2020 ANNUAL MONITORING / INSPECTION REPORT
SNPE- VDM Creek Bank Corrective Actions

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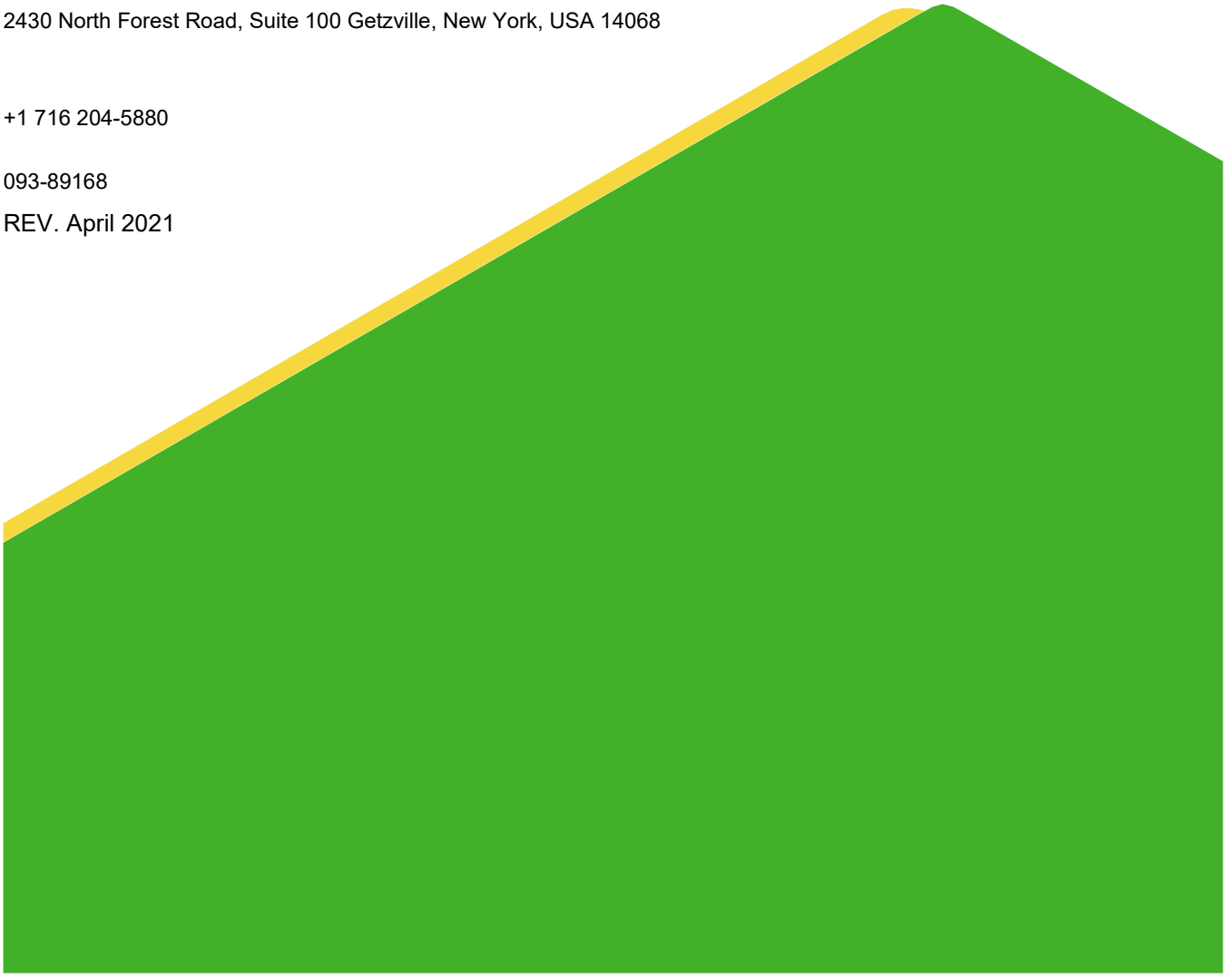

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1.0 INTRODUCTION

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 2020, in support of the Operations and Maintenance Plan (OMP) that was prepared for the VDM Lockport facility by Golder (Golder, April 2013) and approved revisions. This summary report describes the activities that were undertaken during 2020 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 2020 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.

2.0 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 2020 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

Golder personnel performed visual inspections of the DNAPL collection trench in May and November 2020. 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 2020 Inspection

DNAPL accumulation was not observed during the May 7, 2020 inspection event within the observation sumps located within the DNAPL collection trench. Golder 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. 49" water and 5” of sediment), and OS-3 (approx.15” water and 5” of sediment) contained ground water without a sheen or odor.

2.1.2 November 2020 Inspection

DNAPL accumulation was not observed during the November 12, 2020 inspection period within the observation sumps located within the DNAPL collection trench. Golder 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. 49” water and indeterminate amount of sediment) and OS-3 (approx. 13” water and 5” sediment) without a sheen or odor, while OS-2 and OS-4 were both dry. Golder also dug a test hole in the DNAPL Collection trench approximately 20 feet east of the Filter Vault to visually inspect trench drainage stone materials for the presence of DNAPL. 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 2020. 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 2020 Inspection

Golder 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 six 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 2020 inspection, observed accumulations of DNAPL were noted in the same areas where 2019 removals had been performed and interspersed within the buried stone block and soil bank structure. Due to COVID-19 exposure concerns at that time, it was agreed that a DNAPL removal event would not be performed in May. Further DNAPL residuals removal was planned and coordinated with VanDeMark and the NYSDEC to be conducted during the second Fall 2020 inspection event.

No evidence of DNAPL accumulation was observed on the up-gradient slopes, vegetative cover was light at this time providing reasonably good ground visibility.

2.2.2 November 2020 Inspection

No evidence of DNAPL accumulation was observed during the November 2020 inspection along the up-gradient slopes, however a thick cover of fallen leaves limited ground visibility. On the down-gradient slope, DNAPL accumulations were observed in areas where previous removals have been performed in 2019 along an approximately 15 to 25-foot section of the steeply graded edge of creek bank south of OS-3. This area is 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 six years of monitoring and inspection. The observed accumulations were intermittent among the rocks and soil closer to the bottom of the creek bank. Residuals were removed in approximately four main areas to the extent feasible where removal did not destabilize the bank and they were accessible. A total of three (3) five-gallon pails of residuals were collected during the November 2020 inspection, DNAPL collection is tracked in Table 3-3. The material was consolidated into 55-gallon drums and disposed of by VDM under a previously approved waste profile.

It was agreed that these areas will continue to be assessed during the Spring 2021 inspection to determine if the amount of residuals has increased due to further seepage or if they remain relatively stable. Further removal of these deposits, if feasible, will be manually performed during the Spring 2021 monitoring and inspection event, consistent with DNAPL removals performed in 2019 and 2020. DNAPL seeps will be manually removed with hand tools to minimize disturbance to the creek bank in the steeply graded areas with care to minimize destabilizing the surrounding bank areas to prevent materials from reaching the creek or leading to further bank erosion.

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 2020 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 2020 inspections are included in Appendix B.

2.3.1 May 2020 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 ¼ - 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 2020 Inspection

During the November 2020 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 to enhance visual inspection of the drainage.

3.0 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 and installed in 1999 and 2006 were monitored to establish a groundwater quality baseline 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 (Golder, April 2013).

3.2 Creek Bank Piezometers

Annual groundwater sampling was performed in May 2020 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.

3.2.1 Piezometer Purging

Water levels were measured at each of the 1-inch diameter piezometers to calculate the standing water volume at each well. Piezometers were then purged into graduated containers to remove a minimum of three well volumes in order to ensure representative samples of groundwater at each location. Purging methods employed by Golder personnel involved the use of dedicated polyethylene bailers suspended by nylon string or jute twine. After the piezometers were purged, field measurements for pH, specific conductance and temperature were documented.

Well purging data, including the duration of the purging process, methods employed, the volume of water removed, and measured field parameters are included on the Sample Collection Field Logs provided in Appendix C. Water purged from the piezometers during the purging process was collected by Golder personnel in appropriate containers and discharged into VDM's process sewer manhole.

3.2.2 Piezometer Sampling & Analytical Results

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 using dedicated polyethylene bailers. The groundwater samples were shipped via courier under proper preservation and chain of custody procedures to Eurofins TestAmerica Laboratories, Inc. (ETA) in Buffalo, New York, a New York State Department of Health Environmental Laboratory Accreditation Program (ELAP) certified laboratory, within eight hours of collection. Excess water purged from the piezometers during the sampling activities was collected in appropriate containers by Golder personnel and discharged into VDM's process sewer manhole. 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 2020 sampling event.

All piezometer 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 was the eighth year of Site monitoring following the completion of the Corrective Measures. The 2020 sample results are presented in Table 3-2 comparing this year's analytical results to the 2013 - 2019 groundwater sampling events analytical results.

The analytical results of PZ-3 during for annual sampling event on May 7, 2020 identified three SVOCs, phenol, 4-Methylphenol and naphthalene as exceeding the NYSDEC Part 703 Groundwater Quality Standards (GWQS). Phenol was detected during the May 2020 sampling event at a concentration of 84 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. 4-Methylhenol was detected during the May 2020 sampling event at a concentration of 2.0 ug/L, which is a slight increase from 1.7 ug/L detected during the May 2019 event. Naphthalene was also detected during the May 2020 sampling event at a concentration of 19 ug/L, which is a slight increase from 16 ug/L detected during the May 2019 event and 12 ug/L detected during the May 2018. 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 four consecutive sampling events (November 2017, May 2018, May 2019 and May 2020). No other compounds were detected above the GWQS in the piezometers.

Golder 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 4-Methylphenol, phenol and naphthalene exceedances in PZ-3, which could impact on the creek water quality.

3.3 Plant Monitoring Well Sampling & 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 have been obtained from what was previously thought to be MW-3D since the 2014 sampling event. However, VDM recently 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. After completion of these pre-sampling activities, the wells were purged of three well volumes (or until dry). A sample after the third well volume was measured for the following field parameters: pH, temperature, and specific conductivity. Groundwater samples were then collected for chemical analysis using dedicated polyethylene bailers.

The groundwater samples were shipped via courier under proper preservation and chain of custody procedures to Test America within eight hours of collection. Water purged from the wells during the sampling activities was collected in appropriate containers by Golder personnel and discharged into VDM’s process sewer manhole.

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 eighth year of Site monitoring following the completion of the Corrective Measures. Table 3-2 presents the 2020 analytical results alongside results from the 2013 - 2019 groundwater sampling events for comparison purposes. A copy of the analytical report is provided in Appendix D.

The analytical results of the monitoring well samples collected during the May 2020 sampling event identified nine (9) VOCs and five (5) SVOCs as exceeding the NYSDEC Part 703 GWQS. Seven(7) 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 170 ug/L during the May 2020 sampling event, which is approximately 2 times the previous highest detected concentration. It had been detected intermittently at five prior “spring” sampling events. Acenaphthene was detected at 570.0 ug/L during the May 2020 sampling event, which is 2.2 times the previous highest concentration. Naphthalene was detected at 280 ug/L during the May 2020 sampling event, which is 1.5 times the previous highest concentration. A naphthalene odor and initial sheen was observed during purging and sampling of MW-7D. These detections were all qualified due to MS/MSD control limit exceedances. Seven VOCs (1,1,1- TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA, Chloroethane, VC, and Xylenes) detected at MW-7D that exceeded their respective GWQSs. Phenanthrene (1300 ug/L) was detected in MW-7D for the first time at an elevated concentration that exceeded its 50 ug/L TOGS 1.1.1 guidance value. Elevated levels of this and other target analytes required dilution of the samples to more accurately speciate compounds in the sample matrix which resulted in higher reporting limits for the samples.

Detections in MW-3D were 1,2-dichloroethane, with a concentration of 1.2 ug/L, exceeded the GWQS of 0.6 ug/L, Chlorobenzene with a concentration of 11.00 ug/L and Acenaphthene with a concentration of 44.00 ug/L. Chlorobenzene has not been detected at this well before and Acenaphthene is 15.2 times higher than the previous highest concentration.

Naphthalene and benzo(a)pyrene are the only VOCs or SVOCs detected in MW-7D and MW-3D within the operational portion of the VDM facility that were also detected in the down-gradient piezometers at low concentrations and exceeded NYSDEC GWQS. Although the total PAH concentrations detected in MW-7D are much higher in 2020 than previous monitoring events, the detection of these compounds in the downgradient creek bank piezometers above GWQS continues to be limited to the noted concentrations of naphthalene and benzo(a)pyrene at levels just above their 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. Golder 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 2020 sampling event.

3.4 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 2020. 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 2020 results alongside results from the 2013 - 2019 Filter Sump sampling for comparison purposes.

The analytical results of the Filter Sump samples collected during the May 2020 sampling event identified one VOC exceeding the NYSDEC Part 703 groundwater quality standards (GWQS). Chloroform was detected at 17.00 ug/L exceeding the NYSDEC Part 703 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. Golder 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 2020 sampling event.

4.0 MAINTENANCE & CLEAN-OUT ACTIVITIES

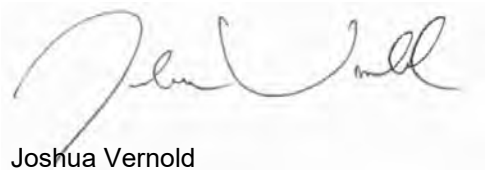
As described in Section 2.0 above, the inspections conducted in 2020 did not find evidence of DNAPL impacts to the DNAPL Collection Trench or Filter Sump, therefore maintenance or clean-out activities were not necessary or performed on these components of the Creek Bank Area remedial system. Repairs 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. For future inspections, the recently located MW-3D south of D-Building will be included in the condition assessment of the monitoring wells.

5.0 REFERENCES

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

Signature Page

Golder Associates Inc.



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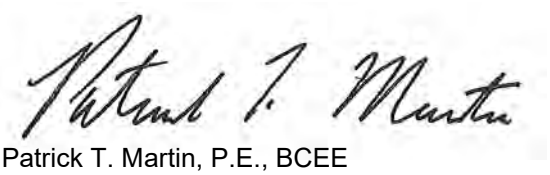

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TABLES

TABLE 3-1
SNPE-VANDEMARK SITE
2020 GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS T.O.G.S Groundwater Guidance Values	480-169674-4	480-169674-7	480-169674-5	480-169674-1	480-169674-2	480-169674-3	480-169674-6
Sample Date			05/07/2020	05/07/2020	05/07/2020	5/7/2020	05/07/2020	05/07/2020	5/7/2020
Sample ID			Vault Effluent	MW-3D	MW-7D	PZ-2	PZ-3	PZ-4	Blind Duplicate
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	(MW-7D) ug/L
Volatile Organics by GC/MS (US EPA Method 8260B)									
1,1,1-Trichloroethane	5.0	NV	-	-	**12**	-	-	-	**10**
1,1-Dichloroethane	5.0	NV	-	0.66 J	**70** F1	-	-	-	**56**
1,1-Dichloroethene	5.0	NV	-	-	**27**	-	-	-	**22**
1,2-Dichloroethane	0.6	NV	-	**1.2**	**3.3**	-	-	-	**3**
2-Butanone	NV	50.0	-	-	-	-	-	-	-
Acetone	NV	50.0	-	-	-	-	-	-	-
Benzene	1.0	NV	-	0.76 J	-	-	-	-	-
Carbon disulfide	60.0	NV	-	-	-	-	-	-	-
Carbon tetrachloride	5.0	NV	-	-	-	-	-	-	-
Chlorobenzene	5.0	NV	-	**11**	-	-	-	-	-
Chloroethane	5.0	NV	-	-	**47** F1	-	-	-	**38**
Chloroform	7.0	NV	**17**	-	-	-	-	-	-
cis-1,2-Dichloroethene	5.0	NV	-	-	-	-	-	-	-
Ethylbenzene	5.0	NV	-	-	3.4	-	-	-	5
Isopropylbenzene	5.0	NV		0.81 J					2 J
Trichloroethene	5.0	NV	-	-	-	-	-	-	-
Vinyl chloride	2.0	NV	-	-	**17**	-	-	-	**14**
Xylenes, Total	5.0	NV			**1.8** J				**5**
Semivolatile Organics by GC/MS (US EPA Method 8270C)									
Biphenyl	5.0	NV	-	-	**170** F2	-	-	-	**86**
2,4-Dimethylphenol	1.0	50.0	-	-	-	-	-	-	-
2-Methylphenol	1.0	NV	-	-	-	-	-	-	-
2-Methylnaphthalene	NV	NV	-	-	300 F2	-	5.90 J	-	130
2-Nitroaniline	5.0	NV	-	-	-	-	-	-	-
4-Methylphenol	1.0	NV	-	-	-	-	2.00 J	-	-
4-Methylphenol & 3-Methlyp	1.0	NV	-	-	-	-	-	-	-
Acenaphthene	20.0	NV	-	**44**	**570** F2	-	**7.50** J	-	**340**
Acenaphthylene	NV	NV	-	-	9.9 J F1 F2	-	-	-	-
Anthracene	NV	50.0	-	-	**99** F1 F2	-	-	-	44 J
Benzaldehyde	NV	NV	-	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	-	-	52 F1 F2	-	-	-	13 J
Benzo(a)pyrene	ND	ND	-	-	15 J F1 F2	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	**22** J F1 F2	-	-	-	-
Benzo(g,h,i)perylene	NV	NV	-	-	4.8 J F1	-	-	-	-
Bis(2-ethylhexyl)phthalate	5.0	NV	-	-	-	-	-	-	-
Butyl benzyl phthalate	5.0	50.0	-	-	-	-	-	-	-
Caprolactam	NV	NV	-	2.8 J	-	-	-	-	-
Carbazole	NV	NV	-	-	19 J * F1 F2	-	-	-	9.5 J *
Chrysene	NV	0.002	-	-	**46** J F1 F2	-	-	-	**11** J
Dibenzofuran	NV	NV	-	-	510 F2	-	-	-	290
Di-n-butyl phthalate	50.0	NV	-	-	-	-	-	-	-
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-	-
Diethyl phthalate	NV	50.0	-	-	-	-	-	-	-
Fluoranthene	NV	50.0	-	-	450 F2	0.43 J	-	-	170
Fluorene	NV	50.0	-	-	490 F2	-	-	-	240
Indeno[1,2,3-cd]pyrene	NV	0.002	-	-	-	-	-	-	-
Isophorone	NV	50.0	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	-
Naphthalene	10.0	NV	-	-	**280** F2	-	**19** J	-	**230**
Nitrobenzene	0.4	NV	-	-	-	-	-	-	-
Phenanthrene	50.0	NV	-	-	-	0.76 J	-	-	**510**
Phenol	1**	NV	-	-	-	-	**84**	-	-
Pyrene	NV	50.0	-	-	**300** F2	0.38 J	-	-	**98** J
Phenanthrene - DL	NV	50.0	-	-	**1300** F2	-	-	-	-

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.

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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
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
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
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
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**
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	5	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	ND	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)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	-	-	-	-	-	-	-	-	-	-	-	-
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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** = The sum of all phenols
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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	130617007-003	130930005-001B	480-169674-7	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
Sample Date			6/13/2013	9/26/2013	05/07/2020	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
Sample ID			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
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
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
1,1-Dichloroethene	5	NV	**27**	**38**	-	**21**	**70**	**77**	**110**	**54**	**60**	**76**	**48**	**50**	**80**	**51** F1 F2	**43**	**27.0**
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**
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**					-	-	-	-	-	0.62	-	-	-
Chloroethane	5	NV	-	-	-	**20**	**58**	**73**	**100**	**68**	**110**	**95**	**88** F1	**54**	**88**	**63** F1 F2	**65** F1	**47.0** F1
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
Isopropylbenzene	5	NV	-	-	0.81 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**
Xylenes, Total	5	NV	-	-		-	-	-	-	-	-	-	-	3.2 J	-	0.97	-	1.8 J
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
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
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
Acenaphthylene	NV	NV	-	-	-	1.2 J	-	-	0.56 J	0.54 J	-	-	-	-	-	-	-	9.9 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
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
Benzo(a)pyrene	ND	ND	-	-	-	-	-	-	-	-	-	**0.53** J	-	**3.6** J	-	-	**9.2** J, F3	15.0 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**
Benzo(g,h,i)perylene	NV	NV			-	-						0.36 J	-	-	-	-	7.1 J, F5	4.8 J F1
Bis(2-ethylhexyl)phthalate	5	NV	-	-	-	-	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
Chrysene	NV	0.002	-	-	-	-	-	-	-	-	-	**1.6** J F1	**4.7** J F1	**7.4** J	-	**7.7** J	**14** J	**46** **J F1 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
Di-n-butyl phthalate	50	NV	2 J, B	1.4 J	-	1.5 J, B	2.5 J	-	27	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate	NV	50.0			-								-	-	-	-	-	-
Diethyl phthalate	NV	50.0	1 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
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
Indeno[1,2,3-cd]pyrene	NV	0.002			-											-	**6.4** J F1 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	- F1 F2	**280** 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	**210.0** F2	**61.0** 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
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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TABLE 3-2
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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
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
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
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
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	-
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	5	NV	-	-	-	-	-	-	-	-	-	0.28	-	-	-
Isopropylbenzene	5	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	ND	-	**1.6** J	-	**0.5** J	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	**0.43** J	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-
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
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.
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** = The sum of all phenols
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Qualifications:
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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
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
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
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
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													
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
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
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
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	-	-
Benzo(a)anthracene	NV	NV	1.3 J	- J	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ND	ND	**1** J	- J	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	-	-	-	-	**0.44** JK	-	-	-	-	-
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	-
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	-
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
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	-
Phenol	1*	NV	-	**130**	**38**	**53**	**50**	**73**	**19**	-	**7.2**	-	**56**	**59**	**84**
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:
- = 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	130617007-006	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
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
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
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
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	8.3 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													
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	**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	ND	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)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	-	-	-	-	-	-	-	-	-
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:
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Qualifications:
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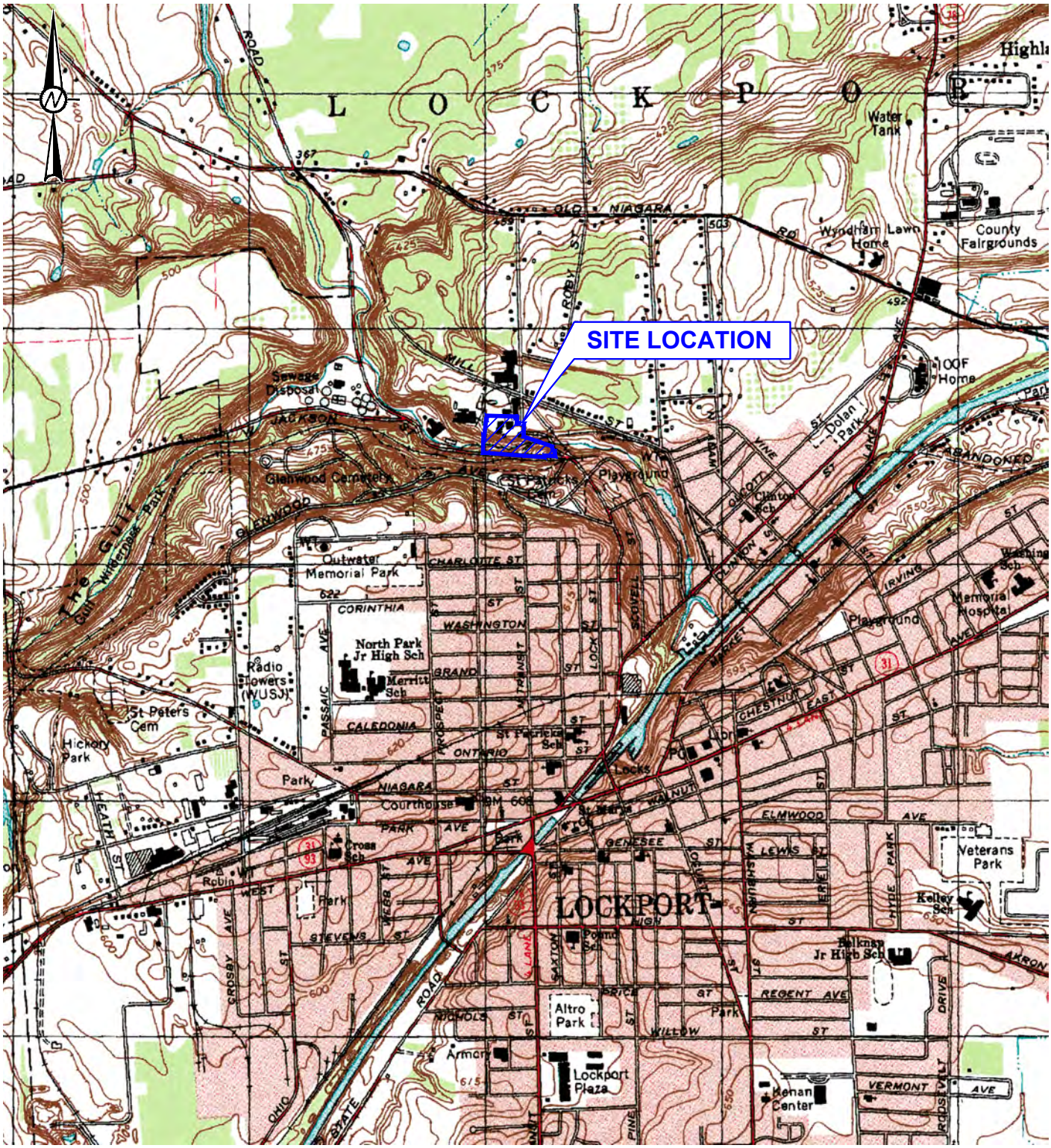
F1 = MS and/or MSD Recovery is outside acceptance limits.
F2 = F2 MS/MSD RPD exceeds control limits

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
Total DNAPL Recovered (Approx.)	**232.5**

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

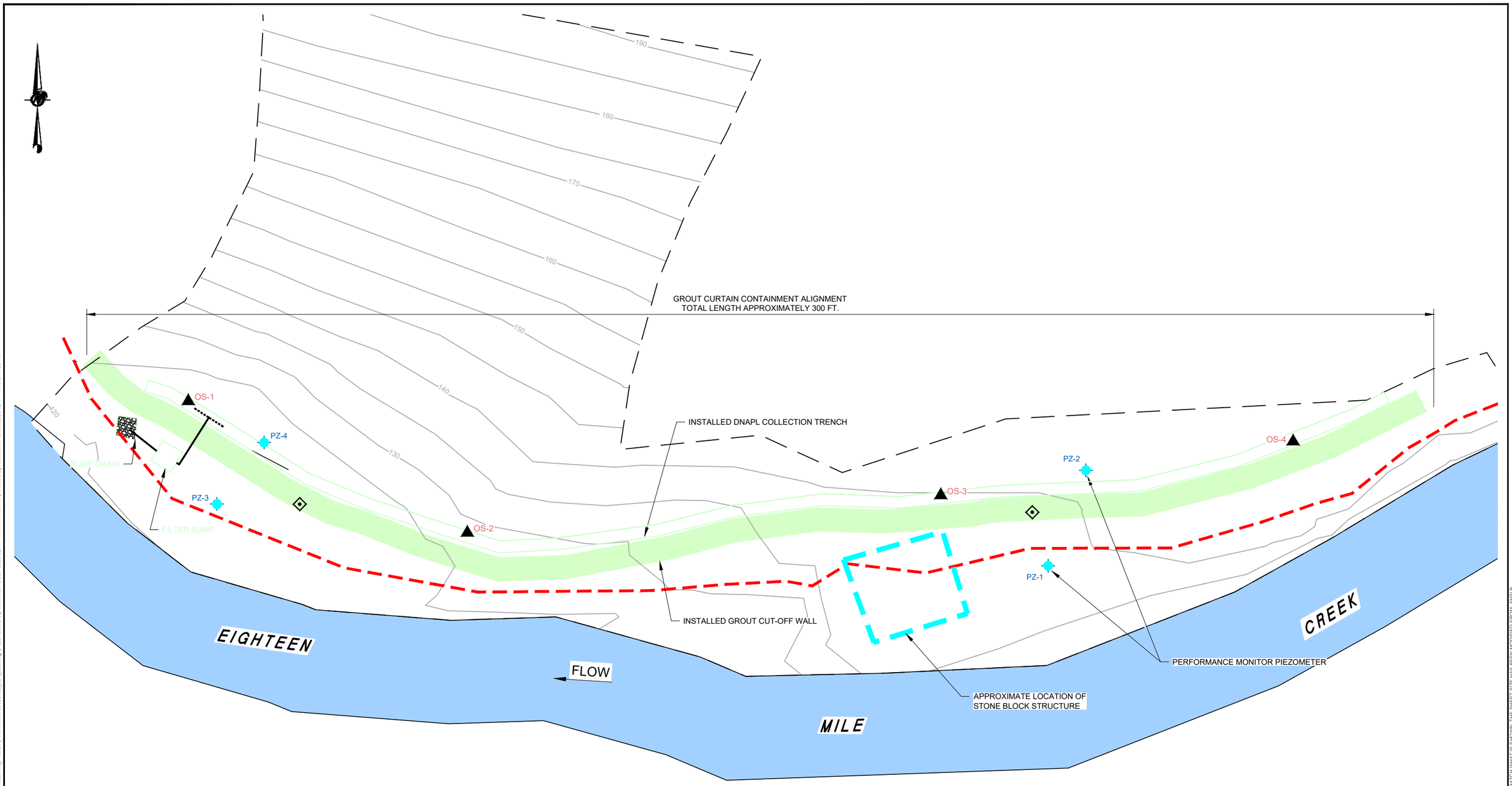
PROJECT
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

CONSULTANT
GOLDER

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



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
GOLDER

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

PROJECT
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE
CREEK BANK AREA SITE PLAN OPERATION & MAINENANCE PLAN

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

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

1 in

0

LEGEND

- FENCE
- SILT FENCE
- STRAW BALES
- SAND BAGS
- FLOWABLE FILL AND CEMENT GROUT
- No. 2 WASHED STONE
- IN-SITU GROUT WALL PERMEABILITY SAMPLE LOCATION
- OS-2 — 4-INCH DNAPL OBSERVATION SUMP (IN COLLECTION TRENCH)
- PZ-1 — 1-INCH PERFORMANCE MONITORING PIEZOMETER
- 1999 INVESTIGATION OVERBURDEN MONITORING WELL
- 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
GOLDER

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

PROJECT
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE
OMP SITE PLAN -VDM PLANT & CREEK BANK AREA

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

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

Path: \\manchester\arm5\SNPE\VanDeMark\099_PROJ\093893168_VanDeMark_OandM\024440_PROD\ | File Name: 093893168_024_003.dwg | Last Edited By: azumbado Date: 2020-02-19 Time:10:49:19 AM | Printed By: AZumbado Date: 2020-02-19 Time:11:04:26 AM

APPENDIX A

Operations and Monitoring Summary Inspection Forms

OPERATIONS & MONITORING SUMMARY

SHEET 1 OF 2

PROJECT NUMBER: 093-89168
PROJECT TITLE: Creek Bank Corrective Measures -Site No. 932149
OWNER: SNPE - VanDeMark Chemical
CONTRACTOR:
LOCATION: Lockport, New York
SUB CONTRACTOR(S):

DATE: 5/7/20

WEATHER: ~~PTLCLOUDY~~ TEMPERATURE: LOW: 45 @ 8:30 HIGH 56 @ 11.30
CLOUD COVER PTLY CLOUDY PRECIPITATION N/A WIND LIGHT

GOLDER PERSONNEL ON SITE:

P. MARTIN / J. VERNOLD

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

① EFFLUENT VAULT: WATER CLEAR, OVERFLOW IN DISCHARGE CHAMBER, NO SHEEN OR DNAPL OBSERVED. SEDIMENT ACCUM. ON TOP OF SAND BED REMAINS LIGHT ~ 1/4" THICK.

② OBSERVATION SUMPS:

OS-1 APPROX. 49" WATER, 5" SEDIMENT, NO SHEEN
OS-2 DRY
OS-3 APPROX 15" WATER, APPROX 5" BLACK SEDIMENT
OS-4 DRY

③ UPGRADIENT SLOPE OBSERVATIONS:
NO OBSERVABLE DNAPL ACCUMULATIONS, GOOD VISIBILITY IN GENERAL, MINIMAL VEGETATIVE COVER.

④ DOWNGRADIENT SLOPE OBSERVATIONS:
RESIDUAL DNAPL ACCUMULATIONS OBSERVED ON SOUTH SIDE OF STONE STRUCTURE, IN AREAS WHERE REMOVALS WERE PERFORMED IN 2019, HOWEVER AMOUNTS ARE RELATIVELY SMALL. LARGER AREA ALONG CREEK BANK 15-20 WEST OF PZ-1 CLOSE TO EDGE OF CREEK. A SEPARATE REMOVAL EVENT WILL BE SCHEDULED IN SUMMER OF 2020 WHEN COVID-19 RESTRICTIONS ARE EASED.

GOLDER ACTIVITIES AND TEST RESULTS:

- MET W/ STEVE MOELLER OF NYSDEC & J. WRAZEN OF VDM. THEY OBSERVED SAMPLING & INSPECTION ACTIVITIES.
- WELL MW-3D WAS REDEVELOPED AND SAMPLED FOR THE FIRST TIME IN SEVEN YEARS (2013)

Golder Associates

SUBMITTED BY:
Patrick J. Martin
5/7/20

GOLDER FORM: R4-0699
(JANUARY 2005)

GOLDER ASSOCIATES INC.

OPERATIONS & MONITORING SUMMARY

SHEET 1 OF 2

PROJECT NUMBER: 093-89168
PROJECT TITLE: Creek Bank Corrective Measures -Site No. 932149
OWNER: SNPE - VanDeMark Chemical
CONTRACTOR:
LOCATION: Lockport, New York
SUB CONTRACTOR(S):

DATE: 11/12/20

WEATHER: TEMPERATURE: LOW: 42 @ 8:30 HIGH 48 @ 10:30
CLOUD COVER: PARTLY CLOUDY 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, OVERFLOW IN DISCHARGE CHAMBER, SEDIMENT ACCUM ON TOP OF SAND BED REMAINS UNCHANGED @ 1/4" THICK.

(2) OBSERVATION SUMPS:
OS-1 APPROX. 49" WATER, CLEAR, NO SHEEN
OS-2 DRY
OS-3 APPROX. 13" WATER, 5" BLACK SEDIMENT AT BOTTOM (NO ODOR) NO SHEEN
OS-4 DRY

(3) UPGRADIENT SLOPE OBSERVATIONS:
NO OBSERVABLE DNAPL ACCUMULATIONS, HEAVY LEAF COVERAGE MADE DETAILED ASSESSMENT DIFFICULT.

(4) DOWNGRADIENT SLOPE OBSERVATIONS:
RESIDUAL DNAPL ACCUMULATIONS WERE OBSERVED ON SOUTH SIDE OF SPINE STRUCTURE. FURTHER REMOVALS WERE PERFORMED TO EXTENT FEASIBLE W/ HAND TOOLS. APPROX. 3 X 5-GAL PAILS OF RESIDUALS WERE REMOVED FOR DISPOSAL. OBSERVATION OF THESE AREAS WILL CONTINUE IN SPRING OF 2021 TO ASSESS CHANGE OR ADDITIONAL SEEPS.

GOLDER ACTIVITIES AND TEST RESULTS:

- MET W/ STEVE MOELLER, NYSDEC, & J. WRAZEN OF VDM. THEY OBSERVED SAMPLING & INSPECTION ACTIVITIES.
- A TEST PIT WAS MANUALLY DUG INTO THE GRAVEL DNAPL TRENCH, APPROX 20' EAST OF FILTER VAULT. THE TEST PIT WAS DUG TO A DEPTH OF APPROX 12-14" BELOW GRADE. NO DNAPL WAS ENCOUNTERED, STONE WAS CLEAN & GROUNDWATER DID NOT HAVE A SHEEN.

Golder Associates

SUBMITTED BY:

Patrick J Martin
11/12/20

GOLDER FORM: R4-0699
(JANUARY 2005)

GOLDER ASSOCIATES INC.

APPENDIX B

Inspection Photographs

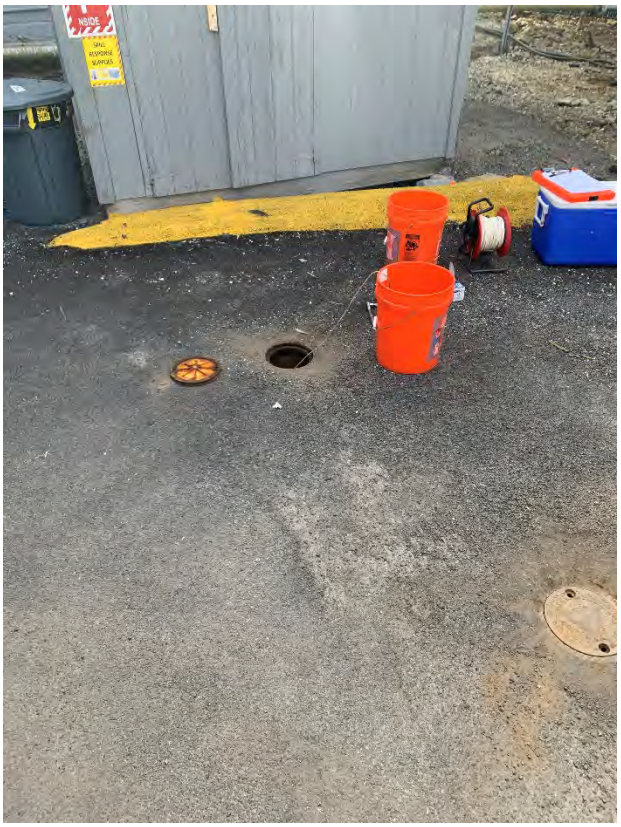
Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 1 Interior of filter vault – top of sand filter bed. (May 7, 2020).	
Photo 2 Interior of filter vault – overflow in discharge chamber (May 7, 2020).	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 3 East end of DNAPL collection trench, looking west. (May 7, 2020).	
Photo 4 Toe of slope north of collection trench near OS-5. (May 7, 2020).	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 5 DNAPL collection trench from OS-2 to west end, looking west. (May 7, 2020).	
Photo 6 DNAPL collection trench from OS-2, looking east up slope. (May 7, 2020).	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 7 Edge of creek along lower creek bank area. (May 7, 2020).	
Photo 8 Edge of creek along upper creek bank area. (May 7, 2020).	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 9 Upper plateau area near PZ-1, looking southeast. (May 7, 2020).	
Photo 10 Lower creek bank area west of stone structure, looking east. (May 7, 2020).	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 11 Creek bank area south of PZ-1 where tar seeps were observed, looking west. (May 7, 2020)	
Photo 12 MW-7D sampling location. (May 7, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 13 Interior of filter vault, sand filter bed, and overflow in discharge chanber. (Nov. 12, 2020)	
Photo 14 Interior of filter vault. (Nov. 12, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 15 Toe of slope north of DNAPL collection trench, looking east of slope. (Nov. 12, 2020)	
Photo 16 Test pit in DNAPL collection trench, 20' east of filter vault. (Nov. 12, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 17 **Creek bank slope south of PZ-1.** (Nov. 12, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 18 **Creek bank lower plateau, west of buried stone structure.** (Nov. 12, 2020)	
Photo 19 **Creek bank area in vicinity of P2-1. Top of buried stone structure.** (Nov. 12, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 20 DNAPL seep area after removal. Bottom of creek bank slope, south of PZ-1. (Nov. 12, 2020)	
Photo 21 DNAPL seep area after removal. Adjacent to creek edge south of PZ-1. (Nov. 12, 2020)	

Project Title: 2020 Annual Monitoring/Inspection Report SNPE-VDM Creek Bank Corrective Actions : Site Visit	
Photo 22 Tar seep area remediation, southeast of PZ-1. (Nov. 12, 2020)	
Photo 23 **Tar seep area southeast of PZ-1 post remediation.** (Nov. 12, 2020)	

APPENDIX C

Sample Collection Field Logs

GOLDER

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):	5-7-2020	TIME (24 HR CLOCK):		ELAPSED HRS:	
CASING VOL.(Gal.):	DRY	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):	
REF. PT. ELEV.(FT. MSL):		WELL DEPTH (FT.):	10.60' 10.64 from TOC
DEPTH TO WATER (REF. PT.):		STICKUP (FT.):	
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)	____.____	____.____	____.____	____.____
OTHER (SPECIFY)	____ ____	____ ____	____ ____	____ ____

COMMENTS/CALCULATIONS

WEATHER CONDITIONS:

SAMPLE APPEARANCE: DRY ~~TO~~ JV 5-7-20

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

PZ-1 IS TYPICALLY (DRY)

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

SAMPLER SIGNATURE: JW | DATE: 5/7/2020

GOLDER

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):	5-7-2020	TIME (24 HR CLOCK):	1400	ELAPSED HRS:	0:20
CASING VOL.(Gal.):	0.18	GAL. PURGED (Gal.):	0.55		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5-7-2020	TIME (24 HR CLOCK):	1427	MATRIX:	
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):	— JV 5-7-2020
REF. PT. ELEV.(FT. MSL):	—	WELL DEPTH (FT.):	11.02' ~~10.68~~ 10.58 TOC
DEPTH TO WATER (REF. PT.):	6.18	STICKUP (FT.):	—
GW. ELEV.(FT. MSL.):	—	WELL DIAMETER (INCHES):	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	——.——	——.——	——.——	7.04
SPEC. COND.(uS)	————	————	————	+ 3999 *
TEMPERATURE (C)	——.——	——.——	——.——	15.3
OTHER (SPECIFY) TDS (ppm)	————	————	————	+ 2000 *

COMMENTS/CALCULATIONS

WEATHER CONDITIONS:

SAMPLE APPEARANCE:

1" DIA. CASING CONTAINS .041 Gal./Ft. 0.18 gal per casing x 3 = 0.54 gal per 3 casings

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

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

1" full bailer = 0.053 GAL

* TDS & SC readings were beyond instruments measuring capacity

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

SAMPLER SIGNATURE: [signature] DATE: 5/7/2020

GOLDER

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):	5-7-2020	TIME (24 HR CLOCK):	1340	ELAPSED HRS:	16min
CASING VOL.(Gal.):	0.20	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):	5-7-2020	TIME (24 HR CLOCK):	1348	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):	—	
REF. PT. ELEV.(FT. MSL):	—	WELL DEPTH (FT.):	9.12' 9.14	TOC
DEPTH TO WATER (REF. PT.):	4.30	STICKUP (FT.):	—	
GW. ELEV.(FT. MSL.):	—	WELL DIAMETER (INCHES):	1.00"	

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	——.——	——.——	——.——	8.72
SPEC. COND.(uS)	————	————	————	3449
TEMPERATURE (C)	——.——	——.——	——.——	12.00
OTHER (SPECIFY) TDS (ppm)	————	————	————	1727

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 53°F, overcast, wind

SAMPLE APPEARANCE: clear, aqueous, no odor

1" DIA. CASING CONTAINS .041 Gal./Ft. 0.20 gal per casing x 3 = 0.60 gal

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: [signature] DATE: 5/7/2020

GOLDER

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):	5.7.2020	TIME (24 HR CLOCK):	1255	ELAPSED HRS:	18 min
CASING VOL.(Gal.):	0.27	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):	5.7.2020	TIME (24 HR CLOCK):	1320	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):	—
REF. PT. ELEV.(FT. MSL):	—	WELL DEPTH (FT.):	10.33' 10.35 TOC
DEPTH TO WATER (REF. PT.):	3.73	STICKUP (FT.):	—
GW. ELEV.(FT. MSL.):	—	WELL DIAMETER (INCHES):	1.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	——.——	——.——	——.——	6.69
SPEC. COND.(uS)	————	————	————	+3999 *
TEMPERATURE (C)	——.——	——.——	——.——	14.00
OTHER (SPECIFY) TDS (ppm)	————	————	————	+2000 *

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 53°F, overcast, wind

SAMPLE APPEARANCE:

1" DIA. CASING CONTAINS .041 Gal./Ft. 0.27 gal per casing × 3 = 0.81 gal

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

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

1" full bailer = 0.053 GAL 16

* TDS & SC readings were beyond instruments measuring capacity

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

SAMPLER SIGNATURE [signature] DATE 5/7/2020

GOLDER

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):	5-7-2020	TIME (24 HR CLOCK):	1248	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:		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)	__.__	__.__	__.__	6.88
SPEC. COND.(uS)	____	____	____	3694
TEMPERATURE (C)	__.__	__.__	__.__	10.80
OTHER (SPECIFY) TDS (ppm)	____	____	____	1903

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 52°F, overcast, wind

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: [signature] DATE: 5/7/2020

GOLDER

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):	5-7-2020	TIME (24 HR CLOCK):	0931	ELAPSED HRS:	1:00
CASING VOL.(Gal.):	2.47	GAL. PURGED (Gal.):	7.5		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5-7-2020	TIME (24 HR CLOCK):	1056	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):	—
REF. PT. ELEV.(FT. MSL):	—	WELL DEPTH (FT.):	45.85' 46.26
DEPTH TO WATER (REF. PT.):	39.09	STICKUP (FT.):	N/A - FLUSH MOUNT
GW. ELEV.(FT. MSL.):	—	WELL DIAMETER (INCHES):	2.00"

FIELD MEASURMENTS (FOUR REPLICATES) N/A

	Initial Purge	Final Purge	~~Initial Sample~~	Final Sample
pH (STD)	6.09	6.40	---.---	6.36
SPEC. COND.(mS/cm uS)	9.21	5.53	----	4.86
TEMPERATURE (C)	12.53	13.72	---.---	12.80
OTHER (SPECIFY)	----	----	----	----

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 50°F, cloudy, breezy

SAMPLE APPEARANCE: Slight oil sheen, more noticeable during initial purge
Naphthalene odor noticed throughout

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

2" DIA. CASING CONTAINS .163 Gal./Ft. 46.26 - 31.09 = 15.17' x 0.163 = 2.47 gal per casing

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

x 3 = 7.4 gal per 3 casings

1" full bailer = 0.053 GAL

DUP-5720 sampled here + MS/MSD

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

SAMPLER SIGNATURE: JenWell | DATE: 5/7/2020

GOLDER

SAMPLE COLLECTION INFORMATION FORM

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

WELL ID. BLIND DUPLICATE @ MW-7D 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):		TIME (24 HR CLOCK):		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)	__.__	__.__	__.__	__.__
OTHER (SPECIFY)	____	____	____	____

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: SEE MW-7D WELL FORM

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

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 [signature] DATE 5/7/2020

GOLDER

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):	5-7-20	TIME (24 HR CLOCK):	0916	ELAPSED HRS:	2:00
CASING VOL.(Gal.):	0.78	GAL. PURGED (Gal.):	3.9		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	~~YES~~ no. New, unopened package

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5-7-2020	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):	not given
REF. PT. ELEV.(FT. MSL):	not given	WELL DEPTH (FT.):	26.00
DEPTH TO WATER (REF. PT.):	21.24	STICKUP (FT.):	N/A - FLUSH MOUNT
GW. ELEV.(FT. MSL.):	not given	WELL DIAMETER (INCHES):	2"

JV 5-7-2020

FIELD MEASURMENTS (FOUR REPLICATES)

8.85 mS/cm

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	5.78	6.10	6.45	6.48
SPEC. COND. (mS/cm)	~~08.85~~	9.23	9.25	9.33
TEMPERATURE (C)	12.32	12.54	12.58	12.61
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 48°F, cloudy, wind

SAMPLE APPEARANCE: brownish - turbid, aqueous, no odor

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

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

4" DIA. CASING CONTAINS .652 Gal./Ft. 26.00 - 21.24 = 4.76' x 0.163 = 0.78 gal x 3 = 2.3 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: [signature] DATE: 5/7/2020

GOLDER WELL DEVELOPMENT FIELD RECORD

JOB NAME: VanDeMark
DEVELOPED BY: J. VERNAU
STARTED DEVEL.: 5-7-2020 (DATE) / 0900 (TIME)
W.L. BEFORE DEVEL.: 21.24 (DEPTH) / 5-7-20 (DATE) / 0907 (TIME)
WELL DEPTH: BEFORE DEVEL.: 26.00
STANDING WATER COLUMN (FT.): 4.76'
SCREEN LENGTH: not given

JOB NO.: 09389168
DATE OF INSTALL.: not given
COMPLETED DEVEL.: 5-7-2020 (DATE) / 1105 (TIME)
W.L. AFTER DEVEL.: 25.22 (DEPTH) / 5-7-20 (DATE) / 1120 (TIME)
AFTER DEVEL.: 26.00
STANDING WELL VOLUME: 0.78 gal.
DRILLING WATER LOSS: — gal.

WELL NO.: MW-3D
SHEET: 1 of 1
WELL DIA. (In): 2"

DATE/TIME		VOLUME REMOVED (GALS)	FIELD PARAMETERS SPEC COND. (ms/cm)	TEMP. (C)	pH (s.u.)	TURBIDITY (NTU)	REMARKS (DTW, Pumping Rate, etc.) ORP	DO	Depth to GW
5-7-20	0916	none	10.1	11.54	5.39	64.7	250	4.31	—
↓	0932	1.2	8.85	12.32	5.78	888.0	219	5.00	24.95
↓	0931	2.0	9.23	12.54	6.10	660.0	198	3.26	24.53
↓	0940	3.0	9.25	12.58	6.45	736.0	198	3.10	25.14
↓	1105	3.9	9.33	12.61	6.48	740.0	195	3.05	23.10
			3.9	= TOTAL VOLUME REMOVED (gal.)					

DEVELOPMENT METHOD: well developed using HD polyethlene bailer

NOTES: Due to small water column and slow recharge rate, stable turbidity readings could not be achieved.

G:\FORMS\WELLDEV.XLS

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: 480-169674-1
Client Project/Site: Vandemark Chemical site

For:
Golder Associates Inc.
2430 North Forest Rd
Suite 100
Getzville, New York 14068

Attn: Mr. Patrick Martin

Joseph V. Giacomazza

Authorized for release by:
5/15/2020 9:31:16 AM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

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

Table of Contents

Definitions/Glossary

Client: Golder Associates Inc.
Job ID: 480-169674-1
Project/Site: Vandemark Chemical site

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery 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.
X	Surrogate recovery exceeds control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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.
E	Result exceeded calibration range.
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.
X	Surrogate recovery exceeds control limits

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Job ID: 480-169674-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-169674-1

Comments
No additional comments.

Receipt
The samples were received on 5/7/2020 5:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.7º C.

GC/MS VOA
Method 8260C: The surrogate recovery for the blank associated with analytical batch 480-530784 was outside the upper control limits.

Method 8260C: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: PZ-3 (480-169674-2). Elevated reporting limits (RLs) are provided.

Method 8260C: The continuing calibration verification (CCV) associated with batch 480-530868 recovered above the upper control limit for Carbon tetrachloride and Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-7D (480-169674-5), Blind Dup (480-169674-6) and MW-3D (480-169674-7).

Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7D (480-169674-5), MW-7D MS (480-169674-5[MS]), MW-7D MSD (480-169674-5[MSD]) and Blind Dup (480-169674-6). 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 laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 480-530677 and analytical batch 480-530947 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene, Atrazine and Carbazole. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270D: The following samples were diluted due to the nature of the sample matrix: MW-7D (480-169674-5), MW-7D MS (480-169674-5[MS]) and MW-7D MSD (480-169674-5[MSD]). Elevated reporting limits (RLs) are provided.

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: MW-7D MS (480-169674-5[MS]). These results have been reported and qualified.

Method 8270D: The matrix spike (MS) and matrix spike duplicate (MSD) were outside of control limits for several analytes as well as % RPD for several analytes. MW-7D MS (480-169674-5[MS]) and MW-7D MSD (480-169674-5[MSD])

Method 8270D: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7D (480-169674-5), MW-7D MS (480-169674-5[MS]) and MW-7D MSD (480-169674-5[MSD]). Elevated reporting limits (RLs) are provided.

Method 8270D: The following samples required a dilution due to the abundance of target analyte(s): MW-7D (480-169674-5), MW-7D MS (480-169674-5[MS]) and MW-7D MSD (480-169674-5[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 following sample was diluted to bring the concentration of target analytes within the calibration range: PZ-3 (480-169674-2). Elevated reporting limits (RLs) are provided.

Method 8270D: The laboratory control sample (LCS) for preparation batch 480-530677 and analytical batch 480-531173 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene, Atrazine and Carbazole. These analytes were biased high in the LCS and were

Job ID: 480-169674-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

not detected in the associated samples; therefore, the data have been reported.

Method 8270D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 480-530677 and analytical batch 480-531522 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene, Atrazine and Carbazole. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270D: The following sample was diluted to bring the concentration of target analytes within the calibration range: Blind Dup (480-169674-6). Elevated reporting limits (RLs) are provided.

Method 8270D: The following sample required a dilution due to the abundance of target analytes: Blind Dup (480-169674-6). 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 sample contained an allowable number of surrogate compounds outside limits: MW-3D (480-169674-7). These results have been reported and qualified.

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: 480-169674-1

Client Sample ID: PZ-2 — Lab Sample ID: 480-169674-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.43	J	5.0	0.40	ug/L	1		8270D	Total/NA
Phenanthrene	0.76	J	5.0	0.44	ug/L	1		8270D	Total/NA
Pyrene	0.38	J	5.0	0.34	ug/L	1		8270D	Total/NA

Client Sample ID: PZ-3 — Lab Sample ID: 480-169674-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	5.9	J	25	3.0	ug/L	5		8270D	Total/NA
4-Methylphenol	2.0	J	50	1.8	ug/L	5		8270D	Total/NA
Acenaphthene	7.5	J	25	2.1	ug/L	5		8270D	Total/NA
Naphthalene	19	J	25	3.8	ug/L	5		8270D	Total/NA
Phenol	84		25	2.0	ug/L	5		8270D	Total/NA

Client Sample ID: PZ-4 — Lab Sample ID: 480-169674-3

No Detections.

Client Sample ID: Filter Vault Eff — Lab Sample ID: 480-169674-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	17		1.0	0.34	ug/L	1		8260C	Total/NA

Client Sample ID: MW-7D — Lab Sample ID: 480-169674-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	12		2.0	1.6	ug/L	2		8260C	Total/NA
1,1-Dichloroethane	70	F1	2.0	0.76	ug/L	2		8260C	Total/NA
1,1-Dichloroethene	27		2.0	0.58	ug/L	2		8260C	Total/NA
1,2-Dichloroethane	3.3		2.0	0.42	ug/L	2		8260C	Total/NA
Chloroethane	47	F1	2.0	0.64	ug/L	2		8260C	Total/NA
Ethylbenzene	3.4		2.0	1.5	ug/L	2		8260C	Total/NA
Vinyl chloride	17		2.0	1.8	ug/L	2		8260C	Total/NA
Xylenes, Total	1.8	J	4.0	1.3	ug/L	2		8260C	Total/NA
Biphenyl	170	F2	50	6.5	ug/L	10		8270D	Total/NA
2-Methylnaphthalene	300	F2	50	6.0	ug/L	10		8270D	Total/NA
Acenaphthene	570	F2	50	4.1	ug/L	10		8270D	Total/NA
Acenaphthylene	9.9	J F1 F2	50	3.8	ug/L	10		8270D	Total/NA
Anthracene	99	F1 F2	50	2.8	ug/L	10		8270D	Total/NA
Benzo[a]anthracene	52	F1 F2	50	3.6	ug/L	10		8270D	Total/NA
Benzo[a]pyrene	15	J F1 F2	50	4.7	ug/L	10		8270D	Total/NA
Benzo[b]fluoranthene	22	J F1 F2	50	3.4	ug/L	10		8270D	Total/NA
Benzo[g,h,i]perylene	4.8	J F2	50	3.5	ug/L	10		8270D	Total/NA
Carbazole	19	J * F1 F2	50	3.0	ug/L	10		8270D	Total/NA
Chrysene	46	J F1 F2	50	3.3	ug/L	10		8270D	Total/NA
Dibenzofuran	510	F2	100	5.1	ug/L	10		8270D	Total/NA
Fluoranthene	450	F2	50	4.0	ug/L	10		8270D	Total/NA
Fluorene	490	F2	50	3.6	ug/L	10		8270D	Total/NA
Naphthalene	280	F2	50	7.6	ug/L	10		8270D	Total/NA
Pyrene	300	F2	50	3.4	ug/L	10		8270D	Total/NA
Phenanthrene - DL	1300	F2	200	18	ug/L	40		8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

Job ID: 480-169674-1

Client Sample ID: Blind Dup

Lab Sample ID: 480-169674-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	10		2.0	1.6	ug/L	2		8260C	Total/NA
1,1-Dichloroethane	56		2.0	0.76	ug/L	2		8260C	Total/NA
1,1-Dichloroethene	22		2.0	0.58	ug/L	2		8260C	Total/NA
1,2-Dichloroethane	2.9		2.0	0.42	ug/L	2		8260C	Total/NA
Chloroethane	38		2.0	0.64	ug/L	2		8260C	Total/NA
Ethylbenzene	4.6		2.0	1.5	ug/L	2		8260C	Total/NA
Isopropylbenzene	1.8	J	2.0	1.6	ug/L	2		8260C	Total/NA
Vinyl chloride	14		2.0	1.8	ug/L	2		8260C	Total/NA
Xylenes, Total	4.5		4.0	1.3	ug/L	2		8260C	Total/NA
Biphenyl	86	J	100	13	ug/L	20		8270D	Total/NA
2-Methylnaphthalene	130		100	12	ug/L	20		8270D	Total/NA
Acenaphthene	340		100	8.2	ug/L	20		8270D	Total/NA
Anthracene	44	J	100	5.6	ug/L	20		8270D	Total/NA
Benzo[a]anthracene	13	J	100	7.2	ug/L	20		8270D	Total/NA
Carbazole	9.5	J *	100	6.0	ug/L	20		8270D	Total/NA
Chrysene	11	J	100	6.6	ug/L	20		8270D	Total/NA
Dibenzofuran	290		200	10	ug/L	20		8270D	Total/NA
Fluoranthene	170		100	8.0	ug/L	20		8270D	Total/NA
Fluorene	240		100	7.2	ug/L	20		8270D	Total/NA
Naphthalene	230		100	15	ug/L	20		8270D	Total/NA
Phenanthrene	510		100	8.8	ug/L	20		8270D	Total/NA
Pyrene	98	J	100	6.8	ug/L	20		8270D	Total/NA

Client Sample ID: MW-3D

Lab Sample ID: 480-169674-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.66	J	1.0	0.38	ug/L	1		8260C	Total/NA
1,2-Dichloroethane	1.2		1.0	0.21	ug/L	1		8260C	Total/NA
Benzene	0.76	J	1.0	0.41	ug/L	1		8260C	Total/NA
Chlorobenzene	11		1.0	0.75	ug/L	1		8260C	Total/NA
Isopropylbenzene	0.81	J	1.0	0.79	ug/L	1		8260C	Total/NA
Acenaphthene	44		5.0	0.41	ug/L	1		8270D	Total/NA
Caprolactam	2.8	J	5.0	2.2	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: 480-169674-1

Client Sample ID: PZ-2
Date Collected: 05/07/20 14:27
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-1
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			05/10/20 14:27	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/10/20 14:27	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/10/20 14:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/10/20 14:27	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/10/20 14:27	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/10/20 14:27	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/10/20 14:27	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/10/20 14:27	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/10/20 14:27	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/10/20 14:27	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/10/20 14:27	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/10/20 14:27	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/10/20 14:27	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/10/20 14:27	1
2-Hexanone	ND		5.0	1.2	ug/L			05/10/20 14:27	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/10/20 14:27	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/10/20 14:27	1
Acetone	ND		10	3.0	ug/L			05/10/20 14:27	1
Benzene	ND		1.0	0.41	ug/L			05/10/20 14:27	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/10/20 14:27	1
Bromoform	ND		1.0	0.26	ug/L			05/10/20 14:27	1
Bromomethane	ND		1.0	0.69	ug/L			05/10/20 14:27	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/10/20 14:27	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/10/20 14:27	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/10/20 14:27	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/10/20 14:27	1
Chloroethane	ND		1.0	0.32	ug/L			05/10/20 14:27	1
Chloroform	ND		1.0	0.34	ug/L			05/10/20 14:27	1
Chloromethane	ND		1.0	0.35	ug/L			05/10/20 14:27	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/10/20 14:27	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/10/20 14:27	1
Cyclohexane	ND		1.0	0.18	ug/L			05/10/20 14:27	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/10/20 14:27	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/10/20 14:27	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/10/20 14:27	1
Methyl acetate	ND		2.5	1.3	ug/L			05/10/20 14:27	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/10/20 14:27	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/10/20 14:27	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/10/20 14:27	1
Styrene	ND		1.0	0.73	ug/L			05/10/20 14:27	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/10/20 14:27	1
Toluene	ND		1.0	0.51	ug/L			05/10/20 14:27	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/10/20 14:27	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/10/20 14:27	1
Trichloroethene	ND		1.0	0.46	ug/L			05/10/20 14:27	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/10/20 14:27	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/10/20 14:27	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/10/20 14:27	1

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

Job ID: 480-169674-1

Client Sample ID: PZ-2
Date Collected: 05/07/20 14:27
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*114*		*77 - 120*		*05/10/20 14:27*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/10/20 14:27*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*05/10/20 14:27*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 123*		*05/10/20 14:27*	*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		05/09/20 09:00	05/12/20 16:10	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,4-Dinitrotoluene	ND	*	5.0	0.45	ug/L		05/09/20 09:00	05/12/20 16:10	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Nitroaniline	ND		10	0.42	ug/L		05/09/20 09:00	05/12/20 16:10	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 16:10	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 16:10	1
3-Nitroaniline	ND		10	0.48	ug/L		05/09/20 09:00	05/12/20 16:10	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Methylphenol	ND		10	0.36	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Nitroaniline	ND		10	0.25	ug/L		05/09/20 09:00	05/12/20 16:10	1
4-Nitrophenol	ND		10	1.5	ug/L		05/09/20 09:00	05/12/20 16:10	1
Acenaphthene	ND		5.0	0.41	ug/L		05/09/20 09:00	05/12/20 16:10	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/09/20 09:00	05/12/20 16:10	1
Acetophenone	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 16:10	1
Anthracene	ND		5.0	0.28	ug/L		05/09/20 09:00	05/12/20 16:10	1
Atrazine	ND	*	5.0	0.46	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 16:10	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/09/20 09:00	05/12/20 16:10	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 16:10	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 16:10	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 16:10	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/09/20 09:00	05/12/20 16:10	1
Caprolactam	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 16:10	1
Carbazole	ND	*	5.0	0.30	ug/L		05/09/20 09:00	05/12/20 16:10	1
Chrysene	ND		5.0	0.33	ug/L		05/09/20 09:00	05/12/20 16:10	1

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

Job ID: 480-169674-1

Client Sample ID: PZ-2
Date Collected: 05/07/20 14:27
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-1
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		05/09/20 09:00	05/12/20 16:10	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/09/20 09:00	05/12/20 16:10	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 16:10	1
Dibenzofuran	ND		10	0.51	ug/L		05/09/20 09:00	05/12/20 16:10	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/09/20 09:00	05/12/20 16:10	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 16:10	1
Fluoranthene	**0.43**	**J**	5.0	0.40	ug/L		05/09/20 09:00	05/12/20 16:10	1
Fluorene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 16:10	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 16:10	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/09/20 09:00	05/12/20 16:10	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 16:10	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 16:10	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 16:10	1
Isophorone	ND		5.0	0.43	ug/L		05/09/20 09:00	05/12/20 16:10	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 16:10	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 16:10	1
Naphthalene	ND		5.0	0.76	ug/L		05/09/20 09:00	05/12/20 16:10	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/09/20 09:00	05/12/20 16:10	1
Pentachlorophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 16:10	1
Phenanthrene	**0.76**	**J**	5.0	0.44	ug/L		05/09/20 09:00	05/12/20 16:10	1
Phenol	ND		5.0	0.39	ug/L		05/09/20 09:00	05/12/20 16:10	1
Pyrene	**0.38**	**J**	5.0	0.34	ug/L		05/09/20 09:00	05/12/20 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*94*		*46 - 120*	*05/09/20 09:00*	*05/12/20 16:10*	*1*
Phenol-d5 (Surr)	*59*		*22 - 120*	*05/09/20 09:00*	*05/12/20 16:10*	*1*
p-Terphenyl-d14 (Surr)	*102*		*60 - 148*	*05/09/20 09:00*	*05/12/20 16:10*	*1*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*05/09/20 09:00*	*05/12/20 16:10*	*1*
2-Fluorobiphenyl	*103*		*48 - 120*	*05/09/20 09:00*	*05/12/20 16:10*	*1*
2-Fluorophenol (Surr)	*73*		*35 - 120*	*05/09/20 09:00*	*05/12/20 16:10*	*1*

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

Job ID: 480-169674-1

Client Sample ID: PZ-3
Date Collected: 05/07/20 13:48
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-2
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		2.0	1.6	ug/L			05/10/20 14:51	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/10/20 14:51	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/10/20 14:51	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/10/20 14:51	2
1,1-Dichloroethane	ND		2.0	0.76	ug/L			05/10/20 14:51	2
1,1-Dichloroethene	ND		2.0	0.58	ug/L			05/10/20 14:51	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/10/20 14:51	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/10/20 14:51	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/10/20 14:51	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/10/20 14:51	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			05/10/20 14:51	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/10/20 14:51	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/10/20 14:51	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/10/20 14:51	2
2-Hexanone	ND		10	2.5	ug/L			05/10/20 14:51	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/10/20 14:51	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/10/20 14:51	2
Acetone	ND		20	6.0	ug/L			05/10/20 14:51	2
Benzene	ND		2.0	0.82	ug/L			05/10/20 14:51	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/10/20 14:51	2
Bromoform	ND		2.0	0.52	ug/L			05/10/20 14:51	2
Bromomethane	ND		2.0	1.4	ug/L			05/10/20 14:51	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/10/20 14:51	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/10/20 14:51	2
Chlorobenzene	ND		2.0	1.5	ug/L			05/10/20 14:51	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/10/20 14:51	2
Chloroethane	ND		2.0	0.64	ug/L			05/10/20 14:51	2
Chloroform	ND		2.0	0.68	ug/L			05/10/20 14:51	2
Chloromethane	ND		2.0	0.70	ug/L			05/10/20 14:51	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/10/20 14:51	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/10/20 14:51	2
Cyclohexane	ND		2.0	0.36	ug/L			05/10/20 14:51	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/10/20 14:51	2
Ethylbenzene	ND		2.0	1.5	ug/L			05/10/20 14:51	2
Isopropylbenzene	ND		2.0	1.6	ug/L			05/10/20 14:51	2
Methyl acetate	ND		5.0	2.6	ug/L			05/10/20 14:51	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/10/20 14:51	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/10/20 14:51	2
Methylene Chloride	ND		2.0	0.88	ug/L			05/10/20 14:51	2
Styrene	ND		2.0	1.5	ug/L			05/10/20 14:51	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/10/20 14:51	2
Toluene	ND		2.0	1.0	ug/L			05/10/20 14:51	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/10/20 14:51	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/10/20 14:51	2
Trichloroethene	ND		2.0	0.92	ug/L			05/10/20 14:51	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/10/20 14:51	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/10/20 14:51	2
Xylenes, Total	ND		4.0	1.3	ug/L			05/10/20 14:51	2

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

Job ID: 480-169674-1

Client Sample ID: PZ-3

Date Collected: 05/07/20 13:48
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-2

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*116*		*77 - 120*		*05/10/20 14:51*	*2*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/10/20 14:51*	*2*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*05/10/20 14:51*	*2*
Dibromofluoromethane (Surr)	*116*		*75 - 123*		*05/10/20 14:51*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		25	3.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
bis (2-chloroisopropyl) ether	ND		25	2.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4,5-Trichlorophenol	ND		25	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4,6-Trichlorophenol	ND		25	3.1	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4-Dichlorophenol	ND		25	2.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4-Dimethylphenol	ND		25	2.5	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4-Dinitrophenol	ND		50	11	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,4-Dinitrotoluene	ND	*	25	2.2	ug/L		05/09/20 09:00	05/12/20 16:39	5
2,6-Dinitrotoluene	ND		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Chloronaphthalene	ND		25	2.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Chlorophenol	ND		25	2.7	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Methylphenol	ND		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Methylnaphthalene	**5.9**	**J**	25	3.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Nitroaniline	ND		50	2.1	ug/L		05/09/20 09:00	05/12/20 16:39	5
2-Nitrophenol	ND		25	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
3,3'-Dichlorobenzidine	ND		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
3-Nitroaniline	ND		50	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
4,6-Dinitro-2-methylphenol	ND		50	11	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Bromophenyl phenyl ether	ND		25	2.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Chloro-3-methylphenol	ND		25	2.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Chloroaniline	ND		25	3.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Chlorophenyl phenyl ether	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Methylphenol	**2.0**	**J**	50	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Nitroaniline	ND		50	1.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
4-Nitrophenol	ND		50	7.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
Acenaphthene	**7.5**	**J**	25	2.1	ug/L		05/09/20 09:00	05/12/20 16:39	5
Acenaphthylene	ND		25	1.9	ug/L		05/09/20 09:00	05/12/20 16:39	5
Acetophenone	ND		25	2.7	ug/L		05/09/20 09:00	05/12/20 16:39	5
Anthracene	ND		25	1.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
Atrazine	ND	*	25	2.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzaldehyde	ND		25	1.3	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzo[a]anthracene	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzo[a]pyrene	ND		25	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzo[b]fluoranthene	ND		25	1.7	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzo[g,h,i]perylene	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Benzo[k]fluoranthene	ND		25	3.7	ug/L		05/09/20 09:00	05/12/20 16:39	5
Bis(2-chloroethoxy)methane	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Bis(2-chloroethyl)ether	ND		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Bis(2-ethylhexyl) phthalate	ND		25	11	ug/L		05/09/20 09:00	05/12/20 16:39	5
Butyl benzyl phthalate	ND		25	5.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Caprolactam	ND		25	11	ug/L		05/09/20 09:00	05/12/20 16:39	5
Carbazole	ND	*	25	1.5	ug/L		05/09/20 09:00	05/12/20 16:39	5
Chrysene	ND		25	1.7	ug/L		05/09/20 09:00	05/12/20 16:39	5

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

Job ID: 480-169674-1

Client Sample ID: PZ-3
Date Collected: 05/07/20 13:48
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-2
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		25	2.1	ug/L		05/09/20 09:00	05/12/20 16:39	5
Di-n-butyl phthalate	ND		25	1.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
Di-n-octyl phthalate	ND		25	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
Dibenzofuran	ND		50	2.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
Diethyl phthalate	ND		25	1.1	ug/L		05/09/20 09:00	05/12/20 16:39	5
Dimethyl phthalate	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Fluoranthene	ND		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Fluorene	ND		25	1.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Hexachlorobenzene	ND		25	2.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
Hexachlorobutadiene	ND		25	3.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
Hexachlorocyclopentadiene	ND		25	3.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Hexachloroethane	ND		25	3.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Indeno[1,2,3-cd]pyrene	ND		25	2.4	ug/L		05/09/20 09:00	05/12/20 16:39	5
Isophorone	ND		25	2.2	ug/L		05/09/20 09:00	05/12/20 16:39	5
N-Nitrosodi-n-propylamine	ND		25	2.7	ug/L		05/09/20 09:00	05/12/20 16:39	5
N-Nitrosodiphenylamine	ND		25	2.6	ug/L		05/09/20 09:00	05/12/20 16:39	5
Naphthalene	**19**	**J**	25	3.8	ug/L		05/09/20 09:00	05/12/20 16:39	5
Nitrobenzene	ND		25	1.5	ug/L		05/09/20 09:00	05/12/20 16:39	5
Pentachlorophenol	ND		50	11	ug/L		05/09/20 09:00	05/12/20 16:39	5
Phenanthrene	ND		25	2.2	ug/L		05/09/20 09:00	05/12/20 16:39	5
Phenol	**84**		25	2.0	ug/L		05/09/20 09:00	05/12/20 16:39	5
Pyrene	ND		25	1.7	ug/L		05/09/20 09:00	05/12/20 16:39	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*101*		*46 - 120*	*05/09/20 09:00*	*05/12/20 16:39*	*5*
Phenol-d5 (Surr)	*63*		*22 - 120*	*05/09/20 09:00*	*05/12/20 16:39*	*5*
p-Terphenyl-d14 (Surr)	*129*		*60 - 148*	*05/09/20 09:00*	*05/12/20 16:39*	*5*
2,4,6-Tribromophenol (Surr)	*115*		*41 - 120*	*05/09/20 09:00*	*05/12/20 16:39*	*5*
2-Fluorobiphenyl	*114*		*48 - 120*	*05/09/20 09:00*	*05/12/20 16:39*	*5*
2-Fluorophenol (Surr)	*84*		*35 - 120*	*05/09/20 09:00*	*05/12/20 16:39*	*5*

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

Job ID: 480-169674-1

Client Sample ID: PZ-4
Date Collected: 05/07/20 13:20
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-3
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			05/10/20 15:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/10/20 15:15	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/10/20 15:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/10/20 15:15	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/10/20 15:15	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/10/20 15:15	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/10/20 15:15	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/10/20 15:15	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/10/20 15:15	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/10/20 15:15	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/10/20 15:15	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/10/20 15:15	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/10/20 15:15	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/10/20 15:15	1
2-Hexanone	ND		5.0	1.2	ug/L			05/10/20 15:15	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/10/20 15:15	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/10/20 15:15	1
Acetone	ND		10	3.0	ug/L			05/10/20 15:15	1
Benzene	ND		1.0	0.41	ug/L			05/10/20 15:15	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/10/20 15:15	1
Bromoform	ND		1.0	0.26	ug/L			05/10/20 15:15	1
Bromomethane	ND		1.0	0.69	ug/L			05/10/20 15:15	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/10/20 15:15	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/10/20 15:15	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/10/20 15:15	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/10/20 15:15	1
Chloroethane	ND		1.0	0.32	ug/L			05/10/20 15:15	1
Chloroform	ND		1.0	0.34	ug/L			05/10/20 15:15	1
Chloromethane	ND		1.0	0.35	ug/L			05/10/20 15:15	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/10/20 15:15	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/10/20 15:15	1
Cyclohexane	ND		1.0	0.18	ug/L			05/10/20 15:15	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/10/20 15:15	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/10/20 15:15	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/10/20 15:15	1
Methyl acetate	ND		2.5	1.3	ug/L			05/10/20 15:15	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/10/20 15:15	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/10/20 15:15	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/10/20 15:15	1
Styrene	ND		1.0	0.73	ug/L			05/10/20 15:15	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/10/20 15:15	1
Toluene	ND		1.0	0.51	ug/L			05/10/20 15:15	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/10/20 15:15	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/10/20 15:15	1
Trichloroethene	ND		1.0	0.46	ug/L			05/10/20 15:15	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/10/20 15:15	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/10/20 15:15	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/10/20 15:15	1

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

Job ID: 480-169674-1

Client Sample ID: PZ-4

Date Collected: 05/07/20 13:20
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-3

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*114*		*77 - 120*		*05/10/20 15:15*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/10/20 15:15*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*05/10/20 15:15*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*05/10/20 15:15*	*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		05/09/20 09:00	05/12/20 17:08	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,4-Dinitrotoluene	ND	*	5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:08	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Nitroaniline	ND		10	0.42	ug/L		05/09/20 09:00	05/12/20 17:08	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 17:08	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:08	1
3-Nitroaniline	ND		10	0.48	ug/L		05/09/20 09:00	05/12/20 17:08	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Methylphenol	ND		10	0.36	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Nitroaniline	ND		10	0.25	ug/L		05/09/20 09:00	05/12/20 17:08	1
4-Nitrophenol	ND		10	1.5	ug/L		05/09/20 09:00	05/12/20 17:08	1
Acenaphthene	ND		5.0	0.41	ug/L		05/09/20 09:00	05/12/20 17:08	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/09/20 09:00	05/12/20 17:08	1
Acetophenone	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 17:08	1
Anthracene	ND		5.0	0.28	ug/L		05/09/20 09:00	05/12/20 17:08	1
Atrazine	ND	*	5.0	0.46	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:08	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/09/20 09:00	05/12/20 17:08	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:08	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:08	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 17:08	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/09/20 09:00	05/12/20 17:08	1
Caprolactam	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 17:08	1
Carbazole	ND	*	5.0	0.30	ug/L		05/09/20 09:00	05/12/20 17:08	1
Chrysene	ND		5.0	0.33	ug/L		05/09/20 09:00	05/12/20 17:08	1

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

Job ID: 480-169674-1

Client Sample ID: PZ-4
Date Collected: 05/07/20 13:20
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-3
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		05/09/20 09:00	05/12/20 17:08	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/09/20 09:00	05/12/20 17:08	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:08	1
Dibenzofuran	ND		10	0.51	ug/L		05/09/20 09:00	05/12/20 17:08	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/09/20 09:00	05/12/20 17:08	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:08	1
Fluoranthene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:08	1
Fluorene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:08	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:08	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/09/20 09:00	05/12/20 17:08	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:08	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:08	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:08	1
Isophorone	ND		5.0	0.43	ug/L		05/09/20 09:00	05/12/20 17:08	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 17:08	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:08	1
Naphthalene	ND		5.0	0.76	ug/L		05/09/20 09:00	05/12/20 17:08	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/09/20 09:00	05/12/20 17:08	1
Pentachlorophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:08	1
Phenanthrene	ND		5.0	0.44	ug/L		05/09/20 09:00	05/12/20 17:08	1
Phenol	ND		5.0	0.39	ug/L		05/09/20 09:00	05/12/20 17:08	1
Pyrene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/12/20 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*107*		*46 - 120*	*05/09/20 09:00*	*05/12/20 17:08*	*1*
Phenol-d5 (Surr)	*66*		*22 - 120*	*05/09/20 09:00*	*05/12/20 17:08*	*1*
p-Terphenyl-d14 (Surr)	*120*		*60 - 148*	*05/09/20 09:00*	*05/12/20 17:08*	*1*
2,4,6-Tribromophenol (Surr)	*110*		*41 - 120*	*05/09/20 09:00*	*05/12/20 17:08*	*1*
2-Fluorobiphenyl	*115*		*48 - 120*	*05/09/20 09:00*	*05/12/20 17:08*	*1*
2-Fluorophenol (Surr)	*83*		*35 - 120*	*05/09/20 09:00*	*05/12/20 17:08*	*1*

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

Job ID: 480-169674-1

Client Sample ID: Filter Vault Eff

Lab Sample ID: 480-169674-4

Date Collected: 05/07/20 12:48

Matrix: Water

Date Received: 05/07/20 17:00

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			05/10/20 15:40	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/10/20 15:40	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/10/20 15:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/10/20 15:40	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/10/20 15:40	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/10/20 15:40	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/10/20 15:40	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/10/20 15:40	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/10/20 15:40	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/10/20 15:40	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/10/20 15:40	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/10/20 15:40	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/10/20 15:40	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/10/20 15:40	1
2-Hexanone	ND		5.0	1.2	ug/L			05/10/20 15:40	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/10/20 15:40	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/10/20 15:40	1
Acetone	ND		10	3.0	ug/L			05/10/20 15:40	1
Benzene	ND		1.0	0.41	ug/L			05/10/20 15:40	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/10/20 15:40	1
Bromoform	ND		1.0	0.26	ug/L			05/10/20 15:40	1
Bromomethane	ND		1.0	0.69	ug/L			05/10/20 15:40	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/10/20 15:40	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/10/20 15:40	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/10/20 15:40	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/10/20 15:40	1
Chloroethane	ND		1.0	0.32	ug/L			05/10/20 15:40	1
Chloroform	**17**		1.0	0.34	ug/L			05/10/20 15:40	1
Chloromethane	ND		1.0	0.35	ug/L			05/10/20 15:40	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/10/20 15:40	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/10/20 15:40	1
Cyclohexane	ND		1.0	0.18	ug/L			05/10/20 15:40	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/10/20 15:40	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/10/20 15:40	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/10/20 15:40	1
Methyl acetate	ND		2.5	1.3	ug/L			05/10/20 15:40	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/10/20 15:40	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/10/20 15:40	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/10/20 15:40	1
Styrene	ND		1.0	0.73	ug/L			05/10/20 15:40	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/10/20 15:40	1
Toluene	ND		1.0	0.51	ug/L			05/10/20 15:40	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/10/20 15:40	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/10/20 15:40	1
Trichloroethene	ND		1.0	0.46	ug/L			05/10/20 15:40	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/10/20 15:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/10/20 15:40	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/10/20 15:40	1

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

Job ID: 480-169674-1

Client Sample ID: Filter Vault Eff

Date Collected: 05/07/20 12:48
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-4

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*114*		*77 - 120*		*05/10/20 15:40*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*05/10/20 15:40*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*05/10/20 15:40*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 123*		*05/10/20 15:40*	*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		05/09/20 09:00	05/12/20 17:38	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,4-Dinitrotoluene	ND	*	5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:38	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Nitroaniline	ND		10	0.42	ug/L		05/09/20 09:00	05/12/20 17:38	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/12/20 17:38	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:38	1
3-Nitroaniline	ND		10	0.48	ug/L		05/09/20 09:00	05/12/20 17:38	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Methylphenol	ND		10	0.36	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Nitroaniline	ND		10	0.25	ug/L		05/09/20 09:00	05/12/20 17:38	1
4-Nitrophenol	ND		10	1.5	ug/L		05/09/20 09:00	05/12/20 17:38	1
Acenaphthene	ND		5.0	0.41	ug/L		05/09/20 09:00	05/12/20 17:38	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/09/20 09:00	05/12/20 17:38	1
Acetophenone	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 17:38	1
Anthracene	ND		5.0	0.28	ug/L		05/09/20 09:00	05/12/20 17:38	1
Atrazine	ND	*	5.0	0.46	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:38	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/09/20 09:00	05/12/20 17:38	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/09/20 09:00	05/12/20 17:38	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:38	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 17:38	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/09/20 09:00	05/12/20 17:38	1
Caprolactam	ND		5.0	2.2	ug/L		05/09/20 09:00	05/12/20 17:38	1
Carbazole	ND	*	5.0	0.30	ug/L		05/09/20 09:00	05/12/20 17:38	1
Chrysene	ND		5.0	0.33	ug/L		05/09/20 09:00	05/12/20 17:38	1

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

Job ID: 480-169674-1

Client Sample ID: Filter Vault Eff
Date Collected: 05/07/20 12:48
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-4
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		05/09/20 09:00	05/12/20 17:38	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/09/20 09:00	05/12/20 17:38	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:38	1
Dibenzofuran	ND		10	0.51	ug/L		05/09/20 09:00	05/12/20 17:38	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/09/20 09:00	05/12/20 17:38	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:38	1
Fluoranthene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/12/20 17:38	1
Fluorene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/12/20 17:38	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:38	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/09/20 09:00	05/12/20 17:38	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:38	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/09/20 09:00	05/12/20 17:38	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/12/20 17:38	1
Isophorone	ND		5.0	0.43	ug/L		05/09/20 09:00	05/12/20 17:38	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/09/20 09:00	05/12/20 17:38	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/09/20 09:00	05/12/20 17:38	1
Naphthalene	ND		5.0	0.76	ug/L		05/09/20 09:00	05/12/20 17:38	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/09/20 09:00	05/12/20 17:38	1
Pentachlorophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/12/20 17:38	1
Phenanthrene	ND		5.0	0.44	ug/L		05/09/20 09:00	05/12/20 17:38	1
Phenol	ND		5.0	0.39	ug/L		05/09/20 09:00	05/12/20 17:38	1
Pyrene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/12/20 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*108*		*46 - 120*	*05/09/20 09:00*	*05/12/20 17:38*	*1*
Phenol-d5 (Surr)	*63*		*22 - 120*	*05/09/20 09:00*	*05/12/20 17:38*	*1*
p-Terphenyl-d14 (Surr)	*109*		*60 - 148*	*05/09/20 09:00*	*05/12/20 17:38*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*41 - 120*	*05/09/20 09:00*	*05/12/20 17:38*	*1*
2-Fluorobiphenyl	*115*		*48 - 120*	*05/09/20 09:00*	*05/12/20 17:38*	*1*
2-Fluorophenol (Surr)	*83*		*35 - 120*	*05/09/20 09:00*	*05/12/20 17:38*	*1*

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

Job ID: 480-169674-1

Client Sample ID: MW-7D
Date Collected: 05/07/20 10:58
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-5
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	**12**		2.0	1.6	ug/L			05/11/20 13:17	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/11/20 13:17	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/11/20 13:17	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/11/20 13:17	2
1,1-Dichloroethane	**70**	**F1**	2.0	0.76	ug/L			05/11/20 13:17	2
1,1-Dichloroethene	**27**		2.0	0.58	ug/L			05/11/20 13:17	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/11/20 13:17	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/11/20 13:17	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/11/20 13:17	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/11/20 13:17	2
1,2-Dichloroethane	**3.3**		2.0	0.42	ug/L			05/11/20 13:17	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/11/20 13:17	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/11/20 13:17	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/11/20 13:17	2
2-Hexanone	ND		10	2.5	ug/L			05/11/20 13:17	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/11/20 13:17	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/11/20 13:17	2
Acetone	ND		20	6.0	ug/L			05/11/20 13:17	2
Benzene	ND		2.0	0.82	ug/L			05/11/20 13:17	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/11/20 13:17	2
Bromoform	ND		2.0	0.52	ug/L			05/11/20 13:17	2
Bromomethane	ND		2.0	1.4	ug/L			05/11/20 13:17	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/11/20 13:17	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/11/20 13:17	2
Chlorobenzene	ND		2.0	1.5	ug/L			05/11/20 13:17	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/11/20 13:17	2
Chloroethane	**47**	**F1**	2.0	0.64	ug/L			05/11/20 13:17	2
Chloroform	ND		2.0	0.68	ug/L			05/11/20 13:17	2
Chloromethane	ND		2.0	0.70	ug/L			05/11/20 13:17	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/11/20 13:17	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/11/20 13:17	2
Cyclohexane	ND		2.0	0.36	ug/L			05/11/20 13:17	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/11/20 13:17	2
Ethylbenzene	**3.4**		2.0	1.5	ug/L			05/11/20 13:17	2
Isopropylbenzene	ND		2.0	1.6	ug/L			05/11/20 13:17	2
Methyl acetate	ND		5.0	2.6	ug/L			05/11/20 13:17	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/11/20 13:17	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/11/20 13:17	2
Methylene Chloride	ND		2.0	0.88	ug/L			05/11/20 13:17	2
Styrene	ND		2.0	1.5	ug/L			05/11/20 13:17	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/11/20 13:17	2
Toluene	ND		2.0	1.0	ug/L			05/11/20 13:17	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/11/20 13:17	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/11/20 13:17	2
Trichloroethene	ND		2.0	0.92	ug/L			05/11/20 13:17	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/11/20 13:17	2
Vinyl chloride	**17**		2.0	1.8	ug/L			05/11/20 13:17	2
Xylenes, Total	**1.8**	**J**	4.0	1.3	ug/L			05/11/20 13:17	2

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

Job ID: 480-169674-1

Client Sample ID: MW-7D
Date Collected: 05/07/20 10:58
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*119*		*77 - 120*		*05/11/20 13:17*	*2*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/11/20 13:17*	*2*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*		*05/11/20 13:17*	*2*
Dibromofluoromethane (Surr)	*111*		*75 - 123*		*05/11/20 13:17*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	**170**	**F2**	50	6.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
bis (2-chloroisopropyl) ether	ND		50	5.2	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4,5-Trichlorophenol	ND		50	4.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4,6-Trichlorophenol	ND		50	6.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4-Dichlorophenol	ND		50	5.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4-Dimethylphenol	ND		50	5.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4-Dinitrophenol	ND		100	22	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,4-Dinitrotoluene	ND	F1 * F2	50	4.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
2,6-Dinitrotoluene	ND		50	4.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Chloronaphthalene	ND		50	4.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Chlorophenol	ND		50	5.3	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Methylphenol	ND		50	4.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Methylnaphthalene	**300**	**F2**	50	6.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Nitroaniline	ND	F2	100	4.2	ug/L		05/09/20 09:00	05/11/20 18:17	10
2-Nitrophenol	ND		50	4.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
3,3'-Dichlorobenzidine	ND		50	4.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
3-Nitroaniline	ND		100	4.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
4,6-Dinitro-2-methylphenol	ND		100	22	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Bromophenyl phenyl ether	ND		50	4.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Chloro-3-methylphenol	ND		50	4.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Chloroaniline	ND		50	5.9	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Chlorophenyl phenyl ether	ND		50	3.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Methylphenol	ND		100	3.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Nitroaniline	ND	F1 F2	100	2.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
4-Nitrophenol	ND		100	15	ug/L		05/09/20 09:00	05/11/20 18:17	10
Acenaphthene	**570**	**F2**	50	4.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
Acenaphthylene	**9.9**	**J F1 F2**	50	3.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
Acetophenone	ND		50	5.4	ug/L		05/09/20 09:00	05/11/20 18:17	10
Anthracene	**99**	**F1 F2**	50	2.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
Atrazine	ND	*	50	4.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzaldehyde	ND		50	2.7	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzo[a]anthracene	**52**	**F1 F2**	50	3.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzo[a]pyrene	**15**	**J F1 F2**	50	4.7	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzo[b]fluoranthene	**22**	**J F1 F2**	50	3.4	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzo[g,h,i]perylene	**4.8**	**J F2**	50	3.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
Benzo[k]fluoranthene	ND	F1 F2	50	7.3	ug/L		05/09/20 09:00	05/11/20 18:17	10
Bis(2-chloroethoxy)methane	ND		50	3.5	ug/L		05/09/20 09:00	05/11/20 18:17	10
Bis(2-chloroethyl)ether	ND		50	4.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
Bis(2-ethylhexyl) phthalate	ND		50	22	ug/L		05/09/20 09:00	05/11/20 18:17	10
Butyl benzyl phthalate	ND		50	10	ug/L		05/09/20 09:00	05/11/20 18:17	10
Caprolactam	ND		50	22	ug/L		05/09/20 09:00	05/11/20 18:17	10
Carbazole	**19**	**J * F1 F2**	50	3.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
Chrysene	**46**	**J F1 F2**	50	3.3	ug/L		05/09/20 09:00	05/11/20 18:17	10

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

Job ID: 480-169674-1

Client Sample ID: MW-7D
Date Collected: 05/07/20 10:58
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-5
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		50	4.2	ug/L		05/09/20 09:00	05/11/20 18:17	10
Di-n-butyl phthalate	ND		50	3.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
Di-n-octyl phthalate	ND		50	4.7	ug/L		05/09/20 09:00	05/11/20 18:17	10
Dibenzofuran	**510**	**F2**	100	5.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
Diethyl phthalate	ND		50	2.2	ug/L		05/09/20 09:00	05/11/20 18:17	10
Dimethyl phthalate	ND		50	3.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
Fluoranthene	**450**	**F2**	50	4.0	ug/L		05/09/20 09:00	05/11/20 18:17	10
Fluorene	**490**	**F2**	50	3.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
Hexachlorobenzene	ND		50	5.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
Hexachlorobutadiene	ND		50	6.8	ug/L		05/09/20 09:00	05/11/20 18:17	10
Hexachlorocyclopentadiene	ND		50	5.9	ug/L		05/09/20 09:00	05/11/20 18:17	10
Hexachloroethane	ND		50	5.9	ug/L		05/09/20 09:00	05/11/20 18:17	10
Indeno[1,2,3-cd]pyrene	ND	F2	50	4.7	ug/L		05/09/20 09:00	05/11/20 18:17	10
Isophorone	ND		50	4.3	ug/L		05/09/20 09:00	05/11/20 18:17	10
N-Nitrosodi-n-propylamine	ND		50	5.4	ug/L		05/09/20 09:00	05/11/20 18:17	10
N-Nitrosodiphenylamine	ND	F1 F2	50	5.1	ug/L		05/09/20 09:00	05/11/20 18:17	10
Naphthalene	**280**	**F2**	50	7.6	ug/L		05/09/20 09:00	05/11/20 18:17	10
Nitrobenzene	ND		50	2.9	ug/L		05/09/20 09:00	05/11/20 18:17	10
Pentachlorophenol	ND		100	22	ug/L		05/09/20 09:00	05/11/20 18:17	10
Phenol	ND		50	3.9	ug/L		05/09/20 09:00	05/11/20 18:17	10
Pyrene	**300**	**F2**	50	3.4	ug/L		05/09/20 09:00	05/11/20 18:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/09/20 09:00*	*05/11/20 18:17*	*10*
Phenol-d5 (Surr)	*48*		*22 - 120*	*05/09/20 09:00*	*05/11/20 18:17*	*10*
p-Terphenyl-d14 (Surr)	*95*		*60 - 148*	*05/09/20 09:00*	*05/11/20 18:17*	*10*
2,4,6-Tribromophenol (Surr)	*96*		*41 - 120*	*05/09/20 09:00*	*05/11/20 18:17*	*10*
2-Fluorobiphenyl	*99*		*48 - 120*	*05/09/20 09:00*	*05/11/20 18:17*	*10*
2-Fluorophenol (Surr)	*71*		*35 - 120*	*05/09/20 09:00*	*05/11/20 18:17*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	**1300**	**F2**	200	18	ug/L		05/09/20 09:00	05/12/20 15:41	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*77*		*46 - 120*	*05/09/20 09:00*	*05/12/20 15:41*	*40*
Phenol-d5 (Surr)	*46*		*22 - 120*	*05/09/20 09:00*	*05/12/20 15:41*	*40*
p-Terphenyl-d14 (Surr)	*95*		*60 - 148*	*05/09/20 09:00*	*05/12/20 15:41*	*40*
2,4,6-Tribromophenol (Surr)	*141*	*X*	*41 - 120*	*05/09/20 09:00*	*05/12/20 15:41*	*40*
2-Fluorobiphenyl	*63*		*48 - 120*	*05/09/20 09:00*	*05/12/20 15:41*	*40*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*05/09/20 09:00*	*05/12/20 15:41*	*40*

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

Job ID: 480-169674-1

Client Sample ID: Blind Dup

Date Collected: 05/07/20 00:00
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-6

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	**10**		2.0	1.6	ug/L			05/11/20 13:42	2
1,1,2,2-Tetrachloroethane	ND		2.0	0.42	ug/L			05/11/20 13:42	2
1,1,2-Trichloroethane	ND		2.0	0.46	ug/L			05/11/20 13:42	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.62	ug/L			05/11/20 13:42	2
1,1-Dichloroethane	**56**		2.0	0.76	ug/L			05/11/20 13:42	2
1,1-Dichloroethene	**22**		2.0	0.58	ug/L			05/11/20 13:42	2
1,2,4-Trichlorobenzene	ND		2.0	0.82	ug/L			05/11/20 13:42	2
1,2-Dibromo-3-Chloropropane	ND		2.0	0.78	ug/L			05/11/20 13:42	2
1,2-Dibromoethane	ND		2.0	1.5	ug/L			05/11/20 13:42	2
1,2-Dichlorobenzene	ND		2.0	1.6	ug/L			05/11/20 13:42	2
1,2-Dichloroethane	**2.9**		2.0	0.42	ug/L			05/11/20 13:42	2
1,2-Dichloropropane	ND		2.0	1.4	ug/L			05/11/20 13:42	2
1,3-Dichlorobenzene	ND		2.0	1.6	ug/L			05/11/20 13:42	2
1,4-Dichlorobenzene	ND		2.0	1.7	ug/L			05/11/20 13:42	2
2-Hexanone	ND		10	2.5	ug/L			05/11/20 13:42	2
2-Butanone (MEK)	ND		20	2.6	ug/L			05/11/20 13:42	2
4-Methyl-2-pentanone (MIBK)	ND		10	4.2	ug/L			05/11/20 13:42	2
Acetone	ND		20	6.0	ug/L			05/11/20 13:42	2
Benzene	ND		2.0	0.82	ug/L			05/11/20 13:42	2
Bromodichloromethane	ND		2.0	0.78	ug/L			05/11/20 13:42	2
Bromoform	ND		2.0	0.52	ug/L			05/11/20 13:42	2
Bromomethane	ND		2.0	1.4	ug/L			05/11/20 13:42	2
Carbon disulfide	ND		2.0	0.38	ug/L			05/11/20 13:42	2
Carbon tetrachloride	ND		2.0	0.54	ug/L			05/11/20 13:42	2
Chlorobenzene	ND		2.0	1.5	ug/L			05/11/20 13:42	2
Dibromochloromethane	ND		2.0	0.64	ug/L			05/11/20 13:42	2
Chloroethane	**38**		2.0	0.64	ug/L			05/11/20 13:42	2
Chloroform	ND		2.0	0.68	ug/L			05/11/20 13:42	2
Chloromethane	ND		2.0	0.70	ug/L			05/11/20 13:42	2
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/11/20 13:42	2
cis-1,3-Dichloropropene	ND		2.0	0.72	ug/L			05/11/20 13:42	2
Cyclohexane	ND		2.0	0.36	ug/L			05/11/20 13:42	2
Dichlorodifluoromethane	ND		2.0	1.4	ug/L			05/11/20 13:42	2
Ethylbenzene	**4.6**		2.0	1.5	ug/L			05/11/20 13:42	2
Isopropylbenzene	**1.8**	**J**	2.0	1.6	ug/L			05/11/20 13:42	2
Methyl acetate	ND		5.0	2.6	ug/L			05/11/20 13:42	2
Methyl tert-butyl ether	ND		2.0	0.32	ug/L			05/11/20 13:42	2
Methylcyclohexane	ND		2.0	0.32	ug/L			05/11/20 13:42	2
Methylene Chloride	ND		2.0	0.88	ug/L			05/11/20 13:42	2
Styrene	ND		2.0	1.5	ug/L			05/11/20 13:42	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/11/20 13:42	2
Toluene	ND		2.0	1.0	ug/L			05/11/20 13:42	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/11/20 13:42	2
trans-1,3-Dichloropropene	ND		2.0	0.74	ug/L			05/11/20 13:42	2
Trichloroethene	ND		2.0	0.92	ug/L			05/11/20 13:42	2
Trichlorofluoromethane	ND		2.0	1.8	ug/L			05/11/20 13:42	2
Vinyl chloride	**14**		2.0	1.8	ug/L			05/11/20 13:42	2
Xylenes, Total	**4.5**		4.0	1.3	ug/L			05/11/20 13:42	2

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

Job ID: 480-169674-1

Client Sample ID: Blind Dup

Date Collected: 05/07/20 00:00
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-6

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*116*		*77 - 120*		*05/11/20 13:42*	*2*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/11/20 13:42*	*2*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*05/11/20 13:42*	*2*
Dibromofluoromethane (Surr)	*109*		*75 - 123*		*05/11/20 13:42*	*2*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	**86**	**J**	100	13	ug/L		05/09/20 09:00	05/14/20 01:30	20
bis (2-chloroisopropyl) ether	ND		100	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4,5-Trichlorophenol	ND		100	9.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4,6-Trichlorophenol	ND		100	12	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4-Dichlorophenol	ND		100	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4-Dimethylphenol	ND		100	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4-Dinitrophenol	ND		200	44	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,4-Dinitrotoluene	ND	*	100	8.9	ug/L		05/09/20 09:00	05/14/20 01:30	20
2,6-Dinitrotoluene	ND		100	8.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Chloronaphthalene	ND		100	9.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Chlorophenol	ND		100	11	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Methylphenol	ND		100	8.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Methylnaphthalene	**130**		100	12	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Nitroaniline	ND		200	8.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
2-Nitrophenol	ND		100	9.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
3,3'-Dichlorobenzidine	ND		100	8.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
3-Nitroaniline	ND		200	9.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
4,6-Dinitro-2-methylphenol	ND		200	44	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Bromophenyl phenyl ether	ND		100	9.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Chloro-3-methylphenol	ND		100	9.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Chloroaniline	ND		100	12	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Chlorophenyl phenyl ether	ND		100	7.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Methylphenol	ND		200	7.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Nitroaniline	ND		200	5.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
4-Nitrophenol	ND		200	30	ug/L		05/09/20 09:00	05/14/20 01:30	20
Acenaphthene	**340**		100	8.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Acenaphthylene	ND		100	7.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
Acetophenone	ND		100	11	ug/L		05/09/20 09:00	05/14/20 01:30	20
Anthracene	**44**	**J**	100	5.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
Atrazine	ND	*	100	9.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzaldehyde	ND		100	5.3	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzo[a]anthracene	**13**	**J**	100	7.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzo[a]pyrene	ND		100	9.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzo[b]fluoranthene	ND		100	6.8	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzo[g,h,i]perylene	ND		100	7.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
Benzo[k]fluoranthene	ND		100	15	ug/L		05/09/20 09:00	05/14/20 01:30	20
Bis(2-chloroethoxy)methane	ND		100	7.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
Bis(2-chloroethyl)ether	ND		100	8.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
Bis(2-ethylhexyl) phthalate	ND		100	44	ug/L		05/09/20 09:00	05/14/20 01:30	20
Butyl benzyl phthalate	ND		100	20	ug/L		05/09/20 09:00	05/14/20 01:30	20
Caprolactam	ND		100	44	ug/L		05/09/20 09:00	05/14/20 01:30	20
Carbazole	**9.5**	**J ***	100	6.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
Chrysene	**11**	**J**	100	6.6	ug/L		05/09/20 09:00	05/14/20 01:30	20

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

Job ID: 480-169674-1

Client Sample ID: Blind Dup
Date Collected: 05/07/20 00:00
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-6
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		100	8.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
Di-n-butyl phthalate	ND		100	6.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Di-n-octyl phthalate	ND		100	9.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
Dibenzofuran	**290**		200	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
Diethyl phthalate	ND		100	4.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
Dimethyl phthalate	ND		100	7.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Fluoranthene	**170**		100	8.0	ug/L		05/09/20 09:00	05/14/20 01:30	20
Fluorene	**240**		100	7.2	ug/L		05/09/20 09:00	05/14/20 01:30	20
Hexachlorobenzene	ND		100	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
Hexachlorobutadiene	ND		100	14	ug/L		05/09/20 09:00	05/14/20 01:30	20
Hexachlorocyclopentadiene	ND		100	12	ug/L		05/09/20 09:00	05/14/20 01:30	20
Hexachloroethane	ND		100	12	ug/L		05/09/20 09:00	05/14/20 01:30	20
Indeno[1,2,3-cd]pyrene	ND		100	9.4	ug/L		05/09/20 09:00	05/14/20 01:30	20
Isophorone	ND		100	8.6	ug/L		05/09/20 09:00	05/14/20 01:30	20
N-Nitrosodi-n-propylamine	ND		100	11	ug/L		05/09/20 09:00	05/14/20 01:30	20
N-Nitrosodiphenylamine	ND		100	10	ug/L		05/09/20 09:00	05/14/20 01:30	20
Naphthalene	**230**		100	15	ug/L		05/09/20 09:00	05/14/20 01:30	20
Nitrobenzene	ND		100	5.8	ug/L		05/09/20 09:00	05/14/20 01:30	20
Pentachlorophenol	ND		200	44	ug/L		05/09/20 09:00	05/14/20 01:30	20
Phenanthrene	**510**		100	8.8	ug/L		05/09/20 09:00	05/14/20 01:30	20
Phenol	ND		100	7.8	ug/L		05/09/20 09:00	05/14/20 01:30	20
Pyrene	**98**	**J**	100	6.8	ug/L		05/09/20 09:00	05/14/20 01:30	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*84*		*46 - 120*	*05/09/20 09:00*	*05/14/20 01:30*	*20*
Phenol-d5 (Surr)	*49*		*22 - 120*	*05/09/20 09:00*	*05/14/20 01:30*	*20*
p-Terphenyl-d14 (Surr)	*76*		*60 - 148*	*05/09/20 09:00*	*05/14/20 01:30*	*20*
2,4,6-Tribromophenol (Surr)	*87*		*41 - 120*	*05/09/20 09:00*	*05/14/20 01:30*	*20*
2-Fluorobiphenyl	*106*		*48 - 120*	*05/09/20 09:00*	*05/14/20 01:30*	*20*
2-Fluorophenol (Surr)	*67*		*35 - 120*	*05/09/20 09:00*	*05/14/20 01:30*	*20*

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

Job ID: 480-169674-1

Client Sample ID: MW-3D
Date Collected: 05/07/20 11:15
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-7
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		1.0	0.82	ug/L			05/11/20 14:06	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/11/20 14:06	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/11/20 14:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/11/20 14:06	1
1,1-Dichloroethane	**0.66**	**J**	1.0	0.38	ug/L			05/11/20 14:06	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/11/20 14:06	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/11/20 14:06	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/11/20 14:06	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/11/20 14:06	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/11/20 14:06	1
1,2-Dichloroethane	**1.2**		1.0	0.21	ug/L			05/11/20 14:06	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/11/20 14:06	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/11/20 14:06	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/11/20 14:06	1
2-Hexanone	ND		5.0	1.2	ug/L			05/11/20 14:06	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/11/20 14:06	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/11/20 14:06	1
Acetone	ND		10	3.0	ug/L			05/11/20 14:06	1
Benzene	**0.76**	**J**	1.0	0.41	ug/L			05/11/20 14:06	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/11/20 14:06	1
Bromoform	ND		1.0	0.26	ug/L			05/11/20 14:06	1
Bromomethane	ND		1.0	0.69	ug/L			05/11/20 14:06	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/11/20 14:06	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/11/20 14:06	1
Chlorobenzene	**11**		1.0	0.75	ug/L			05/11/20 14:06	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/11/20 14:06	1
Chloroethane	ND		1.0	0.32	ug/L			05/11/20 14:06	1
Chloroform	ND		1.0	0.34	ug/L			05/11/20 14:06	1
Chloromethane	ND		1.0	0.35	ug/L			05/11/20 14:06	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/11/20 14:06	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/11/20 14:06	1
Cyclohexane	ND		1.0	0.18	ug/L			05/11/20 14:06	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/11/20 14:06	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/11/20 14:06	1
Isopropylbenzene	**0.81**	**J**	1.0	0.79	ug/L			05/11/20 14:06	1
Methyl acetate	ND		2.5	1.3	ug/L			05/11/20 14:06	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/11/20 14:06	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/11/20 14:06	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/11/20 14:06	1
Styrene	ND		1.0	0.73	ug/L			05/11/20 14:06	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/11/20 14:06	1
Toluene	ND		1.0	0.51	ug/L			05/11/20 14:06	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/11/20 14:06	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/11/20 14:06	1
Trichloroethene	ND		1.0	0.46	ug/L			05/11/20 14:06	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/11/20 14:06	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/11/20 14:06	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/11/20 14:06	1

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

Job ID: 480-169674-1

Client Sample ID: MW-3D
Date Collected: 05/07/20 11:15
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-7
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*05/11/20 14:06*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/11/20 14:06*	*1*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*		*05/11/20 14:06*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*05/11/20 14:06*	*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		05/09/20 09:00	05/14/20 01:58	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,4-Dinitrotoluene	ND	*	5.0	0.45	ug/L		05/09/20 09:00	05/14/20 01:58	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Nitroaniline	ND		10	0.42	ug/L		05/09/20 09:00	05/14/20 01:58	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/14/20 01:58	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/09/20 09:00	05/14/20 01:58	1
3-Nitroaniline	ND		10	0.48	ug/L		05/09/20 09:00	05/14/20 01:58	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Methylphenol	ND		10	0.36	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Nitroaniline	ND		10	0.25	ug/L		05/09/20 09:00	05/14/20 01:58	1
4-Nitrophenol	ND		10	1.5	ug/L		05/09/20 09:00	05/14/20 01:58	1
Acenaphthene	**44**		5.0	0.41	ug/L		05/09/20 09:00	05/14/20 01:58	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/09/20 09:00	05/14/20 01:58	1
Acetophenone	ND		5.0	0.54	ug/L		05/09/20 09:00	05/14/20 01:58	1
Anthracene	ND		5.0	0.28	ug/L		05/09/20 09:00	05/14/20 01:58	1
Atrazine	ND	*	5.0	0.46	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/09/20 09:00	05/14/20 01:58	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/09/20 09:00	05/14/20 01:58	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/09/20 09:00	05/14/20 01:58	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/09/20 09:00	05/14/20 01:58	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/09/20 09:00	05/14/20 01:58	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/09/20 09:00	05/14/20 01:58	1
Caprolactam	**2.8**	**J**	5.0	2.2	ug/L		05/09/20 09:00	05/14/20 01:58	1
Carbazole	ND	*	5.0	0.30	ug/L		05/09/20 09:00	05/14/20 01:58	1
Chrysene	ND		5.0	0.33	ug/L		05/09/20 09:00	05/14/20 01:58	1

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

Job ID: 480-169674-1

Client Sample ID: MW-3D
Date Collected: 05/07/20 11:15
Date Received: 05/07/20 17:00

Lab Sample ID: 480-169674-7
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		05/09/20 09:00	05/14/20 01:58	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/09/20 09:00	05/14/20 01:58	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/09/20 09:00	05/14/20 01:58	1
Dibenzofuran	ND		10	0.51	ug/L		05/09/20 09:00	05/14/20 01:58	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/09/20 09:00	05/14/20 01:58	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/09/20 09:00	05/14/20 01:58	1
Fluoranthene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/14/20 01:58	1
Fluorene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/14/20 01:58	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/09/20 09:00	05/14/20 01:58	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/09/20 09:00	05/14/20 01:58	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/09/20 09:00	05/14/20 01:58	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/09/20 09:00	05/14/20 01:58	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/14/20 01:58	1
Isophorone	ND		5.0	0.43	ug/L		05/09/20 09:00	05/14/20 01:58	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/09/20 09:00	05/14/20 01:58	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/09/20 09:00	05/14/20 01:58	1
Naphthalene	ND		5.0	0.76	ug/L		05/09/20 09:00	05/14/20 01:58	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/09/20 09:00	05/14/20 01:58	1
Pentachlorophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/14/20 01:58	1
Phenanthrene	ND		5.0	0.44	ug/L		05/09/20 09:00	05/14/20 01:58	1
Phenol	ND		5.0	0.39	ug/L		05/09/20 09:00	05/14/20 01:58	1
Pyrene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/14/20 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*151*	*X*	*46 - 120*	*05/09/20 09:00*	*05/14/20 01:58*	*1*
Phenol-d5 (Surr)	*56*		*22 - 120*	*05/09/20 09:00*	*05/14/20 01:58*	*1*
p-Terphenyl-d14 (Surr)	*90*		*60 - 148*	*05/09/20 09:00*	*05/14/20 01:58*	*1*
2,4,6-Tribromophenol (Surr)	*98*		*41 - 120*	*05/09/20 09:00*	*05/14/20 01:58*	*1*
2-Fluorobiphenyl	*104*		*48 - 120*	*05/09/20 09:00*	*05/14/20 01:58*	*1*
2-Fluorophenol (Surr)	*75*		*35 - 120*	*05/09/20 09:00*	*05/14/20 01:58*	*1*

Surrogate Summary

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

Job ID: 480-169674-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (77-120)	TOL (80-120)	BFB (73-120)	DBFM (75-123)
480-169674-1	PZ-2	114	96	98	110
480-169674-2	PZ-3	116	99	99	116
480-169674-3	PZ-4	114	96	97	105
480-169674-4	Filter Vault Eff	114	94	97	109
480-169674-5	MW-7D	119	101	106	111
480-169674-5 MS	MW-7D MS	113	99	112	107
480-169674-5 MSD	MW-7D MSD	116	97	105	111
480-169674-6	Blind Dup	116	96	102	109
480-169674-7	MW-3D	113	98	108	105
LCS 480-530784/5	Lab Control Sample	119	99	104	108
LCS 480-530868/4	Lab Control Sample	115	97	104	107
MB 480-530784/7	Method Blank	121 X	99	105	115
MB 480-530868/6	Method Blank	119	102	111	112

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)					
Lab Sample ID	Client Sample ID	NBZ (46-120)	PHL (22-120)	TPHd14 (60-148)	TBP (41-120)	FBP (48-120)	2FP (35-120)
480-169674-1	PZ-2	94	59	102	85	103	73
480-169674-2	PZ-3	101	63	129	115	114	84
480-169674-3	PZ-4	107	66	120	110	115	83
480-169674-4	Filter Vault Eff	108	63	109	102	115	83
480-169674-5	MW-7D	86	48	95	96	99	71
480-169674-5 - DL	MW-7D	77	46	95	141 X	63	67
480-169674-5 MS	MW-7D MS	94	56	97	121 X	96	72
480-169674-5 MS - DL	MW-7D MS	85	51	96	151 X	61	66
480-169674-5 MSD	MW-7D MSD	97	60	109	116	100	73
480-169674-5 MSD - DL	MW-7D MSD	88	57	107	155 X	65	71
480-169674-6	Blind Dup	84	49	76	87	106	67
480-169674-7	MW-3D	151 X	56	90	98	104	75
LCS 480-530677/2-A	Lab Control Sample	100	65	126	120	105	78
MB 480-530677/1-A	Method Blank	85	53	119	80	89	71

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 480-530784/7
Matrix: Water
Analysis Batch: 530784

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			05/10/20 11:30	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/10/20 11:30	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/10/20 11:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/10/20 11:30	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/10/20 11:30	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/10/20 11:30	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/10/20 11:30	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/10/20 11:30	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/10/20 11:30	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/10/20 11:30	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/10/20 11:30	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/10/20 11:30	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/10/20 11:30	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/10/20 11:30	1
2-Hexanone	ND		5.0	1.2	ug/L			05/10/20 11:30	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/10/20 11:30	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/10/20 11:30	1
Acetone	ND		10	3.0	ug/L			05/10/20 11:30	1
Benzene	ND		1.0	0.41	ug/L			05/10/20 11:30	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/10/20 11:30	1
Bromoform	ND		1.0	0.26	ug/L			05/10/20 11:30	1
Bromomethane	ND		1.0	0.69	ug/L			05/10/20 11:30	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/10/20 11:30	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/10/20 11:30	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/10/20 11:30	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/10/20 11:30	1
Chloroethane	ND		1.0	0.32	ug/L			05/10/20 11:30	1
Chloroform	ND		1.0	0.34	ug/L			05/10/20 11:30	1
Chloromethane	ND		1.0	0.35	ug/L			05/10/20 11:30	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/10/20 11:30	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/10/20 11:30	1
Cyclohexane	ND		1.0	0.18	ug/L			05/10/20 11:30	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/10/20 11:30	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/10/20 11:30	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/10/20 11:30	1
Methyl acetate	ND		2.5	1.3	ug/L			05/10/20 11:30	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/10/20 11:30	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/10/20 11:30	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/10/20 11:30	1
Styrene	ND		1.0	0.73	ug/L			05/10/20 11:30	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/10/20 11:30	1
Toluene	ND		1.0	0.51	ug/L			05/10/20 11:30	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/10/20 11:30	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/10/20 11:30	1
Trichloroethene	ND		1.0	0.46	ug/L			05/10/20 11:30	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/10/20 11:30	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/10/20 11:30	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/10/20 11:30	1

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

Lab Sample ID: MB 480-530784/7
Matrix: Water
Analysis Batch: 530784

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121	X	77 - 120		05/10/20 11:30	1
Toluene-d8 (Surr)	99		80 - 120		05/10/20 11:30	1
4-Bromofluorobenzene (Surr)	105		73 - 120		05/10/20 11:30	1
Dibromofluoromethane (Surr)	115		75 - 123		05/10/20 11:30	1

Lab Sample ID: LCS 480-530784/5
Matrix: Water
Analysis Batch: 530784

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	26.1		ug/L		104	73 - 126
1,1,2,2-Tetrachloroethane	25.0	21.7		ug/L		87	76 - 120
1,1,2-Trichloroethane	25.0	22.9		ug/L		92	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	21.4		ug/L		86	61 - 148
1,1-Dichloroethane	25.0	22.3		ug/L		89	77 - 120
1,1-Dichloroethene	25.0	22.0		ug/L		88	66 - 127
1,2,4-Trichlorobenzene	25.0	24.9		ug/L		100	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	24.3		ug/L		97	56 - 134
1,2-Dibromoethane	25.0	24.9		ug/L		100	77 - 120
1,2-Dichlorobenzene	25.0	23.5		ug/L		94	80 - 124
1,2-Dichloroethane	25.0	27.1		ug/L		108	75 - 120
1,2-Dichloropropane	25.0	22.5		ug/L		90	76 - 120
1,3-Dichlorobenzene	25.0	23.0		ug/L		92	77 - 120
1,4-Dichlorobenzene	25.0	23.0		ug/L		92	80 - 120
2-Hexanone	125	117		ug/L		94	65 - 127
2-Butanone (MEK)	125	118		ug/L		95	57 - 140
4-Methyl-2-pentanone (MIBK)	125	114		ug/L		92	71 - 125
Acetone	125	113		ug/L		91	56 - 142
Benzene	25.0	22.7		ug/L		91	71 - 124
Bromodichloromethane	25.0	26.0		ug/L		104	80 - 122
Bromoform	25.0	27.7		ug/L		111	61 - 132
Bromomethane	25.0	23.6		ug/L		94	55 - 144
Carbon disulfide	25.0	21.4		ug/L		86	59 - 134
Carbon tetrachloride	25.0	26.8		ug/L		107	72 - 134
Chlorobenzene	25.0	22.6		ug/L		90	80 - 120
Dibromochloromethane	25.0	25.9		ug/L		103	75 - 125
Chloroethane	25.0	21.5		ug/L		86	69 - 136
Chloroform	25.0	23.6		ug/L		95	73 - 127
Chloromethane	25.0	20.6		ug/L		82	68 - 124
cis-1,2-Dichloroethene	25.0	23.2		ug/L		93	74 - 124
cis-1,3-Dichloropropene	25.0	26.3		ug/L		105	74 - 124
Cyclohexane	25.0	20.8		ug/L		83	59 - 135
Dichlorodifluoromethane	25.0	21.5		ug/L		86	59 - 135
Ethylbenzene	25.0	23.4		ug/L		94	77 - 123
Isopropylbenzene	25.0	24.3		ug/L		97	77 - 122
Methyl acetate	50.0	44.1		ug/L		88	74 - 133
Methyl tert-butyl ether	25.0	26.6		ug/L		106	77 - 120
Methylcyclohexane	25.0	21.8		ug/L		87	68 - 134

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

Lab Sample ID: LCS 480-530784/5
Matrix: Water
Analysis Batch: 530784

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	24.3		ug/L		97	75 - 124
Styrene	25.0	25.7		ug/L		103	80 - 120
Tetrachloroethene	25.0	23.0		ug/L		92	74 - 122
Toluene	25.0	22.2		ug/L		89	80 - 122
trans-1,2-Dichloroethene	25.0	22.6		ug/L		91	73 - 127
trans-1,3-Dichloropropene	25.0	25.7		ug/L		103	80 - 120
Trichloroethene	25.0	24.2		ug/L		97	74 - 123
Trichlorofluoromethane	25.0	27.4		ug/L		110	62 - 150
Vinyl chloride	25.0	22.2		ug/L		89	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*119*		*77 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*
Dibromofluoromethane (Surr)	*108*		*75 - 123*

Lab Sample ID: MB 480-530868/6
Matrix: Water
Analysis Batch: 530868

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			05/11/20 11:11	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			05/11/20 11:11	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			05/11/20 11:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			05/11/20 11:11	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			05/11/20 11:11	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			05/11/20 11:11	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			05/11/20 11:11	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			05/11/20 11:11	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			05/11/20 11:11	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			05/11/20 11:11	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			05/11/20 11:11	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			05/11/20 11:11	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			05/11/20 11:11	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			05/11/20 11:11	1
2-Hexanone	ND		5.0	1.2	ug/L			05/11/20 11:11	1
2-Butanone (MEK)	ND		10	1.3	ug/L			05/11/20 11:11	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			05/11/20 11:11	1
Acetone	ND		10	3.0	ug/L			05/11/20 11:11	1
Benzene	ND		1.0	0.41	ug/L			05/11/20 11:11	1
Bromodichloromethane	ND		1.0	0.39	ug/L			05/11/20 11:11	1
Bromoform	ND		1.0	0.26	ug/L			05/11/20 11:11	1
Bromomethane	ND		1.0	0.69	ug/L			05/11/20 11:11	1
Carbon disulfide	ND		1.0	0.19	ug/L			05/11/20 11:11	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			05/11/20 11:11	1
Chlorobenzene	ND		1.0	0.75	ug/L			05/11/20 11:11	1
Dibromochloromethane	ND		1.0	0.32	ug/L			05/11/20 11:11	1
Chloroethane	ND		1.0	0.32	ug/L			05/11/20 11:11	1

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

Lab Sample ID: MB 480-530868/6
Matrix: Water
Analysis Batch: 530868

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		1.0	0.34	ug/L			05/11/20 11:11	1
Chloromethane	ND		1.0	0.35	ug/L			05/11/20 11:11	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/11/20 11:11	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			05/11/20 11:11	1
Cyclohexane	ND		1.0	0.18	ug/L			05/11/20 11:11	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			05/11/20 11:11	1
Ethylbenzene	ND		1.0	0.74	ug/L			05/11/20 11:11	1
Isopropylbenzene	ND		1.0	0.79	ug/L			05/11/20 11:11	1
Methyl acetate	ND		2.5	1.3	ug/L			05/11/20 11:11	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			05/11/20 11:11	1
Methylcyclohexane	ND		1.0	0.16	ug/L			05/11/20 11:11	1
Methylene Chloride	ND		1.0	0.44	ug/L			05/11/20 11:11	1
Styrene	ND		1.0	0.73	ug/L			05/11/20 11:11	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/11/20 11:11	1
Toluene	ND		1.0	0.51	ug/L			05/11/20 11:11	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/11/20 11:11	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			05/11/20 11:11	1
Trichloroethene	ND		1.0	0.46	ug/L			05/11/20 11:11	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			05/11/20 11:11	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/11/20 11:11	1
Xylenes, Total	ND		2.0	0.66	ug/L			05/11/20 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*77 - 120*		*05/11/20 11:11*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/11/20 11:11*	*1*
4-Bromofluorobenzene (Surr)	*111*		*73 - 120*		*05/11/20 11:11*	*1*
Dibromofluoromethane (Surr)	*112*		*75 - 123*		*05/11/20 11:11*	*1*

Lab Sample ID: LCS 480-530868/4
Matrix: Water
Analysis Batch: 530868

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	27.9		ug/L		112	73 - 126
1,1,2,2-Tetrachloroethane	25.0	20.3		ug/L		81	76 - 120
1,1,2-Trichloroethane	25.0	22.2		ug/L		89	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	26.2		ug/L		105	61 - 148
1,1-Dichloroethane	25.0	22.8		ug/L		91	77 - 120
1,1-Dichloroethene	25.0	23.7		ug/L		95	66 - 127
1,2,4-Trichlorobenzene	25.0	24.0		ug/L		96	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	24.2		ug/L		97	56 - 134
1,2-Dibromoethane	25.0	23.9		ug/L		96	77 - 120
1,2-Dichlorobenzene	25.0	22.7		ug/L		91	80 - 124
1,2-Dichloroethane	25.0	26.8		ug/L		107	75 - 120
1,2-Dichloropropane	25.0	22.3		ug/L		89	76 - 120
1,3-Dichlorobenzene	25.0	22.8		ug/L		91	77 - 120
1,4-Dichlorobenzene	25.0	22.3		ug/L		89	80 - 120
2-Hexanone	125	115		ug/L		92	65 - 127

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

Lab Sample ID: LCS 480-530868/4
Matrix: Water
Analysis Batch: 530868

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Butanone (MEK)	125	116		ug/L		92	57 - 140
4-Methyl-2-pentanone (MIBK)	125	113		ug/L		90	71 - 125
Acetone	125	125		ug/L		100	56 - 142
Benzene	25.0	22.9		ug/L		92	71 - 124
Bromodichloromethane	25.0	25.7		ug/L		103	80 - 122
Bromoform	25.0	27.7		ug/L		111	61 - 132
Bromomethane	25.0	24.0		ug/L		96	55 - 144
Carbon disulfide	25.0	22.8		ug/L		91	59 - 134
Carbon tetrachloride	25.0	29.0		ug/L		116	72 - 134
Chlorobenzene	25.0	23.0		ug/L		92	80 - 120
Dibromochloromethane	25.0	26.3		ug/L		105	75 - 125
Chloroethane	25.0	22.3		ug/L		89	69 - 136
Chloroform	25.0	24.2		ug/L		97	73 - 127
Chloromethane	25.0	20.1		ug/L		80	68 - 124
cis-1,2-Dichloroethene	25.0	23.0		ug/L		92	74 - 124
cis-1,3-Dichloropropene	25.0	25.9		ug/L		104	74 - 124
Cyclohexane	25.0	24.2		ug/L		97	59 - 135
Dichlorodifluoromethane	25.0	23.7		ug/L		95	59 - 135
Ethylbenzene	25.0	24.1		ug/L		96	77 - 123
Isopropylbenzene	25.0	24.9		ug/L		100	77 - 122
Methyl acetate	50.0	45.0		ug/L		90	74 - 133
Methyl tert-butyl ether	25.0	26.3		ug/L		105	77 - 120
Methylcyclohexane	25.0	25.7		ug/L		103	68 - 134
Methylene Chloride	25.0	24.7		ug/L		99	75 - 124
Styrene	25.0	25.9		ug/L		104	80 - 120
Tetrachloroethene	25.0	24.6		ug/L		99	74 - 122
Toluene	25.0	22.3		ug/L		89	80 - 122
trans-1,2-Dichloroethene	25.0	23.7		ug/L		95	73 - 127
trans-1,3-Dichloropropene	25.0	25.3		ug/L		101	80 - 120
Trichloroethene	25.0	25.2		ug/L		101	74 - 123
Trichlorofluoromethane	25.0	30.5		ug/L		122	62 - 150
Vinyl chloride	25.0	23.3		ug/L		93	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*115*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*
Dibromofluoromethane (Surr)	*107*		*75 - 123*

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530868

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	12		50.0	63.1		ug/L		102	73 - 126
1,1,2,2-Tetrachloroethane	ND		50.0	43.1		ug/L		86	76 - 120
1,1,2-Trichloroethane	ND		50.0	45.8		ug/L		92	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50.0	50.9		ug/L		102	61 - 148

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530868

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	70	F1	50.0	89.0	F1	ug/L		38	77 - 120
1,1-Dichloroethene	27		50.0	67.0		ug/L		80	66 - 127
1,2,4-Trichlorobenzene	ND		50.0	50.3		ug/L		101	79 - 122
1,2-Dibromo-3-Chloropropane	ND		50.0	55.4		ug/L		111	56 - 134
1,2-Dibromoethane	ND		50.0	50.0		ug/L		100	77 - 120
1,2-Dichlorobenzene	ND		50.0	45.6		ug/L		91	80 - 124
1,2-Dichloroethane	3.3		50.0	55.0		ug/L		103	75 - 120
1,2-Dichloropropane	ND		50.0	44.8		ug/L		90	76 - 120
1,3-Dichlorobenzene	ND		50.0	46.3		ug/L		93	77 - 120
1,4-Dichlorobenzene	ND		50.0	45.0		ug/L		90	78 - 124
2-Hexanone	ND		250	230		ug/L		92	65 - 127
2-Butanone (MEK)	ND		250	224		ug/L		89	57 - 140
4-Methyl-2-pentanone (MIBK)	ND		250	227		ug/L		91	71 - 125
Acetone	ND		250	232		ug/L		93	56 - 142
Benzene	ND		50.0	46.5		ug/L		93	71 - 124
Bromodichloromethane	ND		50.0	50.8		ug/L		102	80 - 122
Bromoform	ND		50.0	51.8		ug/L		104	61 - 132
Bromomethane	ND		50.0	48.8		ug/L		98	55 - 144
Carbon disulfide	ND		50.0	42.0		ug/L		84	59 - 134
Carbon tetrachloride	ND		50.0	55.8		ug/L		112	72 - 134
Chlorobenzene	ND		50.0	47.8		ug/L		96	80 - 120
Dibromochloromethane	ND		50.0	50.4		ug/L		101	75 - 125
Chloroethane	47	F1	50.0	74.5	F1	ug/L		55	69 - 136
Chloroform	ND		50.0	49.0		ug/L		98	73 - 127
Chloromethane	ND		50.0	41.2		ug/L		82	68 - 124
cis-1,2-Dichloroethene	ND		50.0	48.4		ug/L		97	74 - 124
cis-1,3-Dichloropropene	ND		50.0	50.2		ug/L		100	74 - 124
Cyclohexane	ND		50.0	47.4		ug/L		95	59 - 135
Dichlorodifluoromethane	ND		50.0	48.1		ug/L		96	59 - 135
Ethylbenzene	3.4		50.0	53.9		ug/L		101	77 - 123
Isopropylbenzene	ND		50.0	52.1		ug/L		104	77 - 122
Methyl acetate	ND		100	85.3		ug/L		85	74 - 133
Methyl tert-butyl ether	ND		50.0	52.6		ug/L		105	77 - 120
Methylcyclohexane	ND		50.0	50.4		ug/L		101	68 - 134
Methylene Chloride	ND		50.0	50.3		ug/L		101	75 - 124
Styrene	ND		50.0	54.1		ug/L		108	80 - 120
Tetrachloroethene	ND		50.0	50.9		ug/L		102	74 - 122
Toluene	ND		50.0	48.0		ug/L		96	80 - 122
trans-1,2-Dichloroethene	ND		50.0	48.3		ug/L		97	73 - 127
trans-1,3-Dichloropropene	ND		50.0	51.5		ug/L		103	80 - 120
Trichloroethene	ND		50.0	50.2		ug/L		100	74 - 123
Trichlorofluoromethane	ND		50.0	59.1		ug/L		118	62 - 150
Vinyl chloride	17		50.0	58.5		ug/L		84	65 - 133

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*112*		*73 - 120*

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530868

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

Surrogate	MS %Recovery	MS Qualifier	Limits
Dibromofluoromethane (Surr)	*107*		*75 - 123*

Lab Sample ID: 480-169674-5 MSD
Matrix: Water
Analysis Batch: 530868

Client Sample ID: MW-7D MSD
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	12		50.0	60.6		ug/L		97	73 - 126	4	15
1,1,2,2-Tetrachloroethane	ND		50.0	44.4		ug/L		89	76 - 120	3	15
1,1,2-Trichloroethane	ND		50.0	44.0		ug/L		88	76 - 122	4	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		50.0	46.4		ug/L		93	61 - 148	9	20
1,1-Dichloroethane	70	F1	50.0	88.8	F1	ug/L		37	77 - 120	0	20
1,1-Dichloroethene	27		50.0	62.0		ug/L		70	66 - 127	8	16
1,2,4-Trichlorobenzene	ND		50.0	52.2		ug/L		104	79 - 122	4	20
1,2-Dibromo-3-Chloropropane	ND		50.0	59.5		ug/L		119	56 - 134	7	15
1,2-Dibromoethane	ND		50.0	48.8		ug/L		98	77 - 120	2	15
1,2-Dichlorobenzene	ND		50.0	46.6		ug/L		93	80 - 124	2	20
1,2-Dichloroethane	3.3		50.0	54.3		ug/L		102	75 - 120	1	20
1,2-Dichloropropane	ND		50.0	45.8		ug/L		92	76 - 120	2	20
1,3-Dichlorobenzene	ND		50.0	46.2		ug/L		92	77 - 120	0	20
1,4-Dichlorobenzene	ND		50.0	44.8		ug/L		90	78 - 124	1	20
2-Hexanone	ND		250	222		ug/L		89	65 - 127	4	15
2-Butanone (MEK)	ND		250	223		ug/L		89	57 - 140	0	20
4-Methyl-2-pentanone (MIBK)	ND		250	218		ug/L		87	71 - 125	4	35
Acetone	ND		250	222		ug/L		89	56 - 142	4	15
Benzene	ND		50.0	45.8		ug/L		92	71 - 124	2	13
Bromodichloromethane	ND		50.0	50.3		ug/L		101	80 - 122	1	15
Bromoform	ND		50.0	50.1		ug/L		100	61 - 132	3	15
Bromomethane	ND		50.0	45.1		ug/L		90	55 - 144	8	15
Carbon disulfide	ND		50.0	40.6		ug/L		81	59 - 134	4	15
Carbon tetrachloride	ND		50.0	54.2		ug/L		108	72 - 134	3	15
Chlorobenzene	ND		50.0	45.8		ug/L		92	80 - 120	4	25
Dibromochloromethane	ND		50.0	48.9		ug/L		98	75 - 125	3	15
Chloroethane	47	F1	50.0	69.9	F1	ug/L		46	69 - 136	6	15
Chloroform	ND		50.0	48.1		ug/L		96	73 - 127	2	20
Chloromethane	ND		50.0	37.5		ug/L		75	68 - 124	9	15
cis-1,2-Dichloroethene	ND		50.0	47.4		ug/L		95	74 - 124	2	15
cis-1,3-Dichloropropene	ND		50.0	51.3		ug/L		103	74 - 124	2	15
Cyclohexane	ND		50.0	45.4		ug/L		91	59 - 135	4	20
Dichlorodifluoromethane	ND		50.0	41.5		ug/L		83	59 - 135	15	20
Ethylbenzene	3.4		50.0	51.6		ug/L		96	77 - 123	4	15
Isopropylbenzene	ND		50.0	52.9		ug/L		106	77 - 122	2	20
Methyl acetate	ND		100	83.4		ug/L		83	74 - 133	2	20
Methyl tert-butyl ether	ND		50.0	51.8		ug/L		104	77 - 120	2	37
Methylcyclohexane	ND		50.0	48.6		ug/L		97	68 - 134	4	20
Methylene Chloride	ND		50.0	48.3		ug/L		97	75 - 124	4	15
Styrene	ND		50.0	50.3		ug/L		101	80 - 120	7	20
Tetrachloroethene	ND		50.0	48.3		ug/L		97	74 - 122	5	20

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

Lab Sample ID: 480-169674-5 MSD
Matrix: Water
Analysis Batch: 530868

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	ND		50.0	44.2		ug/L		88	80 - 122	8	15
trans-1,2-Dichloroethene	ND		50.0	45.3		ug/L		91	73 - 127	6	20
trans-1,3-Dichloropropene	ND		50.0	48.6		ug/L		97	80 - 120	6	15
Trichloroethene	ND		50.0	49.1		ug/L		98	74 - 123	2	16
Trichlorofluoromethane	ND		50.0	54.6		ug/L		109	62 - 150	8	20
Vinyl chloride	17		50.0	54.8		ug/L		76	65 - 133	7	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*116*		*77 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*
Dibromofluoromethane (Surr)	*111*		*75 - 123*

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

Lab Sample ID: MB 480-530677/1-A
Matrix: Water
Analysis Batch: 530947

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 530677

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/09/20 09:00	05/11/20 15:25	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/09/20 09:00	05/11/20 15:25	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Nitroaniline	ND		10	0.42	ug/L		05/09/20 09:00	05/11/20 15:25	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/09/20 09:00	05/11/20 15:25	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/09/20 09:00	05/11/20 15:25	1
3-Nitroaniline	ND		10	0.48	ug/L		05/09/20 09:00	05/11/20 15:25	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Methylphenol	ND		10	0.36	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Nitroaniline	ND		10	0.25	ug/L		05/09/20 09:00	05/11/20 15:25	1
4-Nitrophenol	ND		10	1.5	ug/L		05/09/20 09:00	05/11/20 15:25	1
Acenaphthene	ND		5.0	0.41	ug/L		05/09/20 09:00	05/11/20 15:25	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/09/20 09:00	05/11/20 15:25	1
Acetophenone	ND		5.0	0.54	ug/L		05/09/20 09:00	05/11/20 15:25	1
Anthracene	ND		5.0	0.28	ug/L		05/09/20 09:00	05/11/20 15:25	1

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

Lab Sample ID: MB 480-530677/1-A
Matrix: Water
Analysis Batch: 530947

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 530677

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Atrazine	ND		5.0	0.46	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/09/20 09:00	05/11/20 15:25	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/09/20 09:00	05/11/20 15:25	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/09/20 09:00	05/11/20 15:25	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/09/20 09:00	05/11/20 15:25	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/09/20 09:00	05/11/20 15:25	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/09/20 09:00	05/11/20 15:25	1
Caprolactam	ND		5.0	2.2	ug/L		05/09/20 09:00	05/11/20 15:25	1
Carbazole	ND		5.0	0.30	ug/L		05/09/20 09:00	05/11/20 15:25	1
Chrysene	ND		5.0	0.33	ug/L		05/09/20 09:00	05/11/20 15:25	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/09/20 09:00	05/11/20 15:25	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/09/20 09:00	05/11/20 15:25	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/09/20 09:00	05/11/20 15:25	1
Dibenzofuran	ND		10	0.51	ug/L		05/09/20 09:00	05/11/20 15:25	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/09/20 09:00	05/11/20 15:25	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/09/20 09:00	05/11/20 15:25	1
Fluoranthene	ND		5.0	0.40	ug/L		05/09/20 09:00	05/11/20 15:25	1
Fluorene	ND		5.0	0.36	ug/L		05/09/20 09:00	05/11/20 15:25	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/09/20 09:00	05/11/20 15:25	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/09/20 09:00	05/11/20 15:25	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/09/20 09:00	05/11/20 15:25	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/09/20 09:00	05/11/20 15:25	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/09/20 09:00	05/11/20 15:25	1
Isophorone	ND		5.0	0.43	ug/L		05/09/20 09:00	05/11/20 15:25	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/09/20 09:00	05/11/20 15:25	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/09/20 09:00	05/11/20 15:25	1
Naphthalene	ND		5.0	0.76	ug/L		05/09/20 09:00	05/11/20 15:25	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/09/20 09:00	05/11/20 15:25	1
Pentachlorophenol	ND		10	2.2	ug/L		05/09/20 09:00	05/11/20 15:25	1
Phenanthrene	ND		5.0	0.44	ug/L		05/09/20 09:00	05/11/20 15:25	1
Phenol	ND		5.0	0.39	ug/L		05/09/20 09:00	05/11/20 15:25	1
Pyrene	ND		5.0	0.34	ug/L		05/09/20 09:00	05/11/20 15:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*85*		*46 - 120*	*05/09/20 09:00*	*05/11/20 15:25*	*1*
Phenol-d5 (Surr)	*53*		*22 - 120*	*05/09/20 09:00*	*05/11/20 15:25*	*1*
p-Terphenyl-d14 (Surr)	*119*		*60 - 148*	*05/09/20 09:00*	*05/11/20 15:25*	*1*
2,4,6-Tribromophenol (Surr)	*80*		*41 - 120*	*05/09/20 09:00*	*05/11/20 15:25*	*1*
2-Fluorobiphenyl	*89*		*48 - 120*	*05/09/20 09:00*	*05/11/20 15:25*	*1*
2-Fluorophenol (Surr)	*71*		*35 - 120*	*05/09/20 09:00*	*05/11/20 15:25*	*1*

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

Lab Sample ID: LCS 480-530677/2-A
Matrix: Water
Analysis Batch: 530947

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl	32.0	30.5		ug/L		95	59 - 120
bis (2-chloroisopropyl) ether	32.0	28.4		ug/L		89	21 - 136
2,4,5-Trichlorophenol	32.0	37.3		ug/L		117	65 - 126
2,4,6-Trichlorophenol	32.0	34.9		ug/L		109	64 - 120
2,4-Dichlorophenol	32.0	32.8		ug/L		102	63 - 120
2,4-Dimethylphenol	32.0	32.7		ug/L		102	47 - 120
2,4-Dinitrophenol	64.0	83.9		ug/L		131	31 - 137
2,4-Dinitrotoluene	32.0	39.5	*	ug/L		123	69 - 120
2,6-Dinitrotoluene	32.0	38.5		ug/L		120	68 - 120
2-Chloronaphthalene	32.0	29.9		ug/L		94	58 - 120
2-Chlorophenol	32.0	30.0		ug/L		94	48 - 120
2-Methylphenol	32.0	29.6		ug/L		92	39 - 120
2-Methylnaphthalene	32.0	29.2		ug/L		91	59 - 120
2-Nitroaniline	32.0	35.4		ug/L		111	54 - 127
2-Nitrophenol	32.0	34.1		ug/L		107	52 - 125
3,3'-Dichlorobenzidine	64.0	65.8		ug/L		103	49 - 135
3-Nitroaniline	32.0	31.3		ug/L		98	51 - 120
4,6-Dinitro-2-methylphenol	64.0	78.2		ug/L		122	46 - 136
4-Bromophenyl phenyl ether	32.0	33.0		ug/L		103	65 - 120
4-Chloro-3-methylphenol	32.0	35.3		ug/L		110	61 - 123
4-Chloroaniline	32.0	26.3		ug/L		82	30 - 120
4-Chlorophenyl phenyl ether	32.0	32.0		ug/L		100	62 - 120
4-Methylphenol	32.0	30.0		ug/L		94	29 - 131
4-Nitroaniline	32.0	34.9		ug/L		109	65 - 120
4-Nitrophenol	64.0	61.3		ug/L		96	45 - 120
Acenaphthene	32.0	30.9		ug/L		97	60 - 120
Acenaphthylene	32.0	32.9		ug/L		103	63 - 120
Acetophenone	32.0	30.6		ug/L		96	45 - 120
Anthracene	32.0	32.9		ug/L		103	67 - 120
Atrazine	64.0	86.8	*	ug/L		136	71 - 130
Benzaldehyde	64.0	55.0		ug/L		86	10 - 140
Benzo[a]anthracene	32.0	35.0		ug/L		109	70 - 121
Benzo[a]pyrene	32.0	34.1		ug/L		106	60 - 123
Benzo[b]fluoranthene	32.0	38.0		ug/L		119	66 - 126
Benzo[g,h,i]perylene	32.0	37.9		ug/L		118	66 - 150
Benzo[k]fluoranthene	32.0	36.0		ug/L		112	65 - 124
Bis(2-chloroethoxy)methane	32.0	32.0		ug/L		100	50 - 128
Bis(2-chloroethyl)ether	32.0	31.8		ug/L		99	44 - 120
Bis(2-ethylhexyl) phthalate	32.0	35.3		ug/L		110	63 - 139
Butyl benzyl phthalate	32.0	36.3		ug/L		114	70 - 129
Caprolactam	64.0	28.9		ug/L		45	22 - 120
Carbazole	32.0	41.9	*	ug/L		131	66 - 123
Chrysene	32.0	36.1		ug/L		113	69 - 120
Dibenz(a,h)anthracene	32.0	38.7		ug/L		121	65 - 135
Di-n-butyl phthalate	32.0	35.2		ug/L		110	69 - 131
Di-n-octyl phthalate	32.0	35.6		ug/L		111	63 - 140
Dibenzofuran	32.0	32.4		ug/L		101	66 - 120
Diethyl phthalate	32.0	36.1		ug/L		113	59 - 127

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

Lab Sample ID: LCS 480-530677/2-A
Matrix: Water
Analysis Batch: 530947

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dimethyl phthalate	32.0	36.1		ug/L		113	68 - 120
Fluoranthene	32.0	34.6		ug/L		108	69 - 126
Fluorene	32.0	33.1		ug/L		103	66 - 120
Hexachlorobenzene	32.0	32.4		ug/L		101	61 - 120
Hexachlorobutadiene	32.0	23.9		ug/L		75	35 - 120
Hexachlorocyclopentadiene	32.0	21.1		ug/L		66	31 - 120
Hexachloroethane	32.0	24.6		ug/L		77	43 - 120
Indeno[1,2,3-cd]pyrene	32.0	38.0		ug/L		119	69 - 146
Isophorone	32.0	32.5		ug/L		101	55 - 120
N-Nitrosodi-n-propylamine	32.0	30.8		ug/L		96	32 - 140
N-Nitrosodiphenylamine	32.0	34.6		ug/L		108	61 - 120
Naphthalene	32.0	27.1		ug/L		85	57 - 120
Nitrobenzene	32.0	31.0		ug/L		97	53 - 123
Pentachlorophenol	64.0	71.7		ug/L		112	29 - 136
Phenanthrene	32.0	32.3		ug/L		101	68 - 120
Phenol	32.0	20.1		ug/L		63	17 - 120
Pyrene	32.0	33.3		ug/L		104	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*100*		*46 - 120*
Phenol-d5 (Surr)	*65*		*22 - 120*
p-Terphenyl-d14 (Surr)	*126*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*120*		*41 - 120*
2-Fluorobiphenyl	*105*		*48 - 120*
2-Fluorophenol (Surr)	*78*		*35 - 120*

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530947

Client Sample ID: MW-7D MS
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl	170	F2	32.0	113	4	ug/L		-189	57 - 120
bis (2-chloroisopropyl) ether	ND		32.0	28.7	J	ug/L		90	28 - 121
2,4,5-Trichlorophenol	ND		32.0	33.3	J	ug/L		104	65 - 126
2,4,6-Trichlorophenol	ND		32.0	34.1	J	ug/L		106	64 - 120
2,4-Dichlorophenol	ND		32.0	29.4	J	ug/L		92	48 - 132
2,4-Dimethylphenol	ND		32.0	31.4	J	ug/L		98	39 - 130
2,4-Dinitrophenol	ND		64.0	74.8	J	ug/L		117	21 - 150
2,4-Dinitrotoluene	ND	F1 * F2	32.0	48.5	J F1	ug/L		151	54 - 138
2,6-Dinitrotoluene	ND		32.0	36.9	J	ug/L		115	17 - 150
2-Chloronaphthalene	ND		32.0	30.5	J	ug/L		95	52 - 124
2-Chlorophenol	ND		32.0	28.2	J	ug/L		88	48 - 120
2-Methylphenol	ND		32.0	26.9	J	ug/L		84	46 - 120
2-Methylnaphthalene	300	F2	32.0	198	4	ug/L		-318	34 - 140
2-Nitroaniline	ND	F2	32.0	36.0	J	ug/L		112	44 - 136
2-Nitrophenol	ND		32.0	35.8	J	ug/L		112	38 - 141
3,3'-Dichlorobenzidine	ND		64.0	66.3		ug/L		104	10 - 150
3-Nitroaniline	ND		32.0	32.2	J	ug/L		101	32 - 150

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530947

Client Sample ID: MW-7D MS
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
4,6-Dinitro-2-methylphenol	ND		64.0	76.4	J	ug/L		119	38 - 150
4-Bromophenyl phenyl ether	ND		32.0	30.7	J	ug/L		96	63 - 126
4-Chloro-3-methylphenol	ND		32.0	31.3	J	ug/L		98	64 - 127
4-Chloroaniline	ND		32.0	26.1	J	ug/L		82	16 - 124
4-Chlorophenyl phenyl ether	ND		32.0	29.4	J	ug/L		92	61 - 120
4-Methylphenol	ND		32.0	25.4	J	ug/L		79	36 - 120
4-Nitroaniline	ND	F1 F2	32.0	47.4	J	ug/L		148	32 - 150
4-Nitrophenol	ND		64.0	51.2	J	ug/L		80	23 - 132
Acenaphthene	570	F2	32.0	362	4	ug/L		-650	48 - 120
Acenaphthylene	9.9	J F1 F2	32.0	38.5	J	ug/L		89	63 - 120
Acetophenone	ND		32.0	30.3	J	ug/L		95	53 - 120
Anthracene	99	F1 F2	32.0	82.0	F1	ug/L		-54	65 - 122
Atrazine	ND	*	64.0	84.0		ug/L		131	50 - 150
Benzaldehyde	ND		64.0	54.4		ug/L		85	10 - 150
Benzo[a]anthracene	52	F1 F2	32.0	50.8	F1	ug/L		-3	43 - 124
Benzo[a]pyrene	15	J F1 F2	32.0	34.4	J	ug/L		61	23 - 125
Benzo[b]fluoranthene	22	J F1 F2	32.0	36.8	J	ug/L		47	27 - 127
Benzo[g,h,i]perylene	4.8	J F2	32.0	32.5	J	ug/L		87	16 - 147
Benzo[k]fluoranthene	ND	F1 F2	32.0	36.2	J	ug/L		113	20 - 124
Bis(2-chloroethoxy)methane	ND		32.0	31.4	J	ug/L		98	44 - 128
Bis(2-chloroethyl)ether	ND		32.0	30.5	J	ug/L		95	45 - 120
Bis(2-ethylhexyl) phthalate	ND		32.0	32.3	J	ug/L		101	16 - 150
Butyl benzyl phthalate	ND		32.0	29.3	J	ug/L		92	51 - 140
Caprolactam	ND		64.0	40.7	J	ug/L		64	10 - 120
Carbazole	19	J * F1 F2	32.0	59.5		ug/L		127	16 - 148
Chrysene	46	J F1 F2	32.0	50.3	F1	ug/L		15	44 - 122
Dibenz(a,h)anthracene	ND		32.0	30.1	J	ug/L		94	16 - 139
Di-n-butyl phthalate	ND		32.0	34.7	J	ug/L		108	65 - 129
Di-n-octyl phthalate	ND		32.0	32.6	J	ug/L		102	16 - 150
Dibenzofuran	510	F2	32.0	326	4	ug/L		-589	60 - 120
Diethyl phthalate	ND		32.0	37.6	J	ug/L		117	53 - 133
Dimethyl phthalate	ND		32.0	36.6	J	ug/L		114	59 - 123
Fluoranthene	450	F2	32.0	247	4	ug/L		-632	63 - 129
Fluorene	490	F2	32.0	286	4	ug/L		-628	62 - 120
Hexachlorobenzene	ND		32.0	30.3	J	ug/L		95	57 - 121
Hexachlorobutadiene	ND		32.0	22.3	J	ug/L		70	37 - 120
Hexachlorocyclopentadiene	ND		32.0	13.8	J	ug/L		43	21 - 120
Hexachloroethane	ND		32.0	27.4	J	ug/L		86	16 - 130
Indeno[1,2,3-cd]pyrene	ND	F2	32.0	32.3	J	ug/L		101	16 - 140
Isophorone	ND		32.0	31.1	J	ug/L		97	48 - 133
N-Nitrosodi-n-propylamine	ND		32.0	29.6	J	ug/L		92	49 - 120
N-Nitrosodiphenylamine	ND	F1 F2	32.0	45.0	J F1	ug/L		141	39 - 138
Naphthalene	280	F2	32.0	223	4	ug/L		-191	45 - 120
Nitrobenzene	ND		32.0	30.5	J	ug/L		95	45 - 123
Pentachlorophenol	ND		64.0	65.2	J	ug/L		102	23 - 149
Phenol	ND		32.0	17.8	J	ug/L		56	16 - 120
Pyrene	300	F2	32.0	163	4	ug/L		-431	58 - 128

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 530947

Client Sample ID: MW-7D MS
Prep Type: Total/NA
Prep Batch: 530677

Surrogate	MS %Recovery	MS Qualifier	Limits
Nitrobenzene-d5 (Surr)	*94*		*46 - 120*
Phenol-d5 (Surr)	*56*		*22 - 120*
p-Terphenyl-d14 (Surr)	*97*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*121*	*X*	*41 - 120*
2-Fluorobiphenyl	*96*		*48 - 120*
2-Fluorophenol (Surr)	*72*		*35 - 120*

Lab Sample ID: 480-169674-5 MSD
Matrix: Water
Analysis Batch: 530947

Client Sample ID: MW-7D MSD
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biphenyl	170	F2	33.3	399	4 F2	ug/L		677	57 - 120	112	20
bis (2-chloroisopropyl) ether	ND		33.3	30.2	J	ug/L		90	28 - 121	5	24
2,4,5-Trichlorophenol	ND		33.3	32.0	J	ug/L		96	65 - 126	4	18
2,4,6-Trichlorophenol	ND		33.3	35.9	J	ug/L		108	64 - 120	5	19
2,4-Dichlorophenol	ND		33.3	30.9	J	ug/L		93	48 - 132	5	19
2,4-Dimethylphenol	ND		33.3	33.7	J	ug/L		101	39 - 130	7	42
2,4-Dinitrophenol	ND		66.7	82.4	J	ug/L		124	21 - 150	10	22
2,4-Dinitrotoluene	ND	F1 * F2	33.3	92.6	F1 F2	ug/L		278	54 - 138	63	20
2,6-Dinitrotoluene	ND		33.3	39.2	J	ug/L		118	17 - 150	6	15
2-Chloronaphthalene	ND		33.3	34.6	J	ug/L		104	52 - 124	12	21
2-Chlorophenol	ND		33.3	29.3	J	ug/L		88	48 - 120	4	25
2-Methylphenol	ND		33.3	27.7	J	ug/L		83	46 - 120	3	27
2-Methylnaphthalene	300	F2	33.3	585	4 F2	ug/L		857	34 - 140	99	21
2-Nitroaniline	ND	F2	33.3	44.8	J F2	ug/L		134	44 - 136	22	15
2-Nitrophenol	ND		33.3	36.9	J	ug/L		111	38 - 141	3	18
3,3'-Dichlorobenzidine	ND		66.7	69.6		ug/L		104	10 - 150	5	25
3-Nitroaniline	ND		33.3	32.2	J	ug/L		97	32 - 150	0	19
4,6-Dinitro-2-methylphenol	ND		66.7	77.0	J	ug/L		116	38 - 150	1	15
4-Bromophenyl phenyl ether	ND		33.3	31.7	J	ug/L		95	63 - 126	3	15
4-Chloro-3-methylphenol	ND		33.3	34.4	J	ug/L		103	64 - 127	10	27
4-Chloroaniline	ND		33.3	27.9	J	ug/L		84	16 - 124	7	22
4-Chlorophenyl phenyl ether	ND		33.3	33.4	J	ug/L		100	61 - 120	13	16
4-Methylphenol	ND		33.3	27.7	J	ug/L		83	36 - 120	9	24
4-Nitroaniline	ND	F1 F2	33.3	87.1	J F1 F2	ug/L		261	32 - 150	59	24
4-Nitrophenol	ND		66.7	82.6	J	ug/L		124	23 - 132	47	48
Acenaphthene	570	F2	33.3	946	E 4 F2	ug/L		1127	48 - 120	89	24
Acenaphthylene	9.9	J F1 F2	33.3	58.3	F1 F2	ug/L		145	63 - 120	41	18
Acetophenone	ND		33.3	32.6	J	ug/L		98	53 - 120	7	20
Anthracene	99	F1 F2	33.3	244	F1 F2	ug/L		433	65 - 122	99	15
Atrazine	ND	*	66.7	85.3		ug/L		128	50 - 150	2	20
Benzaldehyde	ND		66.7	56.8		ug/L		85	10 - 150	4	20
Benzo[a]anthracene	52	F1 F2	33.3	157	F1 F2	ug/L		315	43 - 124	102	15
Benzo[a]pyrene	15	J F1 F2	33.3	66.5	F1 F2	ug/L		155	23 - 125	64	15
Benzo[b]fluoranthene	22	J F1 F2	33.3	81.9	F1 F2	ug/L		180	27 - 127	76	15
Benzo[g,h,i]perylene	4.8	J F2	33.3	43.6	J F2	ug/L		116	16 - 147	29	15
Benzo[k]fluoranthene	ND	F1 F2	33.3	53.1	F1 F2	ug/L		159	20 - 124	38	22

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

Lab Sample ID: 480-169674-5 MSD
Matrix: Water
Analysis Batch: 530947

Client Sample ID: MW-7D MSD
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bis(2-chloroethoxy)methane	ND		33.3	33.1	J	ug/L		99	44 - 128	5	17
Bis(2-chloroethyl)ether	ND		33.3	32.0	J	ug/L		96	45 - 120	5	21
Bis(2-ethylhexyl) phthalate	ND		33.3	32.1	J	ug/L		96	16 - 150	1	15
Butyl benzyl phthalate	ND		33.3	30.7	J	ug/L		92	51 - 140	4	16
Caprolactam	ND		66.7	47.3	J	ug/L		71	10 - 120	15	20
Carbazole	19	J * F1 F2	33.3	78.7	F1 F2	ug/L		179	16 - 148	28	20
Chrysene	46	J F1 F2	33.3	146	F1 F2	ug/L		302	44 - 122	98	15
Dibenz(a,h)anthracene	ND		33.3	34.6	J	ug/L		104	16 - 139	14	15
Di-n-butyl phthalate	ND		33.3	35.6	J	ug/L		107	65 - 129	3	15
Di-n-octyl phthalate	ND		33.3	33.6	J	ug/L		101	16 - 150	3	16
Dibenzofuran	510	F2	33.3	836	E 4 F2	ug/L		965	60 - 120	88	15
Diethyl phthalate	ND		33.3	37.1	J	ug/L		111	53 - 133	1	15
Dimethyl phthalate	ND		33.3	39.0	J	ug/L		117	59 - 123	6	15
Fluoranthene	450	F2	33.3	748	E 4 F2	ug/L		898	63 - 129	101	15
Fluorene	490	F2	33.3	851	E 4 F2	ug/L		1091	62 - 120	99	15
Hexachlorobenzene	ND		33.3	31.0	J	ug/L		93	57 - 121	2	15
Hexachlorobutadiene	ND		33.3	23.5	J	ug/L		71	37 - 120	5	44
Hexachlorocyclopentadiene	ND		33.3	15.0	J	ug/L		45	21 - 120	9	49
Hexachloroethane	ND		33.3	33.8	J	ug/L		101	16 - 130	21	46
Indeno[1,2,3-cd]pyrene	ND	F2	33.3	42.0	J F2	ug/L		126	16 - 140	26	15
Isophorone	ND		33.3	32.8	J	ug/L		98	48 - 133	5	17
N-Nitrosodi-n-propylamine	ND		33.3	29.2	J	ug/L		88	49 - 120	1	31
N-Nitrosodiphenylamine	ND	F1 F2	33.3	89.2	F1 F2	ug/L		268	39 - 138	66	15
Naphthalene	280	F2	33.3	436	4 F2	ug/L		456	45 - 120	65	29
Nitrobenzene	ND		33.3	32.2	J	ug/L		97	45 - 123	5	24
Pentachlorophenol	ND		66.7	67.3	J	ug/L		101	23 - 149	3	37
Phenol	ND		33.3	20.0	J	ug/L		60	16 - 120	12	34
Pyrene	300	F2	33.3	602	4 F2	ug/L		901	58 - 128	115	19

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*97*		*46 - 120*
Phenol-d5 (Surr)	*60*		*22 - 120*
p-Terphenyl-d14 (Surr)	*109*		*60 - 148*
2,4,6-Tribromophenol (Surr)	*116*		*41 - 120*
2-Fluorobiphenyl	*100*		*48 - 120*
2-Fluorophenol (Surr)	*73*		*35 - 120*

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 531173

Client Sample ID: MW-7D MS
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene - DL	1300	F2	32.0	620	4	ug/L		-2100	65 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr) - DL	*85*		*46 - 120*

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

Lab Sample ID: 480-169674-5 MS
Matrix: Water
Analysis Batch: 531173

Client Sample ID: MW-7D MS
Prep Type: Total/NA
Prep Batch: 530677

Surrogate	MS %Recovery	MS Qualifier	Limits
Phenol-d5 (Surr) - DL	*51*		*22 - 120*
p-Terphenyl-d14 (Surr) - DL	*96*		*60 - 148*
2,4,6-Tribromophenol (Surr) - DL	*151*	*X*	*41 - 120*
2-Fluorobiphenyl - DL	*61*		*48 - 120*
2-Fluorophenol (Surr) - DL	*66*		*35 - 120*

Lab Sample ID: 480-169674-5 MSD
Matrix: Water
Analysis Batch: 531173

Client Sample ID: MW-7D MSD
Prep Type: Total/NA
Prep Batch: 530677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenanthrene - DL	1300	F2	33.3	2450	4 F2	ug/L		3462	65 - 122	119	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Nitrobenzene-d5 (Surr) - DL	*88*		*46 - 120*
Phenol-d5 (Surr) - DL	*57*		*22 - 120*
p-Terphenyl-d14 (Surr) - DL	*107*		*60 - 148*
2,4,6-Tribromophenol (Surr) - DL	*155*	*X*	*41 - 120*
2-Fluorobiphenyl - DL	*65*		*48 - 120*
2-Fluorophenol (Surr) - DL	*71*		*35 - 120*

GC/MS VOA

Analysis Batch: 530784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-1	PZ-2	Total/NA	Water	8260C	
480-169674-2	PZ-3	Total/NA	Water	8260C	
480-169674-3	PZ-4	Total/NA	Water	8260C	
480-169674-4	Filter Vault Eff	Total/NA	Water	8260C	
MB 480-530784/7	Method Blank	Total/NA	Water	8260C	
LCS 480-530784/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 530868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-5	MW-7D	Total/NA	Water	8260C	
480-169674-6	Blind Dup	Total/NA	Water	8260C	
480-169674-7	MW-3D	Total/NA	Water	8260C	
MB 480-530868/6	Method Blank	Total/NA	Water	8260C	
LCS 480-530868/4	Lab Control Sample	Total/NA	Water	8260C	
480-169674-5 MS	MW-7D MS	Total/NA	Water	8260C	
480-169674-5 MSD	MW-7D MSD	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 530677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-1	PZ-2	Total/NA	Water	3510C	
480-169674-2	PZ-3	Total/NA	Water	3510C	
480-169674-3	PZ-4	Total/NA	Water	3510C	
480-169674-4	Filter Vault Eff	Total/NA	Water	3510C	
480-169674-5 - DL	MW-7D	Total/NA	Water	3510C	
480-169674-5	MW-7D	Total/NA	Water	3510C	
480-169674-6	Blind Dup	Total/NA	Water	3510C	
480-169674-7	MW-3D	Total/NA	Water	3510C	
MB 480-530677/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-530677/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-169674-5 MS - DL	MW-7D MS	Total/NA	Water	3510C	
480-169674-5 MS	MW-7D MS	Total/NA	Water	3510C	
480-169674-5 MSD - DL	MW-7D MSD	Total/NA	Water	3510C	
480-169674-5 MSD	MW-7D MSD	Total/NA	Water	3510C	

Analysis Batch: 530947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-5	MW-7D	Total/NA	Water	8270D	530677
MB 480-530677/1-A	Method Blank	Total/NA	Water	8270D	530677
LCS 480-530677/2-A	Lab Control Sample	Total/NA	Water	8270D	530677
480-169674-5 MS	MW-7D MS	Total/NA	Water	8270D	530677
480-169674-5 MSD	MW-7D MSD	Total/NA	Water	8270D	530677

Analysis Batch: 531173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-1	PZ-2	Total/NA	Water	8270D	530677
480-169674-2	PZ-3	Total/NA	Water	8270D	530677
480-169674-3	PZ-4	Total/NA	Water	8270D	530677
480-169674-4	Filter Vault Eff	Total/NA	Water	8270D	530677
480-169674-5 - DL	MW-7D	Total/NA	Water	8270D	530677

GC/MS Semi VOA (Continued)

Analysis Batch: 531173 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-5 MS - DL	MW-7D MS	Total/NA	Water	8270D	530677
480-169674-5 MSD - DL	MW-7D MSD	Total/NA	Water	8270D	530677

Analysis Batch: 531522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-169674-6	Blind Dup	Total/NA	Water	8270D	530677
480-169674-7	MW-3D	Total/NA	Water	8270D	530677

Lab Chronicle

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

Job ID: 480-169674-1

Client Sample ID: PZ-2

Lab Sample ID: 480-169674-1

Date Collected: 05/07/20 14:27

Matrix: Water

Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	530784	05/10/20 14:27	WJD	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		1	531173	05/12/20 16:10	PJQ	TAL BUF

Client Sample ID: PZ-3

Lab Sample ID: 480-169674-2

Date Collected: 05/07/20 13:48

Matrix: Water

Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	530784	05/10/20 14:51	WJD	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		5	531173	05/12/20 16:39	PJQ	TAL BUF

Client Sample ID: PZ-4

Lab Sample ID: 480-169674-3

Date Collected: 05/07/20 13:20

Matrix: Water

Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	530784	05/10/20 15:15	WJD	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		1	531173	05/12/20 17:08	PJQ	TAL BUF

Client Sample ID: Filter Vault Eff

Lab Sample ID: 480-169674-4

Date Collected: 05/07/20 12:48

Matrix: Water

Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	530784	05/10/20 15:40	WJD	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		1	531173	05/12/20 17:38	PJQ	TAL BUF

Client Sample ID: MW-7D

Lab Sample ID: 480-169674-5

Date Collected: 05/07/20 10:58

Matrix: Water

Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	530868	05/11/20 13:17	OMI	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		10	530947	05/11/20 18:17	PJQ	TAL BUF
Total/NA	Prep	3510C	DL		530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D	DL	40	531173	05/12/20 15:41	PJQ	TAL BUF

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 480-169674-1
Project/Site: Vandemark Chemical site

Client Sample ID: Blind Dup
Lab Sample ID: 480-169674-6

Date Collected: 05/07/20 00:00
Matrix: Water
Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	530868	05/11/20 13:42	OMI	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		20	531522	05/14/20 01:30	PJQ	TAL BUF

Client Sample ID: MW-3D
Lab Sample ID: 480-169674-7

Date Collected: 05/07/20 11:15
Matrix: Water
Date Received: 05/07/20 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	530868	05/11/20 14:06	OMI	TAL BUF
Total/NA	Prep	3510C			530677	05/09/20 09:00	JMP	TAL BUF
Total/NA	Analysis	8270D		1	531522	05/14/20 01:58	PJQ	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: 480-169674-1
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	04-02-21

Method Summary

Client: Golder Associates Inc.
Job ID: 480-169674-1
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.
Project/Site: Vandemark Chemical site

Job ID: 480-169674-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-169674-1	PZ-2	Water	05/07/20 14:27	05/07/20 17:00	
480-169674-2	PZ-3	Water	05/07/20 13:48	05/07/20 17:00	
480-169674-3	PZ-4	Water	05/07/20 13:20	05/07/20 17:00	
480-169674-4	Filter Vault Eff	Water	05/07/20 12:48	05/07/20 17:00	
480-169674-5	MW-7D	Water	05/07/20 10:58	05/07/20 17:00	
480-169674-6	Blind Dup	Water	05/07/20 00:00	05/07/20 17:00	
480-169674-7	MW-3D	Water	05/07/20 11:15	05/07/20 17:00	

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: JOSH VERNALD	Lab PM: Fischer, Brian J	Carrier Tracking No(s):	COC No: 480-145670-15389.1
Client Contact: Mr. Patrick Martin	Phone: 716-352-9278	E-Mail: brian.fischer@testamericainc.com		Page: Page 1 of 1
Company: Golder Associates Inc.		Analysis Requested	Project # →	Job #: 09389168
Address: 2430 North Forest Rd Suite 100	Due Date Requested:			Preservation Codes:
City: Getzville	TAT Requested (days): Standard			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, 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)
State, Zip: NY, 14068				
Phone: 716-204-5880(Tel)	PO #: 093-89168			Other:
Email: patrick_martin@golder.com	WO #:			
Project Name: Vandemark Chemical site	Project #: 48010016			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - TCL SVOA - OLM04.2	8260C - TCL list OLM04.2	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
PZ-2	5/7/2020	1427	G	Water	N		2	3	5	
PZ-3		1348		Water						
PZ-4		1320		Water						
Filter Vault Eff		1248		Water						
MW-7D		1058		Water		Y				
MW-7D MS		1058		Water		Y				
MW-7D MSD		1058		Water		Y				
Blind Duplicate		—		Water						
MW-3D		1115		Water						

480-169674 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:	Company	Received by:	Date/Time:	Company
1	[signature]	5/7/2020	Golder	[signature]	05/07/20 1700	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	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: 8.7 #1 ICE

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Golder Associates Inc.

Job Number: 480-169674-1

Login Number: 169674

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	8.7 #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	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
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	

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