: East end of DNAPL collection trench, facing west. (May 18, 2021)	
Photo 4: Observation sump 2 (OS-2) (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 5: Toe of slope north of DNAPL collection trench, looking west of slope. (May 18, 2021)	
Photo 6: Toe of slope north of DNAPL collection trench, looking west of slope. (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 7: Creek Bank slope along upper creek bank area (May 18, 2021)	
Photo 8: Observation sump 1 (OS-1) (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 9: Interior of filter vault – top of sand filter bed. (May 18, 2021)	
Photo 10: Interior of filter vault. (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 11: Interior of filter vault . (May 18, 2021)	
Photo 12: Test pit in DNAPL collection trench, 20' east of filter vault. (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 13: Test pit in DNAPL collection trench, 20' east of filter vault. (May 18, 2021)	
Photo 14: Collected coal tar residuals (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 15: Area of creek bank slope were coal tar residuals were manually removed. (May 18, 2021)	
Photo 16: Area of creek bank slope were coal tar residuals were manually removed. (May 18, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 17: Area of creek bank slope were coal tar residuals were manually removed. (May 18, 2021)	
Photo 18: Looking west at east end of DNAPL collection trench (Nov. 23, 2021)	

Project Title: 2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit			
Photo 19: Looking west toward lower creek bank area. (Nov. 23, 2021)			
Photo 20: Edge of 18-Mile Creek near west toe of stone structure. (Nov. 23, 2021)			

Project Title: 2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit			
Photo 21: Lower creek bank area, ooking west. (Nov. 23, 2021)			
Photo 22: Edge of 18-Mile Creek near west end of site (south of Filter Sump). (Nov. 23, 2021)			

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 23: View of mini-landslide deposition area near OS-1. (Nov. 23, 2021)	
Photo 24: View of the area of main slope where mini landslide occurred. Looking north. (Nov. 23, 2021)	

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 25: Slope north of DNAPL accumulation trench (Nov. 23, 2021)	
Photo 26: OS-1 at west end of DNAPL Accumulation trench. (Nov. 23, 2021)	

Project Title: 2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit			
Photo 27: OS-1 at west end of DNAPL Accumulation trench. Landslide debris accumulation in background. (Nov. 23, 2021)			
Photo 28: Interior of filter vault, sand filter bed, and overflow in discharge chanber. (Nov. 23, 2021)			

Project Title: 2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit			
Photo 29: Interior of filter vault. Sand filter to the left and overflow chamber on the right. (Nov. 23, 2021)			
Photo 30: Test pit in DNAPL collection trench, 20' east of filter vault. (Nov. 23, 2021)			

Project Title: 2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit			
Photo 31: Test pit in DNAPL collection trench, 20' east of filter vault. (Nov. 23, 2021)			
Photo 32: DNAPL Collection trench area, looking east toward upper creek bank area. (Nov. 23, 2021)			

Project Title: **2021 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit**

Photo 33: Primary area of manual coal tar residuals manual removal on east side of buried stone structure. (Nov. 23, 2021)	
Photo 34: Secondary area of manual coal tar residuals manual removal on east side of buried stone structure. (Nov. 23, 2021)	

APPENDIX

C SAMPLE COLLECTION INFORMATION LOGS

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **PZ-1** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):		**TIME (24 HR CLOCK):**		**ELAPSED HRS:**	
CASING VOL.(Gal.):		**GAL. PURGED (Gal.):**			
PURGING DEVICE (SEE BELOW):		**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):		**TIME (24 HR CLOCK):**		**MATRIX:**	
SAMPLING DEVICE (SEE BELOW):		**DEDICATED:**		**FILTERED:**	
SAMPLING DEVICE MATERIAL:		**SAMPLE TYPE:**			

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	**LAND ELEVATION (FT./MSL):**	140.50
REF. PT. ELEV.(FT. MSL):	143.14	**WELL DEPTH (FT.):**	10.60'
DEPTH TO WATER (REF. PT.):		**STICKUP (FT.):**	2.64
GW. ELEV.(FT. MSL.):		**WELL DIAMETER (INCHES):**	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **77°F, sunny, calm**

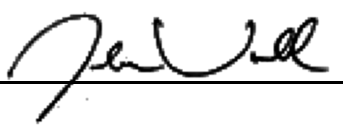
SAMPLE APPEARANCE:

1" DIA. CASING CONTAINS .041 Gal./Ft.
2" DIA. CASING CONTAINS .163 Gal./Ft.
4" DIA. CASING CONTAINS .652 Gal./Ft.

1" full bailer = 0.053 GAL **well was dry 5/19/21 - unable to sample**

PZ-1 IS TYPICALLY DRY

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE  DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **PZ-2** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1010	**ELAPSED HRS:**	0.25
CASING VOL.(Gal.):	0.19	**GAL. PURGED (Gal.):**	0.60		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1024	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	**LAND ELEVATION (FT./MSL):**	142.20
REF. PT. ELEV.(FT. MSL):	145.31	**WELL DEPTH (FT.):**	11.02
DEPTH TO WATER (REF. PT.):	6.33	**STICKUP (FT.):**	3.11
GW. ELEV.(FT. MSL.):	138.98	**WELL DIAMETER (INCHES):**	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	5.81
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	5264
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	14.40
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	3.29

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **78°F, sunny, calm**

SAMPLE APPEARANCE: **clear, aqueous, no odor**

1" DIA. CASING CONTAINS .041 Gal./Ft.

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft. 11.02 - 6.33 = 4.69 X 0.041 = 0.19 gal x 3 = 0.57 gal

1" full bailer = 0.053 GAL

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **PZ-3** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1050	**ELAPSED HRS:**	0.25
CASING VOL.(Gal.):	0.18	**GAL. PURGED (Gal.):**	0.60		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1105	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	**LAND ELEVATION (FT./MSL):**	122.70
REF. PT. ELEV.(FT. MSL):	124.82	**WELL DEPTH (FT.):**	9.12
DEPTH TO WATER (REF. PT.):	4.63	**STICKUP (FT.):**	2.12
GW. ELEV.(FT. MSL.):	120.19	**WELL DIAMETER (INCHES):**	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.78
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	409
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	16.10
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	2.37

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **78°F, sunny, calm**

SAMPLE APPEARANCE: **clear, aqueous, no odor**

1" DIA. CASING CONTAINS .041 Gal./Ft.

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft. 9.12 - 4.63 = 4.49 x 0.041 = 0.18 gal x 3 = 0.55 gal

1" full bailer = 0.053 GAL

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **PZ-4** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1106	**ELAPSED HRS:**	0.15
CASING VOL.(Gal.):	0.28	**GAL. PURGED (Gal.):**	0.60		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1115	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	**LAND ELEVATION (FT./MSL):**	123.90
REF. PT. ELEV.(FT. MSL):	126.11	**WELL DEPTH (FT.):**	10.33
DEPTH TO WATER (REF. PT.):	3.48	**STICKUP (FT.):**	2.21
GW. ELEV.(FT. MSL.):	122.63	**WELL DIAMETER (INCHES):**	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.49
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	4266
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	13.50
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	2.78

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **78°F, sunny, calm**

SAMPLE APPEARANCE: **clear, aqueous, no odor**

1" DIA. CASING CONTAINS .041 Gal./Ft.

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft. 10.33 - 3.48 = 6.85 x 0.041 = 0.28 gal x 3 = 0.84 gal

1" full bailer = 0.053 GAL

Lab unable to analyze VOA Vials due to insufficient volume, resampled in June 2021.

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **PZ-4** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL,** ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-06-04	**TIME (24 HR CLOCK):**	1448	**ELAPSED HRS:**	0.25
CASING VOL.(Gal.):	0.28	**GAL. PURGED (Gal.):**	0.85		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-06-04	**TIME (24 HR CLOCK):**	1503	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	**LAND ELEVATION (FT./MSL):**	123.90
REF. PT. ELEV.(FT. MSL):	126.11	**WELL DEPTH (FT.):**	10.33
DEPTH TO WATER (REF. PT.):	3.58	**STICKUP (FT.):**	2.21
GW. ELEV.(FT. MSL.):	122.53	**WELL DIAMETER (INCHES):**	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.95
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	1852
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	14.30
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	2.90

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **79°F, partly cloudy, breezy**

SAMPLE APPEARANCE: **clear, aqueous, no odor**

1" DIA. CASING CONTAINS .041 Gal./Ft.

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft. 10.33 - 3.58 = 6.75 x 0.041 = 0.28 gal x 3 = 0.83 gal

1" full bailer = 0.053 GAL

WELL WAS RESAMPLED FOR VOCs DUE TO LOSS OF SAMPLE VOLUME FROM 5/19/21 SAMPLING EVENT

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE  DATE **6/4/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **FILTER VAULT EFFLUENT** **SOURCE CODES:** OTHER- FILTER VAULT

PURGING INFORMATION (IF APPLICABLE)

~~PURGE DATE (yy/mm/dd):~~		~~TIME (24 HR CLOCK):~~		~~ELAPSED HRS:~~	
~~CASING VOL.(Gal.):~~		~~GAL. PURGED (Gal.):~~			
~~PURGING DEVICE (SEE BELOW):~~		~~PURGING DEVICE MATERIAL:~~		~~DEDICATED:~~	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1125	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	DIPPED BOTTLE	**DEDICATED:**	YES	**FILTERED:**	YES (vault)
SAMPLING DEVICE MATERIAL:	AMBER GLASS (unpreserved)	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

~~REFERENCE POINT:~~	non surveyed	~~LAND ELEVATION (FT./MSL):~~	
~~REF. PT. ELEV.(FT. MSL):~~		~~WELL DEPTH (FT.):~~	
~~DEPTH TO WATER (REF. PT.):~~		~~STICKUP (FT.):~~	
~~GW. ELEV.(FT. MSL.):~~		~~WELL DIAMETER (INCHES):~~	

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.68
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	4094
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	11.40
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	5.00

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **82°F, sunny, calm**

SAMPLE APPEARANCE: **clear, aqueous, no odor**

1" DIA. CASING CONTAINS .041 Gal./Ft.
2" DIA. CASING CONTAINS .163 Gal./Ft.
4" DIA. CASING CONTAINS .652 Gal./Ft.

1" full bailer = 0.053 GAL

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **MW-3D** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1540	**ELAPSED HRS:**	0.50
CASING VOL.(Gal.):	0.78	**GAL. PURGED (Gal.):**	2.0 gallons (to dry)		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1556	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	***LAND ELEVATION (FT./MSL):**	195.00
***REF. PT. ELEV.(FT. MSL):**	195.00	**WELL DEPTH (FT.):**	25.98
DEPTH TO WATER (REF. PT.):	21.21	**STICKUP (FT.):**	0.00
GW. ELEV.(FT. MSL.):	173.79	**WELL DIAMETER (INCHES):**	2.00

* Approximate grade elevation for In-plant monitoring wells based on 2010 Wendel Survey to top of escarpment

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.70
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	6548
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	17.30
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	5.25

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **82°F, sunny, calm**

SAMPLE APPEARANCE: **turbid-brown, aqueous**

1" DIA. CASING CONTAINS .041 Gal./Ft.

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft. 25.98 - 21.21 = 4.77' x 0.163 = 0.78 gal x 3 = 2.34 gal per 3 casings

BLIND DUPLICATE COLLECTED HERE

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **MW-7D** **SOURCE CODES:** ~~RIVER OR STREAM~~, **WELL**, ~~SOIL, OTHER (CIRCLE ONE)~~

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1435	**ELAPSED HRS:**	0.75
CASING VOL.(Gal.):	2.44	**GAL. PURGED (Gal.):**	7.50		
PURGING DEVICE (SEE BELOW):	BAILER	**PURGING DEVICE MATERIAL:**	HD Polyethylene	**DEDICATED:**	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1519	**MATRIX:**	GW
SAMPLING DEVICE (SEE BELOW):	SAME AS ABOVE	**DEDICATED:**	YES	**FILTERED:**	NO
SAMPLING DEVICE MATERIAL:	SAME AS ABOVE	**SAMPLE TYPE:**	GRAB		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	***LAND ELEVATION (FT./MSL):**	201.00
***REF. PT. ELEV.(FT. MSL):**	201.00	**WELL DEPTH (FT.):**	45.85
DEPTH TO WATER (REF. PT.):	30.91	**STICKUP (FT.):**	0.00
GW. ELEV.(FT. MSL.):	170.09	**WELL DIAMETER (INCHES):**	2.00

* Approximate grade elevation for In-plant monitoring wells based on 2010 Wendel Survey to top of escarpment

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	6.85
SPEC. COND.(uS)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	2362
TEMPERATURE (C)	___ ___ . ___ ___	___ ___ . ___ ___	___ ___ . ___ ___	19.40
DISSOLVED O (mg/L)	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___	2.25

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: **82°F, sunny, calm**

SAMPLE APPEARANCE: **Brownish-gray tint, greasy, oil-diesel odor. More sheen than typically observed.**

1" DIA. CASING CONTAINS .041 Gal./Ft.
2" DIA. CASING CONTAINS .163 Gal./Ft.
4" DIA. CASING CONTAINS .652 Gal./Ft. 45.85 - 30.91 = 14.94 x 0.163 = 2.44 gal x 3 = 7.3 gallons

MS and MSD sampled at: MW-7D

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME SNPE/VDM Annual Sampling **GAI PROJECT NO.** 093 - 89168

WELL ID. **BLIND DUPLICATE @ MW-3D** **SOURCE CODES:** RIVER OR STREAM, WELL, SOIL, OTHER (CIRCLE ONE)

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd):		**TIME (24 HR CLOCK):**		**ELAPSED HRS:**	
CASING VOL.(Gal.):		**GAL. PURGED (Gal.):**			
PURGING DEVICE (SEE BELOW):		**PURGING DEVICE MATERIAL:**		**DEDICATED:**	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	2021-05-19	**TIME (24 HR CLOCK):**	1556	**MATRIX:**	
SAMPLING DEVICE (SEE BELOW):		**DEDICATED:**	YES / NO	**FILTERED:**	YES / NO
SAMPLING DEVICE MATERIAL:		**SAMPLE TYPE:**	GRAB/COMPOSITE (CIRCLE ONE)		

(A) AIR-LIFT PUMP (B) BLADDER PUMP (C) PERISTALTIC PUMP (D) SCOOP/SHOVEL (E) BAILER (F) OTHER (SPECIFY)

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:		**LAND ELEVATION (FT./MSL):**	
REF. PT. ELEV.(FT. MSL):		**WELL DEPTH (FT.):**	
DEPTH TO WATER (REF. PT.):		**STICKUP (FT.):**	
GW. ELEV.(FT. MSL.):		**WELL DIAMETER (INCHES):**	

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	__ __ . __ __	__ __ . __ __	__ __ . __ __	__ __ . __ __
SPEC. COND.(uS)	__ __ __ __	__ __ __ __	__ __ __ __	__ __ __ __
TEMPERATURE (C)	__ __ . __ __	__ __ . __ __	__ __ . __ __	__ __ . __ __
DISSOLVED O (mg/L)	__ __ __ __	__ __ __ __	__ __ __ __	__ __ __ __

COMMENTS/CALCULATIONS

WEATHER CONDITIONS:

SAMPLE APPEARANCE: **DUP COLLECTED AT MW-3D.**

1" DIA. CASING CONTAINS .041 Gal./Ft. **SEE MW-3D FIELD FORM FOR FURTHER DETIALS**

2" DIA. CASING CONTAINS .163 Gal./Ft.

4" DIA. CASING CONTAINS .652 Gal./Ft.

1" full bailer = 0.053 GAL

PLEASE INCLUDE SAMPLE BOTTLE SIZE, BOTTLE COLOR, BOTTLE MATERIAL, PRESERVATIVES AND ANALYTICAL METHODS ON LABORATORY CUSTODY FORMS.

SAMPLER SIGNATURE DATE **5/19/2021**

APPENDIX

D ANALYTICAL DATA

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-184953-1
Client Project/Site: Vandemark Chemical site

For:
Golder Associates Inc.
455 Commerce Dr.
Suite 8
Buffalo, New York 14228

Attn: Mr. Patrick Martin

Authorized for release by:
5/28/2021 11:51:37 AM
Rebecca Jones, Project Management Assistant I
Rebecca.Jones@Eurofinset.com

Designee for

Brian Fischer, Manager of Project Management
(716)504-9835
Brian.Fischer@Eurofinset.com

Table of Contents

Client: Golder Associates Inc.
Job ID: 480-184953-1
Project/Site: Vandemark Chemical site

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

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

Job ID: 480-184953-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-184953-1

Comments
No additional comments.

Receipt
The samples were received on 5/19/2021 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.4º C.

Receipt Exceptions

All VOAs for sample point "PZ-4" were recieved empty. 8260 analysis was cancel sample point: PZ-4 (480-184953-3).

GC/MS VOA
Method 8260C: The following samples were diluted due to the abundance of non-target analytes: MW-7D (480-184953-5), MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Elevated reporting limits (RLs) are provided.

Method 8260C: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: Blind Dup (480-184953-6) and MW-3D (480-184953-7). Elevated reporting limits (RLs) are provided.

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

GC/MS Semi VOA
Method 8270D: The continuing calibration verification (CCV) associated with batch 480-582389 recovered above the upper control limit for Atrazine, 4-Nitrophenol and Hexachlorobutadiene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: PZ-2 (480-184953-1), PZ-3 (480-184953-2), PZ-4 (480-184953-3), Filter Vault Eff (480-184953-4), MW-7D (480-184953-5) and Blind Dup (480-184953-6).

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-582389 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method 8270D: The following samples were diluted due to the nature of the sample matrix: MW-7D (480-184953-5), MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Elevated reporting limits (RLs) are provided.

Method 8270D: The following samples required a dilution due to the nature of the sample matrix: MW-7D (480-184953-5), MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8270D: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: PZ-2 (480-184953-1), PZ-3 (480-184953-2), MW-7D (480-184953-5[MS]) and Blind Dup (480-184953-6). These results have been reported and qualified.

Method 8270D: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 480-582098 and analytical batch 480-582389 recovered outside control limits for the following surrogate: 2,4,6-Tribromophenol. This surrogate is biased high and no detections were found for associated analytes in the following affected samples: PZ-2 (480-184953-1), PZ-3 (480-184953-2), PZ-4 (480-184953-3), Filter Vault Eff (480-184953-4), MW-7D (480-184953-5) and Blind Dup (480-184953-6). Therefore, the data has been reported. PZ-2 (480-184953-1), PZ-3 (480-184953-2), PZ-4 (480-184953-3), Filter Vault Eff (480-184953-4), MW-7D (480-184953-5) and Blind Dup (480-184953-6)

Method 8270D: The following samples were diluted due to the nature of the sample matrix: MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Because of this dilution, the surrogate spike and matrix spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Job ID: 480-184953-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method 8270D: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7D (480-184953-5), MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Elevated reporting limits (RLs) are provided.

Method 8270D: The following samples required a dilution due to the abundance of target analytes: MW-7D (480-184953-5), MW-7D (480-184953-5[MS]) and MW-7D (480-184953-5[MSD]). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8270D: The continuing calibration verification (CCV) analyzed in batch 480-582565 was outside the method criteria for the following analyte(s): Phenol-d5 (Surr) and 2,4,6-Tribromophenol. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8270D: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 480-582098 and analytical batch 480-582565 was outside control limits. Sample matrix interference and/or non-homogeneity is suspected.

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-582565 recovered above the upper control limit for multiple analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: MW-3D (480-184953-7).

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-582565 recovered outside acceptance criteria, low biased, for multiple analytes. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

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

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

Detection Summary

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-2 — Lab Sample ID: 480-184953-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.93	J	1.0	0.34	ug/L	1		8260C	Total/NA
Di-n-butyl phthalate	0.32	J B	5.0	0.31	ug/L	1		8270D	Total/NA
Phenanthrene	0.47	J	5.0	0.44	ug/L	1		8270D	Total/NA

Client Sample ID: PZ-3 — Lab Sample ID: 480-184953-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	4.1	J	5.0	0.60	ug/L	1		8270D	Total/NA
4-Methylphenol	0.95	J	10	0.36	ug/L	1		8270D	Total/NA
Acenaphthene	5.4		5.0	0.41	ug/L	1		8270D	Total/NA
Benzaldehyde	0.40	J	5.0	0.27	ug/L	1		8270D	Total/NA
Carbazole	0.63	J	5.0	0.30	ug/L	1		8270D	Total/NA
Fluorene	1.0	J	5.0	0.36	ug/L	1		8270D	Total/NA
Naphthalene	12		5.0	0.76	ug/L	1		8270D	Total/NA
Phenanthrene	0.70	J	5.0	0.44	ug/L	1		8270D	Total/NA
Phenol	40		5.0	0.39	ug/L	1		8270D	Total/NA

Client Sample ID: PZ-4 — Lab Sample ID: 480-184953-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Di-n-butyl phthalate	0.57	J B	5.0	0.31	ug/L	1		8270D	Total/NA

Client Sample ID: Filter Vault Eff — Lab Sample ID: 480-184953-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	8.2		1.0	0.34	ug/L	1		8260C	Total/NA
Di-n-butyl phthalate	0.35	J B	5.0	0.31	ug/L	1		8270D	Total/NA

Client Sample ID: MW-7D — Lab Sample ID: 480-184953-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	8.9		2.0	0.76	ug/L	2		8260C	Total/NA
1,1-Dichloroethene	4.9		2.0	0.58	ug/L	2		8260C	Total/NA
1,2-Dichloroethane	1.4	J	2.0	0.42	ug/L	2		8260C	Total/NA
Chloroethane	19		2.0	0.64	ug/L	2		8260C	Total/NA
Ethylbenzene	8.0		2.0	1.5	ug/L	2		8260C	Total/NA
Isopropylbenzene	3.6		2.0	1.6	ug/L	2		8260C	Total/NA
Methylene Chloride	0.93	J	2.0	0.88	ug/L	2		8260C	Total/NA
Vinyl chloride	7.2		2.0	1.8	ug/L	2		8260C	Total/NA
Xylenes, Total	8.4		4.0	1.3	ug/L	2		8260C	Total/NA
Biphenyl	1000	F2	100	13	ug/L	20		8270D	Total/NA
Acenaphthylene	41	J F2 F1	100	7.6	ug/L	20		8270D	Total/NA
Anthracene	460	F2	100	5.6	ug/L	20		8270D	Total/NA
Benzo[a]anthracene	250	F2	100	7.2	ug/L	20		8270D	Total/NA
Benzo[a]pyrene	59	J F2 F1	100	9.4	ug/L	20		8270D	Total/NA
Benzo[b]fluoranthene	100	F2 F1	100	6.8	ug/L	20		8270D	Total/NA
Benzo[g,h,i]perylene	16	J F2	100	7.0	ug/L	20		8270D	Total/NA
Benzo[k]fluoranthene	27	J F2 F1	100	15	ug/L	20		8270D	Total/NA
Carbazole	62	J F2 F1	100	6.0	ug/L	20		8270D	Total/NA
Chrysene	210	F2	100	6.6	ug/L	20		8270D	Total/NA
Indeno[1,2,3-cd]pyrene	16	J F2	100	9.4	ug/L	20		8270D	Total/NA
2-Methylnaphthalene - DL	1600	F2	1000	120	ug/L	200		8270D	Total/NA
Acenaphthene - DL	3300	F2	1000	82	ug/L	200		8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-7D (Continued)
Lab Sample ID: 480-184953-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibenzofuran - DL	3200	F2	2000	100	ug/L	200		8270D	Total/NA
Fluoranthene - DL	2400	F2	1000	80	ug/L	200		8270D	Total/NA
Fluorene - DL	2800	F2	1000	72	ug/L	200		8270D	Total/NA
Naphthalene - DL	1800	F2	1000	150	ug/L	200		8270D	Total/NA
Phenanthrene - DL	7100	F2	1000	88	ug/L	200		8270D	Total/NA
Pyrene - DL	1600	F2	1000	68	ug/L	200		8270D	Total/NA

Client Sample ID: Blind Dup
Lab Sample ID: 480-184953-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	1.5	J	2.0	1.5	ug/L	2		8260C	Total/NA
Bis(2-ethylhexyl) phthalate	2.5	J	5.0	2.2	ug/L	1		8270D	Total/NA
Di-n-butyl phthalate	4.5	J B	5.0	0.31	ug/L	1		8270D	Total/NA
Diethyl phthalate	0.31	J	5.0	0.22	ug/L	1		8270D	Total/NA
Phenanthrene	0.49	J	5.0	0.44	ug/L	1		8270D	Total/NA

Client Sample ID: MW-3D
Lab Sample ID: 480-184953-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	12		2.0	1.5	ug/L	2		8260C	Total/NA
Bis(2-ethylhexyl) phthalate	2.2	J	5.0	2.2	ug/L	1		8270D	Total/NA
Di-n-butyl phthalate	3.7	J B	5.0	0.31	ug/L	1		8270D	Total/NA
Diethyl phthalate	0.29	J	5.0	0.22	ug/L	1		8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-2
Date Collected: 05/19/21 10:24
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/21/21 04:24	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/21/21 04:24	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/21/21 04:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/21/21 04:24	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/21/21 04:24	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/21/21 04:24	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/21/21 04:24	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/21/21 04:24	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/21/21 04:24	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/21/21 04:24	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/21/21 04:24	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/21/21 04:24	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/21/21 04:24	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/21/21 04:24	1
2-Hexanone	ND		5.0	1.2	ug/L			05/21/21 04:24	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/21/21 04:24	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/21/21 04:24	1
Acetone	ND		10	3.0	ug/L			05/21/21 04:24	1
Benzene	ND		1.0	0.41	ug/L			05/21/21 04:24	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/21/21 04:24	1
Bromoform	ND		1.0	0.26	ug/L			05/21/21 04:24	1
Bromomethane	ND		1.0	0.69	ug/L			05/21/21 04:24	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/21/21 04:24	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/21/21 04:24	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/21/21 04:24	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/21/21 04:24	1
Chloroethane	ND		1.0	0.32	ug/L			05/21/21 04:24	1
Chloroform	**0.93**	**J**	1.0	0.34	ug/L			05/21/21 04:24	1
Chloromethane	ND		1.0	0.35	ug/L			05/21/21 04:24	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/21 04:24	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/21/21 04:24	1
Cyclohexane	ND		1.0	0.18	ug/L			05/21/21 04:24	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/21/21 04:24	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/21/21 04:24	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/21/21 04:24	1
Methyl acetate	ND		2.5	1.3	ug/L			05/21/21 04:24	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/21/21 04:24	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/21/21 04:24	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/21/21 04:24	1
Styrene	ND		1.0	0.73	ug/L			05/21/21 04:24	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/21 04:24	1
Toluene	ND		1.0	0.51	ug/L			05/21/21 04:24	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/21 04:24	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/21/21 04:24	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/21 04:24	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/21/21 04:24	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/21 04:24	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/21/21 04:24	1

Client Sample ID: PZ-2
Date Collected: 05/19/21 10:24
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-1
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*77 - 120*		*05/21/21 04:24*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*05/21/21 04:24*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*05/21/21 04:24*	*1*
Dibromofluoromethane (Surr)	*113*		*75 - 123*		*05/21/21 04:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 01:54	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 01:54	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 01:54	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 01:54	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 01:54	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 01:54	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 01:54	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 01:54	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 01:54	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 01:54	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 01:54	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 01:54	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 01:54	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 01:54	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 01:54	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 01:54	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 01:54	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 01:54	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 01:54	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/25/21 01:54	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 01:54	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-2
Date Collected: 05/19/21 10:24
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 01:54	1
Di-n-butyl phthalate	**0.32**	**J B**	5.0	0.31	ug/L		05/21/21 15:12	05/25/21 01:54	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 01:54	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 01:54	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/21/21 15:12	05/25/21 01:54	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 01:54	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 01:54	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 01:54	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 01:54	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 01:54	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 01:54	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 01:54	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 01:54	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 01:54	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 01:54	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 01:54	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 01:54	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 01:54	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 01:54	1
Phenanthrene	**0.47**	**J**	5.0	0.44	ug/L		05/21/21 15:12	05/25/21 01:54	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 01:54	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 01:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*84*		*46 - 120*	*05/21/21 15:12*	*05/25/21 01:54*	*1*
Phenol-d5 (Surr)	*41*		*22 - 120*	*05/21/21 15:12*	*05/25/21 01:54*	*1*
p-Terphenyl-d14 (Surr)	*85*		*60 - 148*	*05/21/21 15:12*	*05/25/21 01:54*	*1*
2,4,6-Tribromophenol (Surr)	*121*	*S1+*	*41 - 120*	*05/21/21 15:12*	*05/25/21 01:54*	*1*
2-Fluorobiphenyl	*99*		*48 - 120*	*05/21/21 15:12*	*05/25/21 01:54*	*1*
2-Fluorophenol (Surr)	*65*		*35 - 120*	*05/21/21 15:12*	*05/25/21 01:54*	*1*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-3
Date Collected: 05/19/21 11:05
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/21/21 04:47	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/21/21 04:47	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/21/21 04:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/21/21 04:47	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/21/21 04:47	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/21/21 04:47	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/21/21 04:47	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/21/21 04:47	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/21/21 04:47	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/21/21 04:47	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/21/21 04:47	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/21/21 04:47	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/21/21 04:47	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/21/21 04:47	1
2-Hexanone	ND		5.0	1.2	ug/L			05/21/21 04:47	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/21/21 04:47	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/21/21 04:47	1
Acetone	ND		10	3.0	ug/L			05/21/21 04:47	1
Benzene	ND		1.0	0.41	ug/L			05/21/21 04:47	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/21/21 04:47	1
Bromoform	ND		1.0	0.26	ug/L			05/21/21 04:47	1
Bromomethane	ND		1.0	0.69	ug/L			05/21/21 04:47	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/21/21 04:47	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/21/21 04:47	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/21/21 04:47	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/21/21 04:47	1
Chloroethane	ND		1.0	0.32	ug/L			05/21/21 04:47	1
Chloroform	ND		1.0	0.34	ug/L			05/21/21 04:47	1
Chloromethane	ND		1.0	0.35	ug/L			05/21/21 04:47	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/21 04:47	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/21/21 04:47	1
Cyclohexane	ND		1.0	0.18	ug/L			05/21/21 04:47	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/21/21 04:47	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/21/21 04:47	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/21/21 04:47	1
Methyl acetate	ND		2.5	1.3	ug/L			05/21/21 04:47	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/21/21 04:47	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/21/21 04:47	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/21/21 04:47	1
Styrene	ND		1.0	0.73	ug/L			05/21/21 04:47	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/21 04:47	1
Toluene	ND		1.0	0.51	ug/L			05/21/21 04:47	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/21 04:47	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/21/21 04:47	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/21 04:47	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/21/21 04:47	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/21 04:47	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/21/21 04:47	1

Client Sample ID: PZ-3
Date Collected: 05/19/21 11:05
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-2
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*05/21/21 04:47*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/21/21 04:47*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*05/21/21 04:47*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 123*		*05/21/21 04:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 02:20	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:20	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Methylnaphthalene	**4.1**	**J**	5.0	0.60	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 02:20	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 02:20	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:20	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 02:20	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Methylphenol	**0.95**	**J**	10	0.36	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 02:20	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 02:20	1
Acenaphthene	**5.4**		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 02:20	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 02:20	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 02:20	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 02:20	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzaldehyde	**0.40**	**J**	5.0	0.27	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:20	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 02:20	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:20	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:20	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 02:20	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 02:20	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 02:20	1
Carbazole	**0.63**	**J**	5.0	0.30	ug/L		05/21/21 15:12	05/25/21 02:20	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 02:20	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-3
Date Collected: 05/19/21 11:05
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 02:20	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/21/21 15:12	05/25/21 02:20	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:20	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 02:20	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/21/21 15:12	05/25/21 02:20	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:20	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:20	1
Fluorene	**1.0**	**J**	5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:20	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:20	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 02:20	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:20	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:20	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:20	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 02:20	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 02:20	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:20	1
Naphthalene	**12**		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 02:20	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 02:20	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:20	1
Phenanthrene	**0.70**	**J**	5.0	0.44	ug/L		05/21/21 15:12	05/25/21 02:20	1
Phenol	**40**		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 02:20	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/21/21 15:12*	*05/25/21 02:20*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*05/21/21 15:12*	*05/25/21 02:20*	*1*
p-Terphenyl-d14 (Surr)	*94*		*60 - 148*	*05/21/21 15:12*	*05/25/21 02:20*	*1*
2,4,6-Tribromophenol (Surr)	*126*	*S1+*	*41 - 120*	*05/21/21 15:12*	*05/25/21 02:20*	*1*
2-Fluorobiphenyl	*98*		*48 - 120*	*05/21/21 15:12*	*05/25/21 02:20*	*1*
2-Fluorophenol (Surr)	*64*		*35 - 120*	*05/21/21 15:12*	*05/25/21 02:20*	*1*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-4

Date Collected: 05/19/21 11:15
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 02:46	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:46	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 02:46	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 02:46	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:46	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 02:46	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 02:46	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 02:46	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 02:46	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 02:46	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 02:46	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 02:46	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:46	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 02:46	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 02:46	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:46	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 02:46	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 02:46	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 02:46	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/25/21 02:46	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 02:46	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 02:46	1
Di-n-butyl phthalate	**0.57**	**J B**	5.0	0.31	ug/L		05/21/21 15:12	05/25/21 02:46	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:46	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 02:46	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/21/21 15:12	05/25/21 02:46	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:46	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: PZ-4
Date Collected: 05/19/21 11:15
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 02:46	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 02:46	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:46	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 02:46	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:46	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 02:46	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 02:46	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 02:46	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 02:46	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 02:46	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 02:46	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 02:46	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 02:46	1
Phenanthrene	ND		5.0	0.44	ug/L		05/21/21 15:12	05/25/21 02:46	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 02:46	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 02:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*	*05/21/21 15:12*	*05/25/21 02:46*	*1*
Phenol-d5 (Surr)	*37*		*22 - 120*	*05/21/21 15:12*	*05/25/21 02:46*	*1*
p-Terphenyl-d14 (Surr)	*84*		*60 - 148*	*05/21/21 15:12*	*05/25/21 02:46*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*41 - 120*	*05/21/21 15:12*	*05/25/21 02:46*	*1*
2-Fluorobiphenyl	*99*		*48 - 120*	*05/21/21 15:12*	*05/25/21 02:46*	*1*
2-Fluorophenol (Surr)	*57*		*35 - 120*	*05/21/21 15:12*	*05/25/21 02:46*	*1*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Filter Vault Eff
Date Collected: 05/19/21 11:25
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/21/21 05:11	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/21/21 05:11	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/21/21 05:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/21/21 05:11	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/21/21 05:11	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/21/21 05:11	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/21/21 05:11	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/21/21 05:11	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/21/21 05:11	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/21/21 05:11	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/21/21 05:11	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/21/21 05:11	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/21/21 05:11	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/21/21 05:11	1
2-Hexanone	ND		5.0	1.2	ug/L			05/21/21 05:11	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/21/21 05:11	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/21/21 05:11	1
Acetone	ND		10	3.0	ug/L			05/21/21 05:11	1
Benzene	ND		1.0	0.41	ug/L			05/21/21 05:11	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/21/21 05:11	1
Bromoform	ND		1.0	0.26	ug/L			05/21/21 05:11	1
Bromomethane	ND		1.0	0.69	ug/L			05/21/21 05:11	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/21/21 05:11	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/21/21 05:11	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/21/21 05:11	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/21/21 05:11	1
Chloroethane	ND		1.0	0.32	ug/L			05/21/21 05:11	1
Chloroform	**8.2**		1.0	0.34	ug/L			05/21/21 05:11	1
Chloromethane	ND		1.0	0.35	ug/L			05/21/21 05:11	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/21 05:11	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/21/21 05:11	1
Cyclohexane	ND		1.0	0.18	ug/L			05/21/21 05:11	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/21/21 05:11	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/21/21 05:11	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/21/21 05:11	1
Methyl acetate	ND		2.5	1.3	ug/L			05/21/21 05:11	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/21/21 05:11	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/21/21 05:11	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/21/21 05:11	1
Styrene	ND		1.0	0.73	ug/L			05/21/21 05:11	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/21 05:11	1
Toluene	ND		1.0	0.51	ug/L			05/21/21 05:11	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/21 05:11	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/21/21 05:11	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/21 05:11	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/21/21 05:11	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/21 05:11	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/21/21 05:11	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Filter Vault Eff

Lab Sample ID: 480-184953-4

Date Collected: 05/19/21 11:25

Matrix: Water

Date Received: 05/19/21 17:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*05/21/21 05:11*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/21 05:11*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*05/21/21 05:11*	*1*
Dibromofluoromethane (Surr)	*112*		*75 - 123*		*05/21/21 05:11*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 03:13	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:13	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 03:13	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 03:13	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:13	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 03:13	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 03:13	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 03:13	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 03:13	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 03:13	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 03:13	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 03:13	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:13	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 03:13	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:13	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:13	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 03:13	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 03:13	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 03:13	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/25/21 03:13	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 03:13	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Filter Vault Eff
Date Collected: 05/19/21 11:25
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 03:13	1
Di-n-butyl phthalate	**0.35**	**J B**	5.0	0.31	ug/L		05/21/21 15:12	05/25/21 03:13	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:13	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 03:13	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/21/21 15:12	05/25/21 03:13	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:13	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:13	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:13	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:13	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 03:13	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:13	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:13	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:13	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 03:13	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 03:13	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:13	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 03:13	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 03:13	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:13	1
Phenanthrene	ND		5.0	0.44	ug/L		05/21/21 15:12	05/25/21 03:13	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 03:13	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 03:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/21/21 15:12*	*05/25/21 03:13*	*1*
Phenol-d5 (Surr)	*43*		*22 - 120*	*05/21/21 15:12*	*05/25/21 03:13*	*1*
p-Terphenyl-d14 (Surr)	*96*		*60 - 148*	*05/21/21 15:12*	*05/25/21 03:13*	*1*
2,4,6-Tribromophenol (Surr)	*109*		*41 - 120*	*05/21/21 15:12*	*05/25/21 03:13*	*1*
2-Fluorobiphenyl	*100*		*48 - 120*	*05/21/21 15:12*	*05/25/21 03:13*	*1*
2-Fluorophenol (Surr)	*66*		*35 - 120*	*05/21/21 15:12*	*05/25/21 03:13*	*1*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-7D
Date Collected: 05/19/21 15:19
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	1.6	ug/L			05/21/21 05:34	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/21/21 05:34	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/21/21 05:34	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/21/21 05:34	2
1,1-Dichloroethane	**8.9**		2.0	0.76	ug/L			05/21/21 05:34	2
1,1-Dichloroethene	**4.9**		2.0	0.58	ug/L			05/21/21 05:34	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/21/21 05:34	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/21/21 05:34	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/21/21 05:34	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 05:34	2
1,2-Dichloroethane	**1.4**	**J**	2.0	0.42	ug/L			05/21/21 05:34	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/21/21 05:34	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 05:34	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/21/21 05:34	2
2-Hexanone	ND		10	2.5	ug/L			05/21/21 05:34	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/21/21 05:34	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/21/21 05:34	2
Acetone	ND		20	6.0	ug/L			05/21/21 05:34	2
Benzene	ND		2.0	0.82	ug/L			05/21/21 05:34	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/21/21 05:34	2
Bromoform	ND		2.0	0.52	ug/L			05/21/21 05:34	2
Bromomethane	ND		2.0	1.4	ug/L			05/21/21 05:34	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/21/21 05:34	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/21/21 05:34	2
Chlorobenzene	ND		2.0	1.5	ug/L			05/21/21 05:34	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/21/21 05:34	2
Chloroethane	**19**		2.0	0.64	ug/L			05/21/21 05:34	2
Chloroform	ND		2.0	0.68	ug/L			05/21/21 05:34	2
Chloromethane	ND		2.0	0.70	ug/L			05/21/21 05:34	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/21/21 05:34	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/21/21 05:34	2
Cyclohexane	ND		2.0	0.36	ug/L			05/21/21 05:34	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/21/21 05:34	2
Ethylbenzene	**8.0**		2.0	1.5	ug/L			05/21/21 05:34	2
Isopropylbenzene	**3.6**		2.0	1.6	ug/L			05/21/21 05:34	2
Methyl acetate	ND		5.0	2.6	ug/L			05/21/21 05:34	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/21/21 05:34	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/21/21 05:34	2
Methylene Chloride	**0.93**	**J**	2.0	0.88	ug/L			05/21/21 05:34	2
Styrene	ND		2.0	1.5	ug/L			05/21/21 05:34	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/21/21 05:34	2
Toluene	ND		2.0	1.0	ug/L			05/21/21 05:34	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/21/21 05:34	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/21/21 05:34	2
Trichloroethene	ND		2.0	0.92	ug/L			05/21/21 05:34	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/21/21 05:34	2
Vinyl chloride	**7.2**		2.0	1.8	ug/L			05/21/21 05:34	2
Xylenes, Total	**8.4**		4.0	1.3	ug/L			05/21/21 05:34	2

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-7D
Date Collected: 05/19/21 15:19
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*110*		*77 - 120*		*05/21/21 05:34*	*2*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/21/21 05:34*	*2*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*05/21/21 05:34*	*2*
Dibromofluoromethane (Surr)	*110*		*75 - 123*		*05/21/21 05:34*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	**1000**	**F2**	100	13	ug/L		05/21/21 15:12	05/24/21 21:05	20
bis (2-chloroisopropyl) ether	ND		100	10	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4,5-Trichlorophenol	ND	F2 F1	100	9.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4,6-Trichlorophenol	ND	F2 F1	100	12	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4-Dichlorophenol	ND	F2	100	10	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4-Dimethylphenol	ND		100	10	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4-Dinitrophenol	ND	F1	200	44	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,4-Dinitrotoluene	ND	F2 F1	100	8.9	ug/L		05/21/21 15:12	05/24/21 21:05	20
2,6-Dinitrotoluene	ND	F2	100	8.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
2-Chloronaphthalene	ND	F2	100	9.2	ug/L		05/21/21 15:12	05/24/21 21:05	20
2-Chlorophenol	ND	F2	100	11	ug/L		05/21/21 15:12	05/24/21 21:05	20
2-Methylphenol	ND		100	8.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
2-Nitroaniline	ND		200	8.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
2-Nitrophenol	ND	F2	100	9.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
3,3'-Dichlorobenzidine	ND		100	8.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
3-Nitroaniline	ND	F1	200	9.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
4,6-Dinitro-2-methylphenol	ND	F2 F1	200	44	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Bromophenyl phenyl ether	ND		100	9.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Chloro-3-methylphenol	ND	F2	100	9.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Chloroaniline	ND	F2 F1	100	12	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Chlorophenyl phenyl ether	ND	F2	100	7.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Methylphenol	ND	F2	200	7.2	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Nitroaniline	ND	F1	200	5.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
4-Nitrophenol	ND	F1	200	30	ug/L		05/21/21 15:12	05/24/21 21:05	20
Acenaphthylene	**41**	**J F2 F1**	100	7.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
Acetophenone	ND		100	11	ug/L		05/21/21 15:12	05/24/21 21:05	20
Anthracene	**460**	**F2**	100	5.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
Atrazine	ND		100	9.2	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzaldehyde	ND		100	5.3	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzo[a]anthracene	**250**	**F2**	100	7.2	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzo[a]pyrene	**59**	**J F2 F1**	100	9.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzo[b]fluoranthene	**100**	**F2 F1**	100	6.8	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzo[g,h,i]perylene	**16**	**J F2**	100	7.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
Benzo[k]fluoranthene	**27**	**J F2 F1**	100	15	ug/L		05/21/21 15:12	05/24/21 21:05	20
Bis(2-chloroethoxy)methane	ND		100	7.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
Bis(2-chloroethyl)ether	ND	F2	100	8.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
Bis(2-ethylhexyl) phthalate	ND		100	44	ug/L		05/21/21 15:12	05/24/21 21:05	20
Butyl benzyl phthalate	ND		100	20	ug/L		05/21/21 15:12	05/24/21 21:05	20
Caprolactam	ND	F2	100	44	ug/L		05/21/21 15:12	05/24/21 21:05	20
Carbazole	**62**	**J F2 F1**	100	6.0	ug/L		05/21/21 15:12	05/24/21 21:05	20
Chrysene	**210**	**F2**	100	6.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
Dibenz(a,h)anthracene	ND		100	8.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
Di-n-butyl phthalate	ND		100	6.2	ug/L		05/21/21 15:12	05/24/21 21:05	20

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-7D
Date Collected: 05/19/21 15:19
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		100	9.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
Diethyl phthalate	ND		100	4.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
Dimethyl phthalate	ND		100	7.2	ug/L		05/21/21 15:12	05/24/21 21:05	20
Hexachlorobenzene	ND		100	10	ug/L		05/21/21 15:12	05/24/21 21:05	20
Hexachlorobutadiene	ND		100	14	ug/L		05/21/21 15:12	05/24/21 21:05	20
Hexachlorocyclopentadiene	ND		100	12	ug/L		05/21/21 15:12	05/24/21 21:05	20
Hexachloroethane	ND	F2 F1	100	12	ug/L		05/21/21 15:12	05/24/21 21:05	20
Indeno[1,2,3-cd]pyrene	**16**	**J F2**	100	9.4	ug/L		05/21/21 15:12	05/24/21 21:05	20
Isophorone	ND		100	8.6	ug/L		05/21/21 15:12	05/24/21 21:05	20
N-Nitrosodi-n-propylamine	ND		100	11	ug/L		05/21/21 15:12	05/24/21 21:05	20
N-Nitrosodiphenylamine	ND	F2 F1	100	10	ug/L		05/21/21 15:12	05/24/21 21:05	20
Nitrobenzene	ND		100	5.8	ug/L		05/21/21 15:12	05/24/21 21:05	20
Pentachlorophenol	ND	F1	200	44	ug/L		05/21/21 15:12	05/24/21 21:05	20
Phenol	ND	F1	100	7.8	ug/L		05/21/21 15:12	05/24/21 21:05	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*05/21/21 15:12*	*05/24/21 21:05*	*20*
Phenol-d5 (Surr)	*33*		*22 - 120*	*05/21/21 15:12*	*05/24/21 21:05*	*20*
p-Terphenyl-d14 (Surr)	*81*		*60 - 148*	*05/21/21 15:12*	*05/24/21 21:05*	*20*
2,4,6-Tribromophenol (Surr)	*112*		*41 - 120*	*05/21/21 15:12*	*05/24/21 21:05*	*20*
2-Fluorobiphenyl	*102*		*48 - 120*	*05/21/21 15:12*	*05/24/21 21:05*	*20*
2-Fluorophenol (Surr)	*51*		*35 - 120*	*05/21/21 15:12*	*05/24/21 21:05*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	**1600**	**F2**	1000	120	ug/L		05/21/21 15:12	05/25/21 18:49	200
Acenaphthene	**3300**	**F2**	1000	82	ug/L		05/21/21 15:12	05/25/21 18:49	200
Dibenzofuran	**3200**	**F2**	2000	100	ug/L		05/21/21 15:12	05/25/21 18:49	200
Fluoranthene	**2400**	**F2**	1000	80	ug/L		05/21/21 15:12	05/25/21 18:49	200
Fluorene	**2800**	**F2**	1000	72	ug/L		05/21/21 15:12	05/25/21 18:49	200
Naphthalene	**1800**	**F2**	1000	150	ug/L		05/21/21 15:12	05/25/21 18:49	200
Phenanthrene	**7100**	**F2**	1000	88	ug/L		05/21/21 15:12	05/25/21 18:49	200
Pyrene	**1600**	**F2**	1000	68	ug/L		05/21/21 15:12	05/25/21 18:49	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*0*	*S1-*	*46 - 120*	*05/21/21 15:12*	*05/25/21 18:49*	*200*
Phenol-d5 (Surr)	*0*	*S1-*	*22 - 120*	*05/21/21 15:12*	*05/25/21 18:49*	*200*
p-Terphenyl-d14 (Surr)	*75*		*60 - 148*	*05/21/21 15:12*	*05/25/21 18:49*	*200*
2,4,6-Tribromophenol (Surr)	*0*	*S1-*	*41 - 120*	*05/21/21 15:12*	*05/25/21 18:49*	*200*
2-Fluorobiphenyl	*108*		*48 - 120*	*05/21/21 15:12*	*05/25/21 18:49*	*200*
2-Fluorophenol (Surr)	*0*	*S1-*	*35 - 120*	*05/21/21 15:12*	*05/25/21 18:49*	*200*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Blind Dup
Date Collected: 05/19/21 00:00
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	1.6	ug/L			05/21/21 05:57	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/21/21 05:57	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/21/21 05:57	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/21/21 05:57	2
1,1-Dichloroethane	ND		2.0	0.76	ug/L			05/21/21 05:57	2
1,1-Dichloroethene	ND		2.0	0.58	ug/L			05/21/21 05:57	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/21/21 05:57	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/21/21 05:57	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/21/21 05:57	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 05:57	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			05/21/21 05:57	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/21/21 05:57	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 05:57	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/21/21 05:57	2
2-Hexanone	ND		10	2.5	ug/L			05/21/21 05:57	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/21/21 05:57	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/21/21 05:57	2
Acetone	ND		20	6.0	ug/L			05/21/21 05:57	2
Benzene	ND		2.0	0.82	ug/L			05/21/21 05:57	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/21/21 05:57	2
Bromoform	ND		2.0	0.52	ug/L			05/21/21 05:57	2
Bromomethane	ND		2.0	1.4	ug/L			05/21/21 05:57	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/21/21 05:57	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/21/21 05:57	2
Chlorobenzene	**1.5**	**J**	2.0	1.5	ug/L			05/21/21 05:57	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/21/21 05:57	2
Chloroethane	ND		2.0	0.64	ug/L			05/21/21 05:57	2
Chloroform	ND		2.0	0.68	ug/L			05/21/21 05:57	2
Chloromethane	ND		2.0	0.70	ug/L			05/21/21 05:57	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/21/21 05:57	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/21/21 05:57	2
Cyclohexane	ND		2.0	0.36	ug/L			05/21/21 05:57	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/21/21 05:57	2
Ethylbenzene	ND		2.0	1.5	ug/L			05/21/21 05:57	2
Isopropylbenzene	ND		2.0	1.6	ug/L			05/21/21 05:57	2
Methyl acetate	ND		5.0	2.6	ug/L			05/21/21 05:57	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/21/21 05:57	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/21/21 05:57	2
Methylene Chloride	ND		2.0	0.88	ug/L			05/21/21 05:57	2
Styrene	ND		2.0	1.5	ug/L			05/21/21 05:57	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/21/21 05:57	2
Toluene	ND		2.0	1.0	ug/L			05/21/21 05:57	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/21/21 05:57	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/21/21 05:57	2
Trichloroethene	ND		2.0	0.92	ug/L			05/21/21 05:57	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/21/21 05:57	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/21/21 05:57	2
Xylenes, Total	ND		4.0	1.3	ug/L			05/21/21 05:57	2

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Blind Dup

Date Collected: 05/19/21 00:00
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-6

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*05/21/21 05:57*	*2*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/21 05:57*	*2*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*05/21/21 05:57*	*2*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*05/21/21 05:57*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 03:39	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:39	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 03:39	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 03:39	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:39	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 03:39	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 03:39	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 03:39	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 03:39	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 03:39	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 03:39	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 03:39	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:39	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 03:39	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 03:39	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:39	1
Bis(2-ethylhexyl) phthalate	**2.5**	**J**	5.0	2.2	ug/L		05/21/21 15:12	05/25/21 03:39	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 03:39	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 03:39	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/25/21 03:39	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 03:39	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: Blind Dup
Date Collected: 05/19/21 00:00
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 03:39	1
Di-n-butyl phthalate	**4.5**	**J B**	5.0	0.31	ug/L		05/21/21 15:12	05/25/21 03:39	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:39	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 03:39	1
Diethyl phthalate	**0.31**	**J**	5.0	0.22	ug/L		05/21/21 15:12	05/25/21 03:39	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:39	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 03:39	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 03:39	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:39	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 03:39	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:39	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 03:39	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 03:39	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 03:39	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 03:39	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 03:39	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 03:39	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 03:39	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 03:39	1
Phenanthrene	**0.49**	**J**	5.0	0.44	ug/L		05/21/21 15:12	05/25/21 03:39	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 03:39	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 03:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*131*	*S1+*	*46 - 120*	*05/21/21 15:12*	*05/25/21 03:39*	*1*
Phenol-d5 (Surr)	*36*		*22 - 120*	*05/21/21 15:12*	*05/25/21 03:39*	*1*
p-Terphenyl-d14 (Surr)	*81*		*60 - 148*	*05/21/21 15:12*	*05/25/21 03:39*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*41 - 120*	*05/21/21 15:12*	*05/25/21 03:39*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*05/21/21 15:12*	*05/25/21 03:39*	*1*
2-Fluorophenol (Surr)	*45*		*35 - 120*	*05/21/21 15:12*	*05/25/21 03:39*	*1*

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-3D
Date Collected: 05/19/21 15:55
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	1.6	ug/L			05/21/21 06:20	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/21/21 06:20	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/21/21 06:20	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/21/21 06:20	2
1,1-Dichloroethane	ND		2.0	0.76	ug/L			05/21/21 06:20	2
1,1-Dichloroethene	ND		2.0	0.58	ug/L			05/21/21 06:20	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/21/21 06:20	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/21/21 06:20	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/21/21 06:20	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 06:20	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			05/21/21 06:20	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/21/21 06:20	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/21/21 06:20	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/21/21 06:20	2
2-Hexanone	ND		10	2.5	ug/L			05/21/21 06:20	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/21/21 06:20	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/21/21 06:20	2
Acetone	ND		20	6.0	ug/L			05/21/21 06:20	2
Benzene	ND		2.0	0.82	ug/L			05/21/21 06:20	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/21/21 06:20	2
Bromoform	ND		2.0	0.52	ug/L			05/21/21 06:20	2
Bromomethane	ND		2.0	1.4	ug/L			05/21/21 06:20	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/21/21 06:20	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/21/21 06:20	2
Chlorobenzene	**12**		2.0	1.5	ug/L			05/21/21 06:20	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/21/21 06:20	2
Chloroethane	ND		2.0	0.64	ug/L			05/21/21 06:20	2
Chloroform	ND		2.0	0.68	ug/L			05/21/21 06:20	2
Chloromethane	ND		2.0	0.70	ug/L			05/21/21 06:20	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/21/21 06:20	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/21/21 06:20	2
Cyclohexane	ND		2.0	0.36	ug/L			05/21/21 06:20	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/21/21 06:20	2
Ethylbenzene	ND		2.0	1.5	ug/L			05/21/21 06:20	2
Isopropylbenzene	ND		2.0	1.6	ug/L			05/21/21 06:20	2
Methyl acetate	ND		5.0	2.6	ug/L			05/21/21 06:20	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/21/21 06:20	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/21/21 06:20	2
Methylene Chloride	ND		2.0	0.88	ug/L			05/21/21 06:20	2
Styrene	ND		2.0	1.5	ug/L			05/21/21 06:20	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/21/21 06:20	2
Toluene	ND		2.0	1.0	ug/L			05/21/21 06:20	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/21/21 06:20	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/21/21 06:20	2
Trichloroethene	ND		2.0	0.92	ug/L			05/21/21 06:20	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/21/21 06:20	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/21/21 06:20	2
Xylenes, Total	ND		4.0	1.3	ug/L			05/21/21 06:20	2

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-3D
Date Collected: 05/19/21 15:55
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-7
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*104*		*77 - 120*		*05/21/21 06:20*	*2*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/21 06:20*	*2*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*05/21/21 06:20*	*2*
Dibromofluoromethane (Surr)	*108*		*75 - 123*		*05/21/21 06:20*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/25/21 19:16	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 19:16	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/25/21 19:16	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/25/21 19:16	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 19:16	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/25/21 19:16	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/25/21 19:16	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/25/21 19:16	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/25/21 19:16	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/25/21 19:16	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 19:16	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/25/21 19:16	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 19:16	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/25/21 19:16	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/25/21 19:16	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 19:16	1
Bis(2-ethylhexyl) phthalate	**2.2**	**J**	5.0	2.2	ug/L		05/21/21 15:12	05/25/21 19:16	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/25/21 19:16	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/25/21 19:16	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/25/21 19:16	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/25/21 19:16	1

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

Client Sample ID: MW-3D
Date Collected: 05/19/21 15:55
Date Received: 05/19/21 17:10

Lab Sample ID: 480-184953-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/25/21 19:16	1
Di-n-butyl phthalate	**3.7**	**J B**	5.0	0.31	ug/L		05/21/21 15:12	05/25/21 19:16	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 19:16	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/25/21 19:16	1
Diethyl phthalate	**0.29**	**J**	5.0	0.22	ug/L		05/21/21 15:12	05/25/21 19:16	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 19:16	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/25/21 19:16	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/25/21 19:16	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 19:16	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/25/21 19:16	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 19:16	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/25/21 19:16	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/25/21 19:16	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/25/21 19:16	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/25/21 19:16	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/25/21 19:16	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/25/21 19:16	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/25/21 19:16	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/25/21 19:16	1
Phenanthrene	ND		5.0	0.44	ug/L		05/21/21 15:12	05/25/21 19:16	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/25/21 19:16	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/25/21 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*97*		*46 - 120*	*05/21/21 15:12*	*05/25/21 19:16*	*1*
Phenol-d5 (Surr)	*34*		*22 - 120*	*05/21/21 15:12*	*05/25/21 19:16*	*1*
p-Terphenyl-d14 (Surr)	*76*		*60 - 148*	*05/21/21 15:12*	*05/25/21 19:16*	*1*
2,4,6-Tribromophenol (Surr)	*105*		*41 - 120*	*05/21/21 15:12*	*05/25/21 19:16*	*1*
2-Fluorobiphenyl	*116*		*48 - 120*	*05/21/21 15:12*	*05/25/21 19:16*	*1*
2-Fluorophenol (Surr)	*44*		*35 - 120*	*05/21/21 15:12*	*05/25/21 19:16*	*1*

Surrogate Summary

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-184953-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(77-120)	(80-120)	(73-120)	(75-123)
480-184953-1	PZ-2	111	95	102	113
480-184953-2	PZ-3	109	96	97	110
480-184953-4	Filter Vault Eff	106	98	100	112
480-184953-5	MW-7D	110	96	96	110
480-184953-5 MS	MW-7D	109	96	98	110
480-184953-5 MSD	MW-7D	103	93	97	108
480-184953-6	Blind Dup	100	98	97	102
480-184953-7	MW-3D	104	98	99	108
LCS 480-581885/6	Lab Control Sample	98	99	101	105
MB 480-581885/8	Method Blank	104	93	94	103

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		NBZ	PHL	TPHd14	TBP	FBP	2FP
Lab Sample ID	Client Sample ID	(46-120)	(22-120)	(60-148)	(41-120)	(48-120)	(35-120)
480-184953-1	PZ-2	84	41	85	121 S1+	99	65
480-184953-2	PZ-3	86	43	94	126 S1+	98	64
480-184953-3	PZ-4	83	37	84	102	99	57
480-184953-4	Filter Vault Eff	86	43	96	109	100	66
480-184953-5	MW-7D	93	33	81	112	102	51
480-184953-5 - DL	MW-7D	0 S1-	0 S1-	75	0 S1-	108	0 S1-
480-184953-5 MS	MW-7D	82	46	101	142 S1+	94	52
480-184953-5 MS - DL	MW-7D	0 S1-	0 S1-	101	0 S1-	139 S1+	0 S1-
480-184953-5 MSD	MW-7D	83	29	96	75	90	25 S1-
480-184953-5 MSD - DL	MW-7D	180 S1+	0 S1-	85	0 S1-	87	0 S1-
480-184953-6	Blind Dup	131 S1+	36	81	102	95	45
480-184953-7	MW-3D	97	34	76	105	116	44
LCS 480-582098/2-A	Lab Control Sample	82	51	102	123 S1+	96	67
LCSD 480-582098/3-A	Lab Control Sample Dup	78	50	100	115	90	66
MB 480-582098/1-A	Method Blank	77	47	99	92	94	65

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)

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

Lab Sample ID: MB 480-581885/8
Matrix: Water
Analysis Batch: 581885

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			05/20/21 23:47	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/20/21 23:47	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/20/21 23:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/20/21 23:47	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/20/21 23:47	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/20/21 23:47	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/20/21 23:47	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/20/21 23:47	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/20/21 23:47	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/20/21 23:47	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/20/21 23:47	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/20/21 23:47	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/20/21 23:47	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/20/21 23:47	1
2-Hexanone	ND		5.0	1.2	ug/L			05/20/21 23:47	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/20/21 23:47	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/20/21 23:47	1
Acetone	ND		10	3.0	ug/L			05/20/21 23:47	1
Benzene	ND		1.0	0.41	ug/L			05/20/21 23:47	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/20/21 23:47	1
Bromoform	ND		1.0	0.26	ug/L			05/20/21 23:47	1
Bromomethane	ND		1.0	0.69	ug/L			05/20/21 23:47	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/20/21 23:47	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/20/21 23:47	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/20/21 23:47	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/20/21 23:47	1
Chloroethane	ND		1.0	0.32	ug/L			05/20/21 23:47	1
Chloroform	ND		1.0	0.34	ug/L			05/20/21 23:47	1
Chloromethane	ND		1.0	0.35	ug/L			05/20/21 23:47	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/20/21 23:47	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/20/21 23:47	1
Cyclohexane	ND		1.0	0.18	ug/L			05/20/21 23:47	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/20/21 23:47	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/20/21 23:47	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/20/21 23:47	1
Methyl acetate	ND		2.5	1.3	ug/L			05/20/21 23:47	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/20/21 23:47	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/20/21 23:47	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/20/21 23:47	1
Styrene	ND		1.0	0.73	ug/L			05/20/21 23:47	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/20/21 23:47	1
Toluene	ND		1.0	0.51	ug/L			05/20/21 23:47	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/20/21 23:47	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/20/21 23:47	1
Trichloroethene	ND		1.0	0.46	ug/L			05/20/21 23:47	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/20/21 23:47	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/20/21 23:47	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/20/21 23:47	1

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

Lab Sample ID: MB 480-581885/8
Matrix: Water
Analysis Batch: 581885

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		77 - 120		05/20/21 23:47	1
Toluene-d8 (Surr)	93		80 - 120		05/20/21 23:47	1
4-Bromofluorobenzene (Surr)	94		73 - 120		05/20/21 23:47	1
Dibromofluoromethane (Surr)	103		75 - 123		05/20/21 23:47	1

Lab Sample ID: LCS 480-581885/6
Matrix: Water
Analysis Batch: 581885

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	26.3		ug/L		105	73 - 126
1,1,2,2-Tetrachloroethane	25.0	22.4		ug/L		90	76 - 120
1,1,2-Trichloroethane	25.0	24.5		ug/L		98	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	25.7		ug/L		103	61 - 148
1,1-Dichloroethane	25.0	25.4		ug/L		101	77 - 120
1,1-Dichloroethene	25.0	25.2		ug/L		101	66 - 127
1,2,4-Trichlorobenzene	25.0	22.6		ug/L		90	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.4		ug/L		94	56 - 134
1,2-Dibromoethane	25.0	24.9		ug/L		100	77 - 120
1,2-Dichlorobenzene	25.0	23.7		ug/L		95	80 - 124
1,2-Dichloroethane	25.0	26.3		ug/L		105	75 - 120
1,2-Dichloropropane	25.0	24.3		ug/L		97	76 - 120
1,3-Dichlorobenzene	25.0	23.3		ug/L		93	77 - 120
1,4-Dichlorobenzene	25.0	22.9		ug/L		91	80 - 120
2-Hexanone	125	127		ug/L		102	65 - 127
2-Butanone (MEK)	125	120		ug/L		96	57 - 140
4-Methyl-2-pentanone (MIBK)	125	129		ug/L		103	71 - 125
Acetone	125	126		ug/L		101	56 - 142
Benzene	25.0	23.3		ug/L		93	71 - 124
Bromodichloromethane	25.0	25.0		ug/L		100	80 - 122
Bromoform	25.0	23.3		ug/L		93	61 - 132
Bromomethane	25.0	23.0		ug/L		92	55 - 144
Carbon disulfide	25.0	22.7		ug/L		91	59 - 134
Carbon tetrachloride	25.0	25.9		ug/L		104	72 - 134
Chlorobenzene	25.0	24.2		ug/L		97	80 - 120
Dibromochloromethane	25.0	25.9		ug/L		104	75 - 125
Chloroethane	25.0	24.2		ug/L		97	69 - 136
Chloroform	25.0	25.4		ug/L		102	73 - 127
Chloromethane	25.0	25.0		ug/L		100	68 - 124
cis-1,2-Dichloroethene	25.0	23.9		ug/L		95	74 - 124
cis-1,3-Dichloropropene	25.0	23.0		ug/L		92	74 - 124
Cyclohexane	25.0	22.3		ug/L		89	59 - 135
Dichlorodifluoromethane	25.0	21.0		ug/L		84	59 - 135
Ethylbenzene	25.0	24.0		ug/L		96	77 - 123
Isopropylbenzene	25.0	22.9		ug/L		92	77 - 122
Methyl acetate	50.0	44.4		ug/L		89	74 - 133
Methyl tert-butyl ether	25.0	25.1		ug/L		100	77 - 120
Methylcyclohexane	25.0	22.5		ug/L		90	68 - 134

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

Lab Sample ID: LCS 480-581885/6
Matrix: Water
Analysis Batch: 581885

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methylene Chloride			25.0	25.0		ug/L		100	75 - 124		
Styrene			25.0	23.2		ug/L		93	80 - 120		
Tetrachloroethene			25.0	24.7		ug/L		99	74 - 122		
Toluene			25.0	23.9		ug/L		96	80 - 122		
trans-1,2-Dichloroethene			25.0	24.5		ug/L		98	73 - 127		
trans-1,3-Dichloropropene			25.0	24.3		ug/L		97	80 - 120		
Trichloroethene			25.0	24.1		ug/L		97	74 - 123		
Trichlorofluoromethane			25.0	25.9		ug/L		103	62 - 150		
Vinyl chloride			25.0	22.9		ug/L		92	65 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*
Dibromofluoromethane (Surr)	*105*		*75 - 123*

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 581885

Client Sample ID: MW-7D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane	ND		50.0	58.2		ug/L		116	73 - 126		
1,1,2,2-Tetrachloroethane	ND		50.0	46.8		ug/L		94	76 - 120		
1,1,2-Trichloroethane	ND		50.0	47.6		ug/L		95	76 - 122		
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50.0	58.3		ug/L		117	61 - 148		
1,1-Dichloroethane	8.9		50.0	63.8		ug/L		110	77 - 120		
1,1-Dichloroethene	4.9		50.0	62.0		ug/L		114	66 - 127		
1,2,4-Trichlorobenzene	ND		50.0	48.7		ug/L		97	79 - 122		
1,2-Dibromo-3-Chloropropane	ND		50.0	66.5		ug/L		133	56 - 134		
1,2-Dibromoethane	ND		50.0	50.6		ug/L		101	77 - 120		
1,2-Dichlorobenzene	ND		50.0	48.4		ug/L		97	80 - 124		
1,2-Dichloroethane	1.4	J	50.0	59.8		ug/L		117	75 - 120		
1,2-Dichloropropane	ND		50.0	52.5		ug/L		105	76 - 120		
1,3-Dichlorobenzene	ND		50.0	48.3		ug/L		97	77 - 120		
1,4-Dichlorobenzene	ND		50.0	48.7		ug/L		97	78 - 124		
2-Hexanone	ND		250	235		ug/L		94	65 - 127		
2-Butanone (MEK)	ND		250	239		ug/L		96	57 - 140		
4-Methyl-2-pentanone (MIBK)	ND		250	247		ug/L		99	71 - 125		
Acetone	ND		250	236		ug/L		94	56 - 142		
Benzene	ND		50.0	49.7		ug/L		99	71 - 124		
Bromodichloromethane	ND		50.0	53.2		ug/L		106	80 - 122		
Bromoform	ND		50.0	41.7		ug/L		83	61 - 132		
Bromomethane	ND		50.0	48.7		ug/L		97	55 - 144		
Carbon disulfide	ND		50.0	47.1		ug/L		94	59 - 134		
Carbon tetrachloride	ND		50.0	58.4		ug/L		117	72 - 134		
Chlorobenzene	ND		50.0	48.8		ug/L		98	80 - 120		
Dibromochloromethane	ND		50.0	47.6		ug/L		95	75 - 125		
Chloroethane	19		50.0	67.7		ug/L		98	69 - 136		

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

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 581885

Client Sample ID: MW-7D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloroform	ND		50.0	54.3		ug/L		109	73 - 127
Chloromethane	ND		50.0	47.8		ug/L		96	68 - 124
cis-1,2-Dichloroethene	ND		50.0	50.9		ug/L		102	74 - 124
cis-1,3-Dichloropropene	ND		50.0	42.9		ug/L		86	74 - 124
Cyclohexane	ND		50.0	53.2		ug/L		106	59 - 135
Dichlorodifluoromethane	ND		50.0	45.9		ug/L		92	59 - 135
Ethylbenzene	8.0		50.0	53.1		ug/L		90	77 - 123
Isopropylbenzene	3.6		50.0	52.0		ug/L		97	77 - 122
Methyl acetate	ND		100	94.7		ug/L		95	74 - 133
Methyl tert-butyl ether	ND		50.0	53.9		ug/L		108	77 - 120
Methylcyclohexane	ND		50.0	49.2		ug/L		98	68 - 134
Methylene Chloride	0.93	J	50.0	52.3		ug/L		103	75 - 124
Styrene	ND		50.0	43.5		ug/L		87	80 - 120
Tetrachloroethene	ND		50.0	50.6		ug/L		101	74 - 122
Toluene	ND		50.0	46.6		ug/L		93	80 - 122
trans-1,2-Dichloroethene	ND		50.0	52.7		ug/L		105	73 - 127
trans-1,3-Dichloropropene	ND		50.0	42.9		ug/L		86	80 - 120
Trichloroethene	ND		50.0	51.5		ug/L		103	74 - 123
Trichlorofluoromethane	ND		50.0	58.9		ug/L		118	62 - 150
Vinyl chloride	7.2		50.0	57.3		ug/L		100	65 - 133

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*110*		*75 - 123*

Lab Sample ID: 480-184953-5 MSD
Matrix: Water
Analysis Batch: 581885

Client Sample ID: MW-7D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		50.0	55.1		ug/L		110	73 - 126	5	15
1,1,2,2-Tetrachloroethane	ND		50.0	46.4		ug/L		93	76 - 120	1	15
1,1,2-Trichloroethane	ND		50.0	47.2		ug/L		94	76 - 122	1	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50.0	54.5		ug/L		109	61 - 148	7	20
1,1-Dichloroethane	8.9		50.0	59.9		ug/L		102	77 - 120	6	20
1,1-Dichloroethene	4.9		50.0	58.3		ug/L		107	66 - 127	6	16
1,2,4-Trichlorobenzene	ND		50.0	48.0		ug/L		96	79 - 122	2	20
1,2-Dibromo-3-Chloropropane	ND		50.0	63.9		ug/L		128	56 - 134	4	15
1,2-Dibromoethane	ND		50.0	50.2		ug/L		100	77 - 120	1	15
1,2-Dichlorobenzene	ND		50.0	47.7		ug/L		95	80 - 124	1	20
1,2-Dichloroethane	1.4	J	50.0	57.2		ug/L		111	75 - 120	5	20
1,2-Dichloropropane	ND		50.0	49.4		ug/L		99	76 - 120	6	20
1,3-Dichlorobenzene	ND		50.0	46.7		ug/L		93	77 - 120	3	20
1,4-Dichlorobenzene	ND		50.0	46.0		ug/L		92	78 - 124	6	20
2-Hexanone	ND		250	227		ug/L		91	65 - 127	3	15
2-Butanone (MEK)	ND		250	234		ug/L		94	57 - 140	2	20

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

Lab Sample ID: 480-184953-5 MSD
Matrix: Water
Analysis Batch: 581885

Client Sample ID: MW-7D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Methyl-2-pentanone (MIBK)	ND		250	240		ug/L		96	71 - 125	3	35
Acetone	ND		250	237		ug/L		95	56 - 142	0	15
Benzene	ND		50.0	47.9		ug/L		96	71 - 124	4	13
Bromodichloromethane	ND		50.0	50.4		ug/L		101	80 - 122	5	15
Bromoform	ND		50.0	41.7		ug/L		83	61 - 132	0	15
Bromomethane	ND		50.0	46.6		ug/L		93	55 - 144	4	15
Carbon disulfide	ND		50.0	45.4		ug/L		91	59 - 134	4	15
Carbon tetrachloride	ND		50.0	54.0		ug/L		108	72 - 134	8	15
Chlorobenzene	ND		50.0	48.1		ug/L		96	80 - 120	1	25
Dibromochloromethane	ND		50.0	46.6		ug/L		93	75 - 125	2	15
Chloroethane	19		50.0	64.3		ug/L		91	69 - 136	5	15
Chloroform	ND		50.0	52.2		ug/L		104	73 - 127	4	20
Chloromethane	ND		50.0	45.9		ug/L		92	68 - 124	4	15
cis-1,2-Dichloroethene	ND		50.0	51.3		ug/L		103	74 - 124	1	15
cis-1,3-Dichloropropene	ND		50.0	43.8		ug/L		88	74 - 124	2	15
Cyclohexane	ND		50.0	49.8		ug/L		100	59 - 135	7	20
Dichlorodifluoromethane	ND		50.0	44.8		ug/L		90	59 - 135	3	20
Ethylbenzene	8.0		50.0	52.1		ug/L		88	77 - 123	2	15
Isopropylbenzene	3.6		50.0	49.9		ug/L		93	77 - 122	4	20
Methyl acetate	ND		100	91.7		ug/L		92	74 - 133	3	20
Methyl tert-butyl ether	ND		50.0	52.4		ug/L		105	77 - 120	3	37
Methylcyclohexane	ND		50.0	47.8		ug/L		96	68 - 134	3	20
Methylene Chloride	0.93	J	50.0	54.2		ug/L		107	75 - 124	4	15
Styrene	ND		50.0	43.7		ug/L		87	80 - 120	1	20
Tetrachloroethene	ND		50.0	48.8		ug/L		98	74 - 122	4	20
Toluene	ND		50.0	45.1		ug/L		90	80 - 122	3	15
trans-1,2-Dichloroethene	ND		50.0	48.7		ug/L		97	73 - 127	8	20
trans-1,3-Dichloropropene	ND		50.0	43.0		ug/L		86	80 - 120	0	15
Trichloroethene	ND		50.0	51.3		ug/L		103	74 - 123	0	16
Trichlorofluoromethane	ND		50.0	56.7		ug/L		113	62 - 150	4	20
Vinyl chloride	7.2		50.0	55.4		ug/L		96	65 - 133	3	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*
Dibromofluoromethane (Surr)	*108*		*75 - 123*

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

Lab Sample ID: MB 480-582098/1-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/21/21 15:12	05/24/21 18:50	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/21/21 15:12	05/24/21 18:50	1

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

Lab Sample ID: MB 480-582098/1-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/21/21 15:12	05/24/21 18:50	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Nitroaniline	ND		10	0.42	ug/L		05/21/21 15:12	05/24/21 18:50	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/21/21 15:12	05/24/21 18:50	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/21/21 15:12	05/24/21 18:50	1
3-Nitroaniline	ND		10	0.48	ug/L		05/21/21 15:12	05/24/21 18:50	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Methylphenol	ND		10	0.36	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Nitroaniline	ND		10	0.25	ug/L		05/21/21 15:12	05/24/21 18:50	1
4-Nitrophenol	ND		10	1.5	ug/L		05/21/21 15:12	05/24/21 18:50	1
Acenaphthene	ND		5.0	0.41	ug/L		05/21/21 15:12	05/24/21 18:50	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/21/21 15:12	05/24/21 18:50	1
Acetophenone	ND		5.0	0.54	ug/L		05/21/21 15:12	05/24/21 18:50	1
Anthracene	ND		5.0	0.28	ug/L		05/21/21 15:12	05/24/21 18:50	1
Atrazine	ND		5.0	0.46	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/21/21 15:12	05/24/21 18:50	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/21/21 15:12	05/24/21 18:50	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/21/21 15:12	05/24/21 18:50	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/21/21 15:12	05/24/21 18:50	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/21/21 15:12	05/24/21 18:50	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/21/21 15:12	05/24/21 18:50	1
Caprolactam	ND		5.0	2.2	ug/L		05/21/21 15:12	05/24/21 18:50	1
Carbazole	ND		5.0	0.30	ug/L		05/21/21 15:12	05/24/21 18:50	1
Chrysene	ND		5.0	0.33	ug/L		05/21/21 15:12	05/24/21 18:50	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/21/21 15:12	05/24/21 18:50	1
Di-n-butyl phthalate	0.364	J	5.0	0.31	ug/L		05/21/21 15:12	05/24/21 18:50	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/21/21 15:12	05/24/21 18:50	1
Dibenzofuran	ND		10	0.51	ug/L		05/21/21 15:12	05/24/21 18:50	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/21/21 15:12	05/24/21 18:50	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/21/21 15:12	05/24/21 18:50	1
Fluoranthene	ND		5.0	0.40	ug/L		05/21/21 15:12	05/24/21 18:50	1
Fluorene	ND		5.0	0.36	ug/L		05/21/21 15:12	05/24/21 18:50	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/21/21 15:12	05/24/21 18:50	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/21/21 15:12	05/24/21 18:50	1

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

Lab Sample ID: MB 480-582098/1-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 582098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/21/21 15:12	05/24/21 18:50	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/21/21 15:12	05/24/21 18:50	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/21/21 15:12	05/24/21 18:50	1
Isophorone	ND		5.0	0.43	ug/L		05/21/21 15:12	05/24/21 18:50	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/21/21 15:12	05/24/21 18:50	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/21/21 15:12	05/24/21 18:50	1
Naphthalene	ND		5.0	0.76	ug/L		05/21/21 15:12	05/24/21 18:50	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/21/21 15:12	05/24/21 18:50	1
Pentachlorophenol	ND		10	2.2	ug/L		05/21/21 15:12	05/24/21 18:50	1
Phenanthrene	ND		5.0	0.44	ug/L		05/21/21 15:12	05/24/21 18:50	1
Phenol	ND		5.0	0.39	ug/L		05/21/21 15:12	05/24/21 18:50	1
Pyrene	ND		5.0	0.34	ug/L		05/21/21 15:12	05/24/21 18:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*77*		*46 - 120*	*05/21/21 15:12*	*05/24/21 18:50*	*1*
Phenol-d5 (Surr)	*47*		*22 - 120*	*05/21/21 15:12*	*05/24/21 18:50*	*1*
p-Terphenyl-d14 (Surr)	*99*		*60 - 148*	*05/21/21 15:12*	*05/24/21 18:50*	*1*
2,4,6-Tribromophenol (Surr)	*92*		*41 - 120*	*05/21/21 15:12*	*05/24/21 18:50*	*1*
2-Fluorobiphenyl	*94*		*48 - 120*	*05/21/21 15:12*	*05/24/21 18:50*	*1*
2-Fluorophenol (Surr)	*65*		*35 - 120*	*05/21/21 15:12*	*05/24/21 18:50*	*1*

Lab Sample ID: LCS 480-582098/2-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl	32.0	30.1		ug/L		94	59 - 120
bis (2-chloroisopropyl) ether	32.0	19.0		ug/L		59	21 - 136
2,4,5-Trichlorophenol	32.0	33.8		ug/L		105	65 - 126
2,4,6-Trichlorophenol	32.0	34.4		ug/L		108	64 - 120
2,4-Dichlorophenol	32.0	32.7		ug/L		102	63 - 120
2,4-Dimethylphenol	32.0	30.8		ug/L		96	47 - 120
2,4-Dinitrophenol	64.0	73.9		ug/L		115	31 - 137
2,4-Dinitrotoluene	32.0	34.7		ug/L		108	69 - 120
2,6-Dinitrotoluene	32.0	32.1		ug/L		100	68 - 120
2-Chloronaphthalene	32.0	29.1		ug/L		91	58 - 120
2-Chlorophenol	32.0	28.3		ug/L		89	48 - 120
2-Methylphenol	32.0	25.2		ug/L		79	39 - 120
2-Methylnaphthalene	32.0	31.1		ug/L		97	59 - 120
2-Nitroaniline	32.0	28.2		ug/L		88	54 - 127
2-Nitrophenol	32.0	30.8		ug/L		96	52 - 125
3,3'-Dichlorobenzidine	64.0	56.6		ug/L		88	49 - 135
3-Nitroaniline	32.0	26.0		ug/L		81	51 - 120
4,6-Dinitro-2-methylphenol	64.0	74.3		ug/L		116	46 - 136
4-Bromophenyl phenyl ether	32.0	34.7		ug/L		109	65 - 120
4-Chloro-3-methylphenol	32.0	34.4		ug/L		108	61 - 123
4-Chloroaniline	32.0	24.0		ug/L		75	30 - 120
4-Chlorophenyl phenyl ether	32.0	34.5		ug/L		108	62 - 120

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

Lab Sample ID: LCS 480-582098/2-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Methylphenol	32.0	26.6		ug/L		83	29 - 131
4-Nitroaniline	32.0	28.7		ug/L		90	65 - 120
4-Nitrophenol	64.0	71.3		ug/L		111	45 - 120
Acenaphthene	32.0	30.7		ug/L		96	60 - 120
Acenaphthylene	32.0	31.0		ug/L		97	63 - 120
Acetophenone	32.0	28.7		ug/L		90	45 - 120
Anthracene	32.0	30.5		ug/L		95	67 - 120
Atrazine	64.0	81.1		ug/L		127	71 - 130
Benzaldehyde	64.0	50.4		ug/L		79	10 - 140
Benzo[a]anthracene	32.0	32.6		ug/L		102	70 - 121
Benzo[a]pyrene	32.0	32.7		ug/L		102	60 - 123
Benzo[b]fluoranthene	32.0	35.2		ug/L		110	66 - 126
Benzo[g,h,i]perylene	32.0	34.8		ug/L		109	66 - 150
Benzo[k]fluoranthene	32.0	34.3		ug/L		107	65 - 124
Bis(2-chloroethoxy)methane	32.0	27.1		ug/L		85	50 - 128
Bis(2-chloroethyl)ether	32.0	25.2		ug/L		79	44 - 120
Bis(2-ethylhexyl) phthalate	32.0	32.0		ug/L		100	63 - 139
Butyl benzyl phthalate	32.0	31.5		ug/L		98	70 - 129
Caprolactam	64.0	26.9		ug/L		42	22 - 120
Carbazole	32.0	31.1		ug/L		97	66 - 123
Chrysene	32.0	33.0		ug/L		103	69 - 120
Dibenz(a,h)anthracene	32.0	35.8		ug/L		112	65 - 135
Di-n-butyl phthalate	32.0	33.6		ug/L		105	69 - 131
Di-n-octyl phthalate	32.0	33.3		ug/L		104	63 - 140
Dibenzofuran	32.0	31.9		ug/L		100	66 - 120
Diethyl phthalate	32.0	35.3		ug/L		110	59 - 127
Dimethyl phthalate	32.0	34.6		ug/L		108	68 - 120
Fluoranthene	32.0	34.6		ug/L		108	69 - 126
Fluorene	32.0	31.8		ug/L		99	66 - 120
Hexachlorobenzene	32.0	34.1		ug/L		107	61 - 120
Hexachlorobutadiene	32.0	31.4		ug/L		98	35 - 120
Hexachlorocyclopentadiene	32.0	26.1		ug/L		81	31 - 120
Hexachloroethane	32.0	25.4		ug/L		79	43 - 120
Indeno[1,2,3-cd]pyrene	32.0	34.8		ug/L		109	69 - 146
Isophorone	32.0	27.8		ug/L		87	55 - 120
N-Nitrosodi-n-propylamine	32.0	25.5		ug/L		80	32 - 140
N-Nitrosodiphenylamine	32.0	30.5		ug/L		95	61 - 120
Naphthalene	32.0	29.0		ug/L		91	57 - 120
Nitrobenzene	32.0	26.3		ug/L		82	53 - 123
Pentachlorophenol	64.0	71.2		ug/L		111	29 - 136
Phenanthrene	32.0	31.4		ug/L		98	68 - 120
Phenol	32.0	18.2		ug/L		57	17 - 120
Pyrene	32.0	30.4		ug/L		95	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*82*		*46 - 120*
Phenol-d5 (Surr)	*51*		*22 - 120*
p-Terphenyl-d14 (Surr)	*102*		*60 - 148*

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

Lab Sample ID: LCS 480-582098/2-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 582098

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	123	S1+	41 - 120
2-Fluorobiphenyl	96		48 - 120
2-Fluorophenol (Surr)	67		35 - 120

Lab Sample ID: LCSD 480-582098/3-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 582098

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biphenyl			32.0	29.6		ug/L		93	59 - 120	2	20
bis (2-chloroisopropyl) ether			32.0	18.9		ug/L		59	21 - 136	1	24
2,4,5-Trichlorophenol			32.0	34.4		ug/L		107	65 - 126	2	18
2,4,6-Trichlorophenol			32.0	34.5		ug/L		108	64 - 120	0	19
2,4-Dichlorophenol			32.0	31.8		ug/L		99	63 - 120	3	19
2,4-Dimethylphenol			32.0	29.3		ug/L		91	47 - 120	5	42
2,4-Dinitrophenol			64.0	76.4		ug/L		119	31 - 137	3	22
2,4-Dinitrotoluene			32.0	34.3		ug/L		107	69 - 120	1	20
2,6-Dinitrotoluene			32.0	31.9		ug/L		100	68 - 120	1	15
2-Chloronaphthalene			32.0	29.2		ug/L		91	58 - 120	0	21
2-Chlorophenol			32.0	28.0		ug/L		87	48 - 120	1	25
2-Methylphenol			32.0	24.2		ug/L		76	39 - 120	4	27
2-Methylnaphthalene			32.0	30.3		ug/L		95	59 - 120	2	21
2-Nitroaniline			32.0	26.6		ug/L		83	54 - 127	6	15
2-Nitrophenol			32.0	29.9		ug/L		93	52 - 125	3	18
3,3'-Dichlorobenzidine			64.0	56.4		ug/L		88	49 - 135	0	25
3-Nitroaniline			32.0	27.1		ug/L		85	51 - 120	4	19
4,6-Dinitro-2-methylphenol			64.0	71.4		ug/L		111	46 - 136	4	15
4-Bromophenyl phenyl ether			32.0	34.2		ug/L		107	65 - 120	1	15
4-Chloro-3-methylphenol			32.0	32.6		ug/L		102	61 - 123	5	27
4-Chloroaniline			32.0	25.0		ug/L		78	30 - 120	4	22
4-Chlorophenyl phenyl ether			32.0	33.1		ug/L		103	62 - 120	4	16
4-Methylphenol			32.0	26.2		ug/L		82	29 - 131	1	24
4-Nitroaniline			32.0	25.6		ug/L		80	65 - 120	11	24
4-Nitrophenol			64.0	74.0		ug/L		116	45 - 120	4	48
Acenaphthene			32.0	29.9		ug/L		93	60 - 120	3	24
Acenaphthylene			32.0	30.9		ug/L		96	63 - 120	0	18
Acetophenone			32.0	28.5		ug/L		89	45 - 120	1	20
Anthracene			32.0	29.8		ug/L		93	67 - 120	2	15
Atrazine			64.0	78.2		ug/L		122	71 - 130	4	20
Benzaldehyde			64.0	51.2		ug/L		80	10 - 140	1	20
Benzo[a]anthracene			32.0	32.1		ug/L		100	70 - 121	1	15
Benzo[a]pyrene			32.0	32.2		ug/L		101	60 - 123	2	15
Benzo[b]fluoranthene			32.0	34.1		ug/L		107	66 - 126	3	15
Benzo[g,h,i]perylene			32.0	33.5		ug/L		105	66 - 150	4	15
Benzo[k]fluoranthene			32.0	32.5		ug/L		102	65 - 124	5	22
Bis(2-chloroethoxy)methane			32.0	26.0		ug/L		81	50 - 128	4	17
Bis(2-chloroethyl)ether			32.0	24.7		ug/L		77	44 - 120	2	21
Bis(2-ethylhexyl) phthalate			32.0	31.7		ug/L		99	63 - 139	1	15

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

Lab Sample ID: LCSD 480-582098/3-A
Matrix: Water
Analysis Batch: 582389

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 582098

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Butyl benzyl phthalate			32.0	30.8		ug/L		96	70 - 129	2	16
Caprolactam			64.0	25.8		ug/L		40	22 - 120	4	20
Carbazole			32.0	31.3		ug/L		98	66 - 123	0	20
Chrysene			32.0	32.4		ug/L		101	69 - 120	2	15
Dibenz(a,h)anthracene			32.0	34.2		ug/L		107	65 - 135	4	15
Di-n-butyl phthalate			32.0	33.4		ug/L		104	69 - 131	0	15
Di-n-octyl phthalate			32.0	32.6		ug/L		102	63 - 140	2	16
Dibenzofuran			32.0	30.6		ug/L		96	66 - 120	4	15
Diethyl phthalate			32.0	34.7		ug/L		108	59 - 127	2	15
Dimethyl phthalate			32.0	33.7		ug/L		105	68 - 120	3	15
Fluoranthene			32.0	32.8		ug/L		102	69 - 126	5	15
Fluorene			32.0	31.2		ug/L		98	66 - 120	2	15
Hexachlorobenzene			32.0	34.3		ug/L		107	61 - 120	1	15
Hexachlorobutadiene			32.0	30.8		ug/L		96	35 - 120	2	44
Hexachlorocyclopentadiene			32.0	25.3		ug/L		79	31 - 120	3	49
Hexachloroethane			32.0	25.3		ug/L		79	43 - 120	0	46
Indeno[1,2,3-cd]pyrene			32.0	33.5		ug/L		105	69 - 146	4	15
Isophorone			32.0	27.1		ug/L		85	55 - 120	2	17
N-Nitrosodi-n-propylamine			32.0	26.0		ug/L		81	32 - 140	2	31
N-Nitrosodiphenylamine			32.0	29.8		ug/L		93	61 - 120	2	15
Naphthalene			32.0	28.4		ug/L		89	57 - 120	2	29
Nitrobenzene			32.0	25.7		ug/L		80	53 - 123	2	24
Pentachlorophenol			64.0	64.0		ug/L		100	29 - 136	11	37
Phenanthrene			32.0	30.9		ug/L		96	68 - 120	2	15
Phenol			32.0	18.9		ug/L		59	17 - 120	4	34
Pyrene			32.0	30.6		ug/L		95	70 - 125	1	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*78*		*46 - 120*
Phenol-d5 (Surr)	*50*		*22 - 120*
p-Terphenyl-d14 (Surr)	*100*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*115*		*41 - 120*
2-Fluorobiphenyl	*90*		*48 - 120*
2-Fluorophenol (Surr)	*66*		*35 - 120*

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 582389

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
bis (2-chloroisopropyl) ether	ND		32.0	18.2	J	ug/L		57	28 - 121
2,4,5-Trichlorophenol	ND	F2 F1	32.0	40.9	J F1	ug/L		128	65 - 126
2,4,6-Trichlorophenol	ND	F2 F1	32.0	35.4	J	ug/L		111	64 - 120
2,4-Dichlorophenol	ND	F2	32.0	37.2	J	ug/L		116	48 - 132
2,4-Dimethylphenol	ND		32.0	30.9	J	ug/L		97	39 - 130
2,4-Dinitrophenol	ND	F1	64.0	159	J F1	ug/L		249	21 - 150
2,4-Dinitrotoluene	ND	F2 F1	32.0	212	F1	ug/L		664	54 - 138
2,6-Dinitrotoluene	ND	F2	32.0	30.9	J	ug/L		97	17 - 150

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

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 582389

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	ND	F2	32.0	23.9	J	ug/L		75	52 - 124
2-Chlorophenol	ND	F2	32.0	28.9	J	ug/L		90	48 - 120
2-Methylphenol	ND		32.0	23.8	J	ug/L		74	46 - 120
2-Nitroaniline	ND		32.0	30.8	J	ug/L		96	44 - 136
2-Nitrophenol	ND	F2	32.0	32.0	J	ug/L		100	38 - 141
3,3'-Dichlorobenzidine	ND		64.0	69.5	J	ug/L		109	10 - 150
3-Nitroaniline	ND	F1	32.0	ND	F1	ug/L		0	32 - 150
4,6-Dinitro-2-methylphenol	ND	F2 F1	64.0	108	J F1	ug/L		169	38 - 150
4-Bromophenyl phenyl ether	ND		32.0	31.8	J	ug/L		100	63 - 126
4-Chloro-3-methylphenol	ND	F2	32.0	35.3	J	ug/L		110	64 - 127
4-Chloroaniline	ND	F2 F1	32.0	841	F1	ug/L		2628	16 - 124
4-Chlorophenyl phenyl ether	ND	F2	32.0	25.7	J	ug/L		80	61 - 120
4-Methylphenol	ND	F2	32.0	23.6	J	ug/L		74	36 - 120
4-Nitroaniline	ND	F1	32.0	ND	F1	ug/L		0	32 - 150
4-Nitrophenol	ND	F1	64.0	ND	F1	ug/L		0	23 - 132
Acenaphthylene	41	J F2 F1	32.0	86.0	J F1	ug/L		139	63 - 120
Acetophenone	ND		32.0	34.8	J	ug/L		109	53 - 120
Anthracene	460	F2	32.0	698	4	ug/L		739	65 - 122
Atrazine	ND		64.0	75.0	J	ug/L		117	50 - 150
Benzaldehyde	ND		64.0	44.8	J	ug/L		70	10 - 150
Benzo[a]anthracene	250	F2	32.0	419	4	ug/L		540	43 - 124
Benzo[a]pyrene	59	J F2 F1	32.0	129	F1	ug/L		217	23 - 125
Benzo[b]fluoranthene	100	F2 F1	32.0	183	F1	ug/L		251	27 - 127
Benzo[g,h,i]perylene	16	J F2	32.0	56.8	J	ug/L		126	16 - 147
Benzo[k]fluoranthene	27	J F2 F1	32.0	92.9	J F1	ug/L		206	20 - 124
Bis(2-chloroethoxy)methane	ND		32.0	27.8	J	ug/L		87	44 - 128
Bis(2-chloroethyl)ether	ND	F2	32.0	29.3	J	ug/L		91	45 - 120
Bis(2-ethylhexyl) phthalate	ND		32.0	ND		ug/L		NC	16 - 150
Butyl benzyl phthalate	ND		32.0	40.4	J	ug/L		126	51 - 140
Caprolactam	ND	F2	64.0	66.1	J	ug/L		103	10 - 120
Carbazole	62	J F2 F1	32.0	130	F1	ug/L		211	16 - 148
Chrysene	210	F2	32.0	384	4	ug/L		545	44 - 122
Dibenz(a,h)anthracene	ND		32.0	39.1	J	ug/L		122	16 - 139
Di-n-butyl phthalate	ND		32.0	37.7	J	ug/L		118	65 - 129
Di-n-octyl phthalate	ND		32.0	36.7	J	ug/L		115	16 - 150
Diethyl phthalate	ND		32.0	33.5	J	ug/L		105	53 - 133
Dimethyl phthalate	ND		32.0	38.2	J	ug/L		119	59 - 123
Hexachlorobenzene	ND		32.0	36.9	J	ug/L		115	57 - 121
Hexachlorobutadiene	ND		32.0	35.6	J	ug/L		111	37 - 120
Hexachlorocyclopentadiene	ND		32.0	20.4	J	ug/L		64	21 - 120
Hexachloroethane	ND	F2 F1	32.0	83.4	J F1	ug/L		261	16 - 130
Indeno[1,2,3-cd]pyrene	16	J F2	32.0	57.4	J	ug/L		130	16 - 140
Isophorone	ND		32.0	28.1	J	ug/L		88	48 - 133
N-Nitrosodi-n-propylamine	ND		32.0	24.8	J	ug/L		78	49 - 120
N-Nitrosodiphenylamine	ND	F2 F1	32.0	181	F1	ug/L		566	39 - 138
Nitrobenzene	ND		32.0	33.1	J	ug/L		104	45 - 123
Pentachlorophenol	ND	F1	64.0	182	J F1	ug/L		284	23 - 149
Phenol	ND	F1	32.0	19.8	J	ug/L		62	16 - 120

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

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 582389

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Surrogate	MS %Recovery	MS Qualifier	Limits
Nitrobenzene-d5 (Surr)	*82*		*46 - 120*
Phenol-d5 (Surr)	*46*		*22 - 120*
p-Terphenyl-d14 (Surr)	*101*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*142*	*S1+*	*41 - 120*
2-Fluorobiphenyl	*94*		*48 - 120*
2-Fluorophenol (Surr)	*52*		*35 - 120*

Lab Sample ID: 480-184953-5 MSD
Matrix: Water
Analysis Batch: 582389

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biphenyl	1000	F2	32.0	692	4 F2	ug/L		-1026	57 - 120	67	20
bis (2-chloroisopropyl) ether	ND		32.0	18.5	J	ug/L		58	28 - 121	2	24
2,4,5-Trichlorophenol	ND	F2 F1	32.0	32.2	J F2	ug/L		101	65 - 126	24	18
2,4,6-Trichlorophenol	ND	F2 F1	32.0	19.1	J F2 F1	ug/L		60	64 - 120	60	19
2,4-Dichlorophenol	ND	F2	32.0	21.1	J F2	ug/L		66	48 - 132	55	19
2,4-Dimethylphenol	ND		32.0	30.5	J	ug/L		95	39 - 130	1	42
2,4-Dinitrophenol	ND	F1	64.0	142	J F1	ug/L		222	21 - 150	11	22
2,4-Dinitrotoluene	ND	F2 F1	32.0	110	F1 F2	ug/L		344	54 - 138	64	20
2,6-Dinitrotoluene	ND	F2	32.0	36.9	J F2	ug/L		115	17 - 150	18	15
2-Chloronaphthalene	ND	F2	32.0	30.9	J F2	ug/L		97	52 - 124	26	21
2-Chlorophenol	ND	F2	32.0	15.3	J F2	ug/L		48	48 - 120	62	25
2-Methylphenol	ND		32.0	20.0	J	ug/L		62	46 - 120	17	27
2-Nitroaniline	ND		32.0	30.7	J	ug/L		96	44 - 136	1	15
2-Nitrophenol	ND	F2	32.0	19.7	J F2	ug/L		62	38 - 141	48	18
3,3'-Dichlorobenzidine	ND		64.0	71.5	J	ug/L		112	10 - 150	3	25
3-Nitroaniline	ND	F1	32.0	37.1	J	ug/L		116	32 - 150	NC	19
4,6-Dinitro-2-methylphenol	ND	F2 F1	64.0	79.3	J F2	ug/L		124	38 - 150	31	15
4-Bromophenyl phenyl ether	ND		32.0	36.1	J	ug/L		113	63 - 126	13	15
4-Chloro-3-methylphenol	ND	F2	32.0	25.1	J F2	ug/L		79	64 - 127	34	27
4-Chloroaniline	ND	F2 F1	32.0	24.2	J F2	ug/L		76	16 - 124	189	22
4-Chlorophenyl phenyl ether	ND	F2	32.0	33.3	J F2	ug/L		104	61 - 120	26	16
4-Methylphenol	ND	F2	32.0	18.2	J F2	ug/L		57	36 - 120	26	24
4-Nitroaniline	ND	F1	32.0	125	J F1	ug/L		390	32 - 150	NC	24
4-Nitrophenol	ND	F1	64.0	ND	F1	ug/L		0	23 - 132	NC	48
Acenaphthylene	41	J F2 F1	32.0	58.7	J F2 F1	ug/L		54	63 - 120	38	18
Acetophenone	ND		32.0	31.0	J	ug/L		97	53 - 120	12	20
Anthracene	460	F2	32.0	319	4 F2	ug/L		-446	65 - 122	75	15
Atrazine	ND		64.0	75.1	J	ug/L		117	50 - 150	0	20
Benzaldehyde	ND		64.0	51.4	J	ug/L		80	10 - 150	14	20
Benzo[a]anthracene	250	F2	32.0	166	4 F2	ug/L		-252	43 - 124	87	15
Benzo[a]pyrene	59	J F2 F1	32.0	62.3	J F2 F1	ug/L		9	23 - 125	70	15
Benzo[b]fluoranthene	100	F2 F1	32.0	77.2	J F2 F1	ug/L		-79	27 - 127	81	15
Benzo[g,h,i]perylene	16	J F2	32.0	38.3	J F2	ug/L		68	16 - 147	39	15
Benzo[k]fluoranthene	27	J F2 F1	32.0	53.6	J F2	ug/L		83	20 - 124	54	22
Bis(2-chloroethoxy)methane	ND		32.0	27.5	J	ug/L		86	44 - 128	1	17
Bis(2-chloroethyl)ether	ND	F2	32.0	22.8	J F2	ug/L		71	45 - 120	25	21

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

Lab Sample ID: 480-184953-5 MSD
Matrix: Water
Analysis Batch: 582389

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	ND		32.0	ND		ug/L		NC	16 - 150	NC	15
Butyl benzyl phthalate	ND		32.0	39.4	J	ug/L		123	51 - 140	2	16
Caprolactam	ND	F2	64.0	49.9	J F2	ug/L		78	10 - 120	28	20
Carbazole	62	J F2 F1	32.0	88.9	J F2	ug/L		84	16 - 148	37	20
Chrysene	210	F2	32.0	149	4 F2	ug/L		-192	44 - 122	88	15
Dibenz(a,h)anthracene	ND		32.0	33.5	J	ug/L		105	16 - 139	15	15
Di-n-butyl phthalate	ND		32.0	35.3	J	ug/L		110	65 - 129	6	15
Di-n-octyl phthalate	ND		32.0	36.0	J	ug/L		112	16 - 150	2	16
Diethyl phthalate	ND		32.0	33.5	J	ug/L		105	53 - 133	0	15
Dimethyl phthalate	ND		32.0	38.0	J	ug/L		119	59 - 123	0	15
Hexachlorobenzene	ND		32.0	35.4	J	ug/L		111	57 - 121	4	15
Hexachlorobutadiene	ND		32.0	31.4	J	ug/L		98	37 - 120	12	44
Hexachlorocyclopentadiene	ND		32.0	19.7	J	ug/L		62	21 - 120	4	49
Hexachloroethane	ND	F2 F1	32.0	50.2	J F1 F2	ug/L		157	16 - 130	50	46
Indeno[1,2,3-cd]pyrene	16	J F2	32.0	36.8	J F2	ug/L		66	16 - 140	44	15
Isophorone	ND		32.0	26.8	J	ug/L		84	48 - 133	4	17
N-Nitrosodi-n-propylamine	ND		32.0	22.3	J	ug/L		70	49 - 120	10	31
N-Nitrosodiphenylamine	ND	F2 F1	32.0	79.7	J F1 F2	ug/L		249	39 - 138	78	15
Nitrobenzene	ND		32.0	29.2	J	ug/L		91	45 - 123	13	24
Pentachlorophenol	ND	F1	64.0	155	J F1	ug/L		243	23 - 149	16	37
Phenol	ND	F1	32.0	ND	F1	ug/L		0	16 - 120	NC	34

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*
Phenol-d5 (Surr)	*29*		*22 - 120*
p-Terphenyl-d14 (Surr)	*96*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*75*		*41 - 120*
2-Fluorobiphenyl	*90*		*48 - 120*
2-Fluorophenol (Surr)	*25*	*S1-*	*35 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 582565

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl - DL	1100	F2	32.0	2370	4	ug/L		4035	57 - 120
2-Methylnaphthalene - DL	1600	F2	32.0	2380	4	ug/L		2520	34 - 140
Acenaphthene - DL	3300	F2	32.0	5130	4	ug/L		5780	48 - 120
Dibenzofuran - DL	3200	F2	32.0	5070	4	ug/L		5740	60 - 120
Fluoranthene - DL	2400	F2	32.0	4020	4	ug/L		4992	63 - 129
Fluorene - DL	2800	F2	32.0	4660	4	ug/L		5718	62 - 120
Naphthalene - DL	1800	F2	32.0	2470	4	ug/L		2169	45 - 120
Phenanthrene - DL	7100	F2	32.0	10800	4	ug/L		11512	65 - 122
Pyrene - DL	1600	F2	32.0	2340	4	ug/L		2454	58 - 128

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Lab Sample ID: 480-184953-5 MS
Matrix: Water
Analysis Batch: 582565

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Surrogate	MS %Recovery	MS Qualifier	Limits
Nitrobenzene-d5 (Surr) - DL	0	S1-	46 - 120
Phenol-d5 (Surr) - DL	0	S1-	22 - 120
p-Terphenyl-d14 (Surr) - DL	101		60 - 148
2,4,6-Tribromophenol (Surr) - DL	0	S1-	41 - 120
2-Fluorobiphenyl - DL	139	S1+	48 - 120
2-Fluorophenol (Surr) - DL	0	S1-	35 - 120

Lab Sample ID: 480-184953-5 MSD
Matrix: Water
Analysis Batch: 582565

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 582098

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene - DL	1600	F2	32.0	1070	4 F2	ug/L		-1576	34 - 140	76	21
Acenaphthene - DL	3300	F2	32.0	1980	4 F2	ug/L		-4040	48 - 120	88	24
Dibenzofuran - DL	3200	F2	32.0	1940	J 4 F2	ug/L		-4055	60 - 120	89	15
Fluoranthene - DL	2400	F2	32.0	1230	4 F2	ug/L		-3712	63 - 129	106	15
Fluorene - DL	2800	F2	32.0	1700	4 F2	ug/L		-3517	62 - 120	93	15
Naphthalene - DL	1800	F2	32.0	1340	4 F2	ug/L		-1385	45 - 120	60	29
Phenanthrene - DL	7100	F2	32.0	4010	4 F2	ug/L		-9790	65 - 122	92	15
Pyrene - DL	1600	F2	32.0	812	J 4 F2	ug/L		-2336	58 - 128	97	19

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Nitrobenzene-d5 (Surr) - DL	180	S1+	46 - 120
Phenol-d5 (Surr) - DL	0	S1-	22 - 120
p-Terphenyl-d14 (Surr) - DL	85		60 - 148
2,4,6-Tribromophenol (Surr) - DL	0	S1-	41 - 120
2-Fluorobiphenyl - DL	87		48 - 120
2-Fluorophenol (Surr) - DL	0	S1-	35 - 120

GC/MS VOA

Analysis Batch: 581885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-184953-1	PZ-2	Total/NA	Water	8260C	
480-184953-2	PZ-3	Total/NA	Water	8260C	
480-184953-4	Filter Vault Eff	Total/NA	Water	8260C	
480-184953-5	MW-7D	Total/NA	Water	8260C	
480-184953-6	Blind Dup	Total/NA	Water	8260C	
480-184953-7	MW-3D	Total/NA	Water	8260C	
MB 480-581885/8	Method Blank	Total/NA	Water	8260C	
LCS 480-581885/6	Lab Control Sample	Total/NA	Water	8260C	
480-184953-5 MS	MW-7D	Total/NA	Water	8260C	
480-184953-5 MSD	MW-7D	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 582098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-184953-1	PZ-2	Total/NA	Water	3510C	
480-184953-2	PZ-3	Total/NA	Water	3510C	
480-184953-3	PZ-4	Total/NA	Water	3510C	
480-184953-4	Filter Vault Eff	Total/NA	Water	3510C	
480-184953-5	MW-7D	Total/NA	Water	3510C	
480-184953-5 - DL	MW-7D	Total/NA	Water	3510C	
480-184953-6	Blind Dup	Total/NA	Water	3510C	
480-184953-7	MW-3D	Total/NA	Water	3510C	
MB 480-582098/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-582098/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-582098/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
480-184953-5 MS	MW-7D	Total/NA	Water	3510C	
480-184953-5 MS - DL	MW-7D	Total/NA	Water	3510C	
480-184953-5 MSD - DL	MW-7D	Total/NA	Water	3510C	
480-184953-5 MSD	MW-7D	Total/NA	Water	3510C	

Analysis Batch: 582389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-184953-1	PZ-2	Total/NA	Water	8270D	582098
480-184953-2	PZ-3	Total/NA	Water	8270D	582098
480-184953-3	PZ-4	Total/NA	Water	8270D	582098
480-184953-4	Filter Vault Eff	Total/NA	Water	8270D	582098
480-184953-5	MW-7D	Total/NA	Water	8270D	582098
480-184953-6	Blind Dup	Total/NA	Water	8270D	582098
MB 480-582098/1-A	Method Blank	Total/NA	Water	8270D	582098
LCS 480-582098/2-A	Lab Control Sample	Total/NA	Water	8270D	582098
LCSD 480-582098/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	582098
480-184953-5 MS	MW-7D	Total/NA	Water	8270D	582098
480-184953-5 MSD	MW-7D	Total/NA	Water	8270D	582098

Analysis Batch: 582565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-184953-5 - DL	MW-7D	Total/NA	Water	8270D	582098
480-184953-7	MW-3D	Total/NA	Water	8270D	582098
480-184953-5 MS - DL	MW-7D	Total/NA	Water	8270D	582098
480-184953-5 MSD - DL	MW-7D	Total/NA	Water	8270D	582098

Client Sample ID: PZ-2

Lab Sample ID: 480-184953-1

Date Collected: 05/19/21 10:24

Matrix: Water

Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	581885	05/21/21 04:24	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582389	05/25/21 01:54	PJQ	TAL BUF

Client Sample ID: PZ-3

Lab Sample ID: 480-184953-2

Date Collected: 05/19/21 11:05

Matrix: Water

Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	581885	05/21/21 04:47	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582389	05/25/21 02:20	PJQ	TAL BUF

Client Sample ID: PZ-4

Lab Sample ID: 480-184953-3

Date Collected: 05/19/21 11:15

Matrix: Water

Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582389	05/25/21 02:46	PJQ	TAL BUF

Client Sample ID: Filter Vault Eff

Lab Sample ID: 480-184953-4

Date Collected: 05/19/21 11:25

Matrix: Water

Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	581885	05/21/21 05:11	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582389	05/25/21 03:13	PJQ	TAL BUF

Client Sample ID: MW-7D

Lab Sample ID: 480-184953-5

Date Collected: 05/19/21 15:19

Matrix: Water

Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	581885	05/21/21 05:34	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		20	582389	05/24/21 21:05	PJQ	TAL BUF
Total/NA	Prep	3510C	DL		582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D	DL	200	582565	05/25/21 18:49	JMM	TAL BUF

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 480-184953-1
Project/Site: Vandemark Chemical site

Client Sample ID: Blind Dup
Lab Sample ID: 480-184953-6
Date Collected: 05/19/21 00:00
Matrix: Water
Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	581885	05/21/21 05:57	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582389	05/25/21 03:39	PJQ	TAL BUF

Client Sample ID: MW-3D
Lab Sample ID: 480-184953-7
Date Collected: 05/19/21 15:55
Matrix: Water
Date Received: 05/19/21 17:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	581885	05/21/21 06:20	OMI	TAL BUF
Total/NA	Prep	3510C			582098	05/21/21 15:12	ATG	TAL BUF
Total/NA	Analysis	8270D		1	582565	05/25/21 19:16	JMM	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Golder Associates Inc.
Job ID: 480-184953-1
Project/Site: Vandemark Chemical site

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-01-22

Method Summary

Client: Golder Associates Inc.
Job ID: 480-184953-1
Project/Site: Vandemark Chemical site

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

Protocol References:

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

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Golder Associates Inc.
Job ID: 480-184953-1
Project/Site: Vandemark Chemical site

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-184953-1	PZ-2	Water	05/19/21 10:24	05/19/21 17:10	
480-184953-2	PZ-3	Water	05/19/21 11:05	05/19/21 17:10	
480-184953-3	PZ-4	Water	05/19/21 11:15	05/19/21 17:10	
480-184953-4	Filter Vault Eff	Water	05/19/21 11:25	05/19/21 17:10	
480-184953-5	MW-7D	Water	05/19/21 15:19	05/19/21 17:10	
480-184953-6	Blind Dup	Water	05/19/21 00:00	05/19/21 17:10	
480-184953-7	MW-3D	Water	05/19/21 15:55	05/19/21 17:10	

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

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Client Information	Sampler: JOSH VERNOY	Lab PM: Fischer, Brian J	Carrier Tracking No(s):	COC No: 480-160490-15389.1
Client Contact: Mr. Patrick Martin	Phone:	E-Mail: Brian.Fischer@Eurofinset.com	State of Origin:	Page: Page 1 of 1
Company: Golder Associates Inc.	PWSID:			Job #:

Address: 455 Commerce Dr. Suite 8	Due Date Requested:
City: Buffalo	TAT Requested (days): standard
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No
Phone: 716-204-5880(Tel)	PO #: 093-89168
Email: patrick_martin@golder.com	WO #:
Project Name: Vandemark Chemical site	Project #: 48010016
Site:	SSOW#:

Analysis Requested

480-184953 Chain of Custody

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, ...c Acid, ...SO4, ...H, ...hlor, ...rbic Acid, ...ter
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - TCL SVOA - OLM04.2	8260C - TCL list OLM04.2	Total Number of cc	Special Instructions/Note:
			Preservation Code:				N	A		
PZ-2	5/19/2021	1024	G	Water	N	N	2	3	5	
PZ-3		1105		Water		N				
PZ-4		1115		Water		N				
Filter Vault Eff		1125		Water		N				
MW-7D		1519		Water		Y				oil sheen on sample @ MW-7D
MW-7D MS		1519		Water		Y				
MW-7D MSD		1519		Water		Y				
Blind Duplicate		-		Water		N				
MW-3D		1556		Water		N				Sample time: 1556

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time: 5/19/21 @ 1710	Company: Golder	Received by:	Date/Time: 5/19/21 1710	Company: ETA Buffalo
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.4 #1

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: Golder Associates Inc.

Job Number: 480-184953-1

Login Number: 184953

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Sabuda, Brendan D

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.4 #1 ICE
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

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ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-185643-1
Client Project/Site: Vandemark Chemical site

For:
Golder Associates Inc.
455 Commerce Dr.
Suite 8
Buffalo, New York 14228

Attn: Mr. Patrick Martin

Authorized for release by:
6/16/2021 4:30:22 PM
Rebecca Jones, Project Management Assistant I
Rebecca.Jones@Eurofinset.com

Designee for

Brian Fischer, Manager of Project Management
(716)504-9835
Brian.Fischer@Eurofinset.com

Table of Contents

Glossary

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

Case Narrative

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-185643-1

Job ID: 480-185643-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-185643-1

Comments
No additional comments.

Receipt
The sample was received on 6/4/2021 4:48 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.9º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Client Sample ID: PZ-04 **Lab Sample ID: 480-185643-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-185643-1

Client Sample ID: PZ-04
Date Collected: 06/04/21 15:03
Date Received: 06/04/21 16:48

Lab Sample ID: 480-185643-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/11/21 13:30	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/11/21 13:30	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/11/21 13:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/11/21 13:30	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/11/21 13:30	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/11/21 13:30	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/11/21 13:30	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/11/21 13:30	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/11/21 13:30	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/11/21 13:30	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/11/21 13:30	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/11/21 13:30	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/11/21 13:30	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/11/21 13:30	1
2-Hexanone	ND		5.0	1.2	ug/L			06/11/21 13:30	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/11/21 13:30	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/11/21 13:30	1
Acetone	ND		10	3.0	ug/L			06/11/21 13:30	1
Benzene	ND		1.0	0.41	ug/L			06/11/21 13:30	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/11/21 13:30	1
Bromoform	ND		1.0	0.26	ug/L			06/11/21 13:30	1
Bromomethane	ND		1.0	0.69	ug/L			06/11/21 13:30	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/11/21 13:30	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/11/21 13:30	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/11/21 13:30	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/11/21 13:30	1
Chloroethane	ND		1.0	0.32	ug/L			06/11/21 13:30	1
Chloroform	ND		1.0	0.34	ug/L			06/11/21 13:30	1
Chloromethane	ND		1.0	0.35	ug/L			06/11/21 13:30	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/11/21 13:30	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/11/21 13:30	1
Cyclohexane	ND		1.0	0.18	ug/L			06/11/21 13:30	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/11/21 13:30	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/11/21 13:30	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/11/21 13:30	1
Methyl acetate	ND		2.5	1.3	ug/L			06/11/21 13:30	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/11/21 13:30	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/11/21 13:30	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/11/21 13:30	1
Styrene	ND		1.0	0.73	ug/L			06/11/21 13:30	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/11/21 13:30	1
Toluene	ND		1.0	0.51	ug/L			06/11/21 13:30	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/11/21 13:30	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/11/21 13:30	1
Trichloroethene	ND		1.0	0.46	ug/L			06/11/21 13:30	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/11/21 13:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/11/21 13:30	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/11/21 13:30	1

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Client Sample ID: PZ-04
Lab Sample ID: 480-185643-1
Date Collected: 06/04/21 15:03
Matrix: Water
Date Received: 06/04/21 16:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		77 - 120		06/11/21 13:30	1
Toluene-d8 (Surr)	97		80 - 120		06/11/21 13:30	1
4-Bromofluorobenzene (Surr)	100		73 - 120		06/11/21 13:30	1
Dibromofluoromethane (Surr)	104		75 - 123		06/11/21 13:30	1

Surrogate Summary

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-185643-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(77-120)	(80-120)	(73-120)	(75-123)
480-185643-1	PZ-04	103	97	100	104
LCS 480-584976/5	Lab Control Sample	98	98	98	100
LCSD 480-584976/6	Lab Control Sample Dup	100	97	103	100
MB 480-584976/8	Method Blank	105	99	101	109

Surrogate Legend

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

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-185643-1

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

Lab Sample ID: MB 480-584976/8
Matrix: Water
Analysis Batch: 584976

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/11/21 12:13	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/11/21 12:13	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/11/21 12:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/11/21 12:13	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/11/21 12:13	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/11/21 12:13	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/11/21 12:13	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/11/21 12:13	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/11/21 12:13	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/11/21 12:13	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/11/21 12:13	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/11/21 12:13	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/11/21 12:13	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/11/21 12:13	1
2-Hexanone	ND		5.0	1.2	ug/L			06/11/21 12:13	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/11/21 12:13	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/11/21 12:13	1
Acetone	ND		10	3.0	ug/L			06/11/21 12:13	1
Benzene	ND		1.0	0.41	ug/L			06/11/21 12:13	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/11/21 12:13	1
Bromoform	ND		1.0	0.26	ug/L			06/11/21 12:13	1
Bromomethane	ND		1.0	0.69	ug/L			06/11/21 12:13	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/11/21 12:13	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/11/21 12:13	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/11/21 12:13	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/11/21 12:13	1
Chloroethane	ND		1.0	0.32	ug/L			06/11/21 12:13	1
Chloroform	ND		1.0	0.34	ug/L			06/11/21 12:13	1
Chloromethane	ND		1.0	0.35	ug/L			06/11/21 12:13	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/11/21 12:13	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/11/21 12:13	1
Cyclohexane	ND		1.0	0.18	ug/L			06/11/21 12:13	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/11/21 12:13	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/11/21 12:13	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/11/21 12:13	1
Methyl acetate	ND		2.5	1.3	ug/L			06/11/21 12:13	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/11/21 12:13	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/11/21 12:13	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/11/21 12:13	1
Styrene	ND		1.0	0.73	ug/L			06/11/21 12:13	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/11/21 12:13	1
Toluene	ND		1.0	0.51	ug/L			06/11/21 12:13	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/11/21 12:13	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/11/21 12:13	1
Trichloroethene	ND		1.0	0.46	ug/L			06/11/21 12:13	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/11/21 12:13	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/11/21 12:13	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/11/21 12:13	1

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

Lab Sample ID: MB 480-584976/8
Matrix: Water
Analysis Batch: 584976

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		77 - 120		06/11/21 12:13	1
Toluene-d8 (Surr)	99		80 - 120		06/11/21 12:13	1
4-Bromofluorobenzene (Surr)	101		73 - 120		06/11/21 12:13	1
Dibromofluoromethane (Surr)	109		75 - 123		06/11/21 12:13	1

Lab Sample ID: LCS 480-584976/5
Matrix: Water
Analysis Batch: 584976

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	25.0	26.8		ug/L		107	73 - 126
1,1,2,2-Tetrachloroethane	25.0	24.3		ug/L		97	76 - 120
1,1,2-Trichloroethane	25.0	24.4		ug/L		98	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	27.5		ug/L		110	61 - 148
1,1-Dichloroethane	25.0	25.4		ug/L		102	77 - 120
1,1-Dichloroethene	25.0	27.1		ug/L		108	66 - 127
1,2,4-Trichlorobenzene	25.0	25.4		ug/L		102	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.0		ug/L		92	56 - 134
1,2-Dibromoethane	25.0	24.8		ug/L		99	77 - 120
1,2-Dichlorobenzene	25.0	24.1		ug/L		96	80 - 124
1,2-Dichloroethane	25.0	23.8		ug/L		95	75 - 120
1,2-Dichloropropane	25.0	25.3		ug/L		101	76 - 120
1,3-Dichlorobenzene	25.0	24.1		ug/L		96	77 - 120
1,4-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 120
2-Hexanone	125	122		ug/L		98	65 - 127
2-Butanone (MEK)	125	137		ug/L		109	57 - 140
4-Methyl-2-pentanone (MIBK)	125	121		ug/L		97	71 - 125
Acetone	125	145		ug/L		116	56 - 142
Benzene	25.0	25.5		ug/L		102	71 - 124
Bromodichloromethane	25.0	24.3		ug/L		97	80 - 122
Bromoform	25.0	25.0		ug/L		100	61 - 132
Bromomethane	25.0	25.9		ug/L		103	55 - 144
Carbon disulfide	25.0	25.6		ug/L		102	59 - 134
Carbon tetrachloride	25.0	28.4		ug/L		114	72 - 134
Chlorobenzene	25.0	24.9		ug/L		100	80 - 120
Dibromochloromethane	25.0	23.6		ug/L		95	75 - 125
Chloroethane	25.0	24.3		ug/L		97	69 - 136
Chloroform	25.0	23.8		ug/L		95	73 - 127
Chloromethane	25.0	24.8		ug/L		99	68 - 124
cis-1,2-Dichloroethene	25.0	25.7		ug/L		103	74 - 124
cis-1,3-Dichloropropene	25.0	25.5		ug/L		102	74 - 124
Cyclohexane	25.0	27.1		ug/L		108	59 - 135
Dichlorodifluoromethane	25.0	25.5		ug/L		102	59 - 135
Ethylbenzene	25.0	25.1		ug/L		100	77 - 123
Isopropylbenzene	25.0	26.5		ug/L		106	77 - 122
Methyl acetate	50.0	48.1		ug/L		96	74 - 133
Methyl tert-butyl ether	25.0	24.9		ug/L		99	77 - 120
Methylcyclohexane	25.0	27.2		ug/L		109	68 - 134

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

Lab Sample ID: LCS 480-584976/5
Matrix: Water
Analysis Batch: 584976

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Chloride	25.0	23.3		ug/L		93	75 - 124
Styrene	25.0	25.1		ug/L		100	80 - 120
Tetrachloroethene	25.0	27.1		ug/L		109	74 - 122
Toluene	25.0	24.8		ug/L		99	80 - 122
trans-1,2-Dichloroethene	25.0	23.4		ug/L		94	73 - 127
trans-1,3-Dichloropropene	25.0	25.5		ug/L		102	80 - 120
Trichloroethene	25.0	25.7		ug/L		103	74 - 123
Trichlorofluoromethane	25.0	26.9		ug/L		107	62 - 150
Vinyl chloride	25.0	26.2		ug/L		105	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*

Lab Sample ID: LCSD 480-584976/6
Matrix: Water
Analysis Batch: 584976

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	25.0	26.6		ug/L		106	73 - 126	1	15
1,1,2,2-Tetrachloroethane	25.0	24.4		ug/L		98	76 - 120	0	15
1,1,2-Trichloroethane	25.0	24.6		ug/L		98	76 - 122	1	15
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	27.1		ug/L		108	61 - 148	1	20
1,1-Dichloroethane	25.0	25.0		ug/L		100	77 - 120	2	20
1,1-Dichloroethene	25.0	25.7		ug/L		103	66 - 127	5	16
1,2,4-Trichlorobenzene	25.0	25.6		ug/L		102	79 - 122	1	20
1,2-Dibromo-3-Chloropropane	25.0	23.2		ug/L		93	56 - 134	1	15
1,2-Dibromoethane	25.0	24.8		ug/L		99	77 - 120	0	15
1,2-Dichlorobenzene	25.0	23.5		ug/L		94	80 - 124	2	20
1,2-Dichloroethane	25.0	24.1		ug/L		96	75 - 120	1	20
1,2-Dichloropropane	25.0	24.9		ug/L		100	76 - 120	2	20
1,3-Dichlorobenzene	25.0	23.8		ug/L		95	77 - 120	1	20
1,4-Dichlorobenzene	25.0	23.9		ug/L		96	80 - 120	2	20
2-Hexanone	125	133		ug/L		106	65 - 127	9	15
2-Butanone (MEK)	125	144		ug/L		115	57 - 140	5	20
4-Methyl-2-pentanone (MIBK)	125	129		ug/L		103	71 - 125	6	35
Acetone	125	156		ug/L		124	56 - 142	7	15
Benzene	25.0	24.9		ug/L		100	71 - 124	2	13
Bromodichloromethane	25.0	23.7		ug/L		95	80 - 122	3	15
Bromoform	25.0	25.7		ug/L		103	61 - 132	3	15
Bromomethane	25.0	24.5		ug/L		98	55 - 144	6	15
Carbon disulfide	25.0	24.9		ug/L		100	59 - 134	3	15
Carbon tetrachloride	25.0	26.4		ug/L		106	72 - 134	7	15
Chlorobenzene	25.0	24.5		ug/L		98	80 - 120	2	25
Dibromochloromethane	25.0	24.9		ug/L		100	75 - 125	5	15
Chloroethane	25.0	24.3		ug/L		97	69 - 136	0	15

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

Lab Sample ID: LCSD 480-584976/6
Matrix: Water
Analysis Batch: 584976

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroform			25.0	24.5		ug/L		98	73 - 127	3	20
Chloromethane			25.0	24.3		ug/L		97	68 - 124	2	15
cis-1,2-Dichloroethene			25.0	25.8		ug/L		103	74 - 124	0	15
cis-1,3-Dichloropropene			25.0	25.7		ug/L		103	74 - 124	1	15
Cyclohexane			25.0	25.9		ug/L		104	59 - 135	4	20
Dichlorodifluoromethane			25.0	23.8		ug/L		95	59 - 135	7	20
Ethylbenzene			25.0	24.5		ug/L		98	77 - 123	2	15
Isopropylbenzene			25.0	25.3		ug/L		101	77 - 122	5	20
Methyl acetate			50.0	52.3		ug/L		105	74 - 133	8	20
Methyl tert-butyl ether			25.0	25.8		ug/L		103	77 - 120	4	37
Methylcyclohexane			25.0	26.3		ug/L		105	68 - 134	4	20
Methylene Chloride			25.0	23.4		ug/L		94	75 - 124	1	15
Styrene			25.0	24.4		ug/L		98	80 - 120	3	20
Tetrachloroethene			25.0	25.3		ug/L		101	74 - 122	7	20
Toluene			25.0	24.5		ug/L		98	80 - 122	1	15
trans-1,2-Dichloroethene			25.0	23.8		ug/L		95	73 - 127	2	20
trans-1,3-Dichloropropene			25.0	25.7		ug/L		103	80 - 120	1	15
Trichloroethene			25.0	25.5		ug/L		102	74 - 123	1	16
Trichlorofluoromethane			25.0	26.1		ug/L		104	62 - 150	3	20
Vinyl chloride			25.0	25.7		ug/L		103	65 - 133	2	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*

QC Association Summary

Client: Golder Associates Inc.
Project/Site: Vandemark Chemical site

Job ID: 480-185643-1

GC/MS VOA

Analysis Batch: 584976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-185643-1	PZ-04	Total/NA	Water	8260C	
MB 480-584976/8	Method Blank	Total/NA	Water	8260C	
LCS 480-584976/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 480-584976/6	Lab Control Sample Dup	Total/NA	Water	8260C	

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Client Sample ID: PZ-04
Lab Sample ID: 480-185643-1
Date Collected: 06/04/21 15:03
Matrix: Water
Date Received: 06/04/21 16:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	584976	06/11/21 13:30	CRL	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-01-22

Method Summary

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
5030C	Purge and Trap	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Golder Associates Inc.
Job ID: 480-185643-1
Project/Site: Vandemark Chemical site

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-185643-1	PZ-04	Water	06/04/21 15:03	06/04/21 16:48	

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: J. VERNOLD	Lab PM: Fischer, Brian J	Carrier Tracking No(s):	COC No: 480-161021-35423.1
Client Contact: Mr. Patrick Martin	Phone: 716-352-9278	E-Mail: Brian.Fischer@Eurofinset.com	State of Origin:	Page: Page 1 of 1
Company: Golder Associates Inc.	PWSID:			Job #:
Address: 455 Commerce Dr. Suite 8	Due Date Requested:			
City: Buffalo	TAT Requested (days):			
State, Zip: NY, 14228	Compliance Project: Δ Yes Δ No			
Phone: 716-204-5880(Tel)	PO #: 093-89168			
Email: patrick_martin@golder.com	WO #:			
Project Name: Vandemark Chemical site - voa vials	Project #: 48010016			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - (MOD) TCL list OLM04.2	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
PZ-04	6/4/21	1503	G	Water	N	N	3	3	

480-185643 Chain of Custody

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 6/4/21 @ 1648	Company	Received by:	Date/Time: 6/4/21 1648	Company TA	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

Cooler Temperature(s) °C and Other Remarks: 3.9 IR 1 ICE

Ver: 11/01/2020

Login Sample Receipt Checklist

Client: Golder Associates Inc.

Job Number: 480-185643-1

Login Number: 185643

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	False	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GOLDER
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	