2019 ANNUAL MONITORING / INSPECTION REPORT SNPE- VDM Creek Bank Corrective Actions

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Submitted to:

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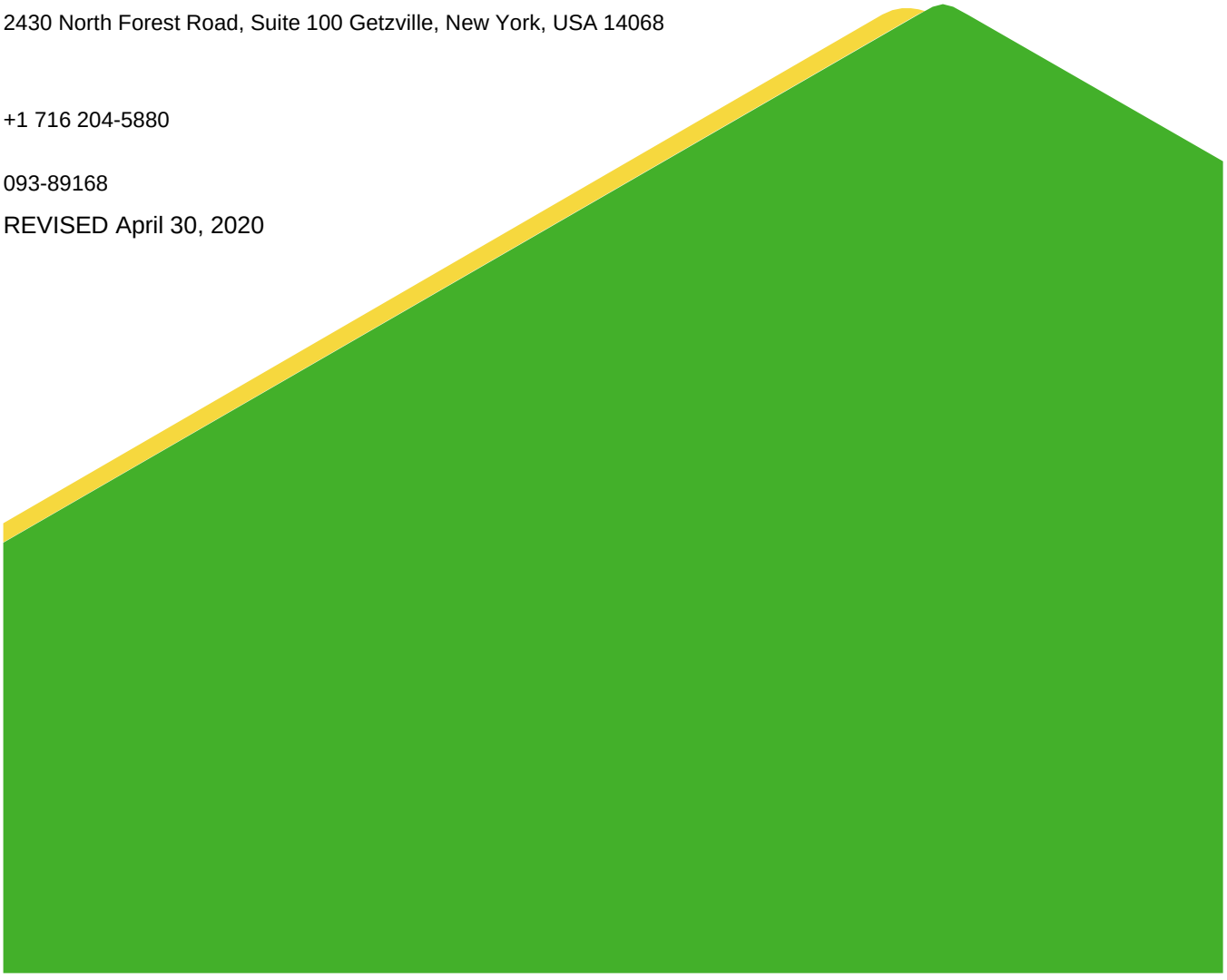

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1.0 INTRODUCTION

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 2019, 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 2019 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 2019 monitoring period:

- Two visual inspections for presence of DNAPL in the passive upgradient permeable collection trench installed along the grout cutoff wall alignment;
- 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 one representative monitoring well located within the VDM Plant at the top of the Niagara Escarpment;
- Visual inspection of the Filter Sump media (i.e., filter sand and activated carbon) and sump chamber;
- Visual inspection of the passive collection trench for the presence of DNAPL residuals; and,
- Visual inspection of the collection trench permeable stone media and DNAPL observation sumps.

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 2019 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 2019. 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 2019 Inspection

DNAPL accumulation was not observed during the May 29, 2019 inspection period 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. 48" water and 2” of sediment), and OS-3 (approx.14” water and 3” of sediment) contained ground water without a sheen or odor.

2.1.2 November 2019 Inspection

DNAPL accumulation was not observed during the November 25, 2019 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. 48” water and indeterminate amount of sediment) and OS-3 (approx. 14” water and 2-3” 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 near PZ-3 in order to visually inspect trench materials for the presence of DNAPL. No DNAPL was observed during this activity.

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 2019. 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 2019 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 10 to 15-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 five 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 2019 inspection, the observed accumulations of DNAPL were interspersed within the buried stone block structure. Approximately five and a half (5.5) 5-gallon buckets of DNAPL were manually removed from this location at the time of the inspection. Due to the amount of observed accumulations that remained after the May 29th removals, two additional removal events were coordinated with VanDeMark and the NYSDEC and conducted in June and July to remove to the extent feasible, accessible residuals in this area. During the July 2019 event, coal tar impregnated pipe and lumber fragments were also observed and removed down-gradient from the stone block structure. All together it's estimated that approximately 20 additional five-gallon buckets of coal tar residuals were removed manually by Golder with the assistance of VDM personnel in the subsequent two events. The material was consolidated into 55-gallon drums and disposed of by VDM under a previously approved waste profile.

No evidence of DNAPL accumulation was observed on the up-gradient slopes, however thick vegetative cover had limited ground visibility.

2.2.2 November 2019 Inspection

No evidence of DNAPL accumulation was observed during the November 2019 inspection along the up-gradient slopes, however thick vegetative growth limited ground visibility. On the down-gradient slope, isolated DNAPL accumulations were observed along an approximately 15 to 20-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 five years of monitoring and inspection. The newly observed accumulations were intermittent among the rocks closer to the bottom of the creek bank. Residuals were left in place due to their location and safety concerns encountered during removal. It was agreed that further removal of these deposits would be manually performed during the spring 2020 monitoring and inspection event, consistent with recent DNAPL removals performed in 2019. 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 2019 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, 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 2019 inspections are included in Appendix B.

2.3.1 May 2019 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.

2.3.2 November 2019 Inspection

During the November 2019 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 minor amount of vegetative overgrowth was 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 2019 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. All piezometers were inspected with no issues, however, 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 form 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. The dedicated bailer twine at PZ-3 had broken and replacement bailer and string was used for sampling the well. No further condition issues were identified during the 2019 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 seventh year of Site monitoring following the completion of the Corrective Measures. The 2019 sample results are presented in Table 3-2 comparing this year's analytical results to the 2013 - 2018 groundwater sampling events analytical results.

The analytical results of PZ-3 during for annual sampling event on May 29, 2019 identified three SVOCs, 4-methylphenol, phenol and naphthalene as exceeding the NYSDEC Part 703 Groundwater Quality Standards (GWQS). 4-Methylphenol has been detected in exceedance of GWQS at PZ-3 intermittently during seven of the twelve historical sampling events. The compound 4-Methylphenol & 3-methylphenol (1.7ug/L) was detected at PZ-3 for the first time during the May 2018 sampling event but was non-detect during the May 2019 sampling event. Phenol was also detected during the May 2019 sampling event at a concentration of 59 ug/L. Phenol has been detected in this piezometer sporadically since monitoring began in 2013 with previous detections ranging from non-detect to 130 ug/L. Naphthalene was also detected during the May 2019 sampling event at a concentration of 16 ug/L, which is a slight increase from 12 ug/L detected during the May 2018 event and 15 ug/L detected during the November 2017 sampling event. Historically, low-level detections of naphthalene were found in PZ-3 all below the GWQS of 10 ug/L since monitoring began in 2013, however, the naphthalene concentration has exceeded GWQS of 10 ug/L for the past three consecutive sampling events (November 2017, May 2018, and May 2019). 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 only one (1) existing monitoring well, 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 and a replacement well has not been identified for sampling. However, VDM has 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 planned May 2020 monitoring event, this newly discovered flush-mount well will be identified, redeveloped and sampled during the annual monitoring events. Location of the wells is presented on Figure 3.

Pre-sampling activities included measuring the well's water elevation, a well-maintenance check, 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 seventh year of Site monitoring following the completion of the Corrective Measures. Table 3-2 presents the 2019 analytical results alongside results from the 2013 - 2018 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 2019 sampling event identified six (6) VOCs and three (3) SVOCs as exceeding the NYSDEC Part 703 GWQS. Four (4) 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. The concentrations of these contaminants are consistent with previous sampling results since monitoring began in 2013. The SVOC Benzo(a)pyrene was detected at 9.3 ug/L during the May 2019 sampling event, which is 2.5 times the previous highest concentration. It had been detected intermittently at two prior “spring” sampling events: in June 2016 (0.53 ug/L) and May 2017 (3.6 ug/L).

The VOCs and SVOCs detected in MW-7D within the operational portion of the VDM facility were not detected in May 2019 samples analyzed at the down-gradient piezometers. 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. The previous well location southeast of the D-Building near the fence line (mis-identified as MW-3D) was not included in this condition assessment since the unprotected PVC well casing was damaged and collapsed during winter 2014 snowplowing and multiple

efforts to locate the well have been unsuccessful. No condition issues were identified during the 2019 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 2019. 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. This is the seventh year of Site monitoring following the completion of the Corrective Measures. Table 3-2 presents the 2019 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 2019 sampling event identified two VOCs, chloroform and 1,2-Dichloroethane, as exceeding the NYSDEC Part 703 groundwater quality standards (GWQS). The concentration of chloroform was 19 ug/L, which is comparable to the fluctuating low-level concentrations documented in previous year's sampling events. The compound 1,2-Dichloroethane was detected for the first time at the Filter Sump in May 2019. The concentration of 1,2-Dichloroethane was 0.62 ug/L which is slightly above the GWQS value of 0.60 ug/L. There is no additional TOGS guidance value listed for 1,2-Dichloroethane. No other compounds 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 2019 sampling event.

4.0 MAINTENANCE & CLEAN-OUT ACTIVITIES

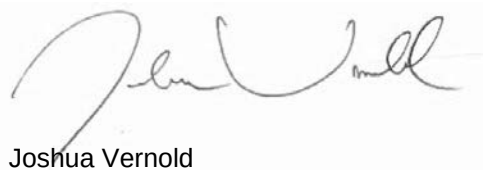
As described in Section 2.0 above, the inspections conducted in 2019 did not find evidence of DNAPL impacts to the DNAPL Collection Trench or Filter Sump, therefore maintenance or clean-out activities were not necessary or performed on these components of the Creek Bank Area remedial system. Repairs 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. As previously noted, the misidentified former well MW-3D location southeast of the D-Building near the fence line was not included in this condition assessment. 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.



Joshua Vernold
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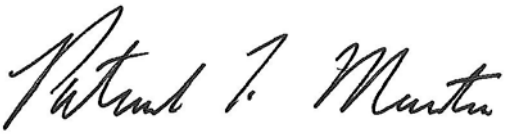

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TABLES

TABLE 3-1
SNPE-VANDEMARK SITE
2019 GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS T.O.G.S Groundwater Guidance Values	480-154189-3	480-154189-1	480-154189-4	480-154189-5	480-154189-6	480-154189-2
Sample Date			05/29/2019	05/29/2019	5/29/2019	05/29/2019	05/29/2019	5/29/2019
Sample ID			Vault Effluent	MW-7D	PZ-2	PZ-3	PZ-4	Duplicate (PZ-4)
Units	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	5.0	NV	-	**20**	-	-	-	-
1,1-Dichloroethane	5.0	NV	-	**96** F1	-	-	-	-
1,1-Dichloroethene	5.0	NV	-	**43**	-	-	-	-
1,2-Dichloroethane	0.6	NV	**0.62** J	**4.3**	-	-	-	-
2-Butanone	NV	50.0	-	-	-	-	-	-
Acetone	NV	50.0	-	-	-		-	-
Benzene	1.0	NV	-	-	-	-	-	-
Carbon disulfide	60.0	NV	-	0.85 J B	-	-	-	-
Carbon tetrachloride	5.0	NV	-	-	-	-	-	-
Chlorobenzene	5.0	NV	-	-	-	-	-	-
Chloroethane	5.0	NV	-	**65** F1	-	-	-	-
Chloroform	7.0	NV	**19**	-	0.61 J	-	-	-
cis-1,2-Dichloroethene	5.0	NV	-	-	-	-	-	-
Ethylbenzene	5.0	NV	-	-	-	-	-	-
Trichloroethene	5.0	NV	-	-	-	-	-	-
Vinyl chloride	2.0	NV	-	**24** F1	-	-	-	-
Semivolatile Organics by GC/MS (US EPA Method 8270C)								
Biphenyl	5.0	NV	-	-	-	-	-	-
2,4-Dimethylphenol	1.0	50.0	-	-	-	-	-	-
2-Methylphenol	1.0	NV	-	-	-		-	-
2-Methylnaphthalene	NV	NV	-	-	-	4.8 J	-	-
2-Nitroaniline	5.0	NV	-	-	-	-	-	-
4-Methylphenol	1.0	NV	-	-	-	**1.7** J	-	-
4-Methylphenol & 3-Methlyp	1.0	NV	-	-	-	-	-	-
Acenaphthene	20.0	NV	-	**63** F1 F2	-	6.1	-	0.41 J
Acenaphthylene	NV	NV	-	-	-	-	-	-
Anthracene	NV	50.0	-	10 J F1	-	-	-	-
Benzaldehyde	NV	NV	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	-	11 J, F2	-	-	-	-
Benzo(a)pyrene	ND	ND	-	**9.2** J, F3	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	**14** J, F4	-	-	-	-
Benzo(g,h,i)perylene	NV	NV	-	7.1 J, F5	-	-	-	-
Bis(2-ethylhexyl)phthalate	5.0	NV	-	-	-	-	-	-
Butyl benzyl phthalate	5.0	50.0	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	-	6.5	-	-
Carbazole	NV	NV	-	3.90 J	-	0.99 J	-	-
Chrysene	NV	0.002	-	**14** J	-	-	-	-
Dibenzofuran	NV	NV	-	35 J F1 F2	-	-	-	-
Di-n-butyl phthalate	50.0	NV	-	-	-	-	-	-
Di-n-octyl phthalate	NV	50.0	-	-	-	-	-	-
Diethyl phthalate	NV	50.0	-	-	-	-	-	-
Fluoranthene	NV	50.0	-	**65** F1 F2	-	-	-	-
Fluorene	NV	50.0	-	36 J F1	-	1.2 J	-	-
Indeno[1,2,3-cd]pyrene	NV	0.002		**6.4** J F1 F2				
Isophorone	NV	50.0	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-
Naphthalene	10.0	NV	-	- F1 F2	-	**16**	-	-
Nitrobenzene	0.4	NV	-	-	-	-	-	-
Phenanthrene	50.0	NV	-	**61** F2	-	1.0 J	-	-
Phenol	1**	NV	-	-	-	**59**	-	-
Pyrene	NV	50.0	-	45 J F1 F2	0.43 J	-	-	0.49 J

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

GOLDER

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	130617007-003	130930005-001B	130617007-002	130930005-002B	480-62067-1	480-71961-5	480-80722-5	480-90488-5
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	6/13/2013	9/26/2013	6/13/2013	9/26/2013	6/17/2014	11/25/2014	5/20/2015	11/4/2015
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	MW-3D	MW-3D	MW-7D±	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	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**
1,1-Dichloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	**87**	**120**	**79**	**260**	**-**	**350**	**180**	**210**
1,1-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	**27**	**38**	**21**	**70**	**77**	**110**	**54**	**60**
1,2-Dichloroethane	0.6	NV	-	-	-	-	-	-	-	-	-	-	-	**0.62** J	**17**	**23**	**2** J	-	**4.8**	**6.6**	**3.6** J	**4.2** 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53 J	-	-	-
Chlorobenzene	6	NV			-	-	-	-	-	-	-	-	-	-							-	-
Chloroethane	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**20**	**58**	**73**	**100**	**68**	**110**
Chloroform	7	NV	4.2 J	-	3.7	**9.6**	2.4	**11**	1.7	3.6	**16**	**27**	**9.70**	**19.00**	-	-	-	-	0.8 J	-	-	-
cis-1,2-Dichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.98 J	-	-	-
Ethylbenzene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.9 J	-	2	-	-	-
Trichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-
Vinyl chloride	2	NV	-	-	-	-	-	-	-	-	-	-	-	-	**17**	**26**	**5.3** J	**23**	**21**	**19**	**13**	**15**
Semivolatile Organics by GC/MS (US EPA Method 8270C)																						
Biphenyl	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3.3 J	-
2,4-Dimethylphenol	1	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.48 J	-	-
2-Methylphenol	1	NV			-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-
2-Methylnaphthalene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1 J	-	-	-	-
2-Nitroaniline	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol & 3-Methlyphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	20	NV	-	-	-	0.86 JB*	-	-	-	-	-	-	-	-	2.5 J	2.9 J	**27**	**28**	12	**39**	**42** DL	-
Acenaphthylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2 J	-	-	0.56 J	0.54 J	-
Anthracene	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22 J	1 J	0.84 J	-
Benzaldehyde	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.84 JB*	-	-
Benzo(a)anthracene	NV	NV	-	-	-	3.1 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.28** J	-	-
Benzo(g,h,i)perylene	NV	NV	-	-	-	-				-		-	-	-			-					
Bis(2-ethylhexyl)phthalate	5	NV	-	-	-	-	**7.9**	3.2 J	-	-	-	-	-	-	-	-	-	2.5 J	**6.7** J	3.5 J	-	-
Butyl benzyl phthalate	5	50.0	-	-	-	-	-	0.47 JB	-	-	-	-	-	-	-	-	-	-	-	-	0.48 J	-
Caprolactam	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2200
Carbazole	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2 J	2.3 J	5.1	2.2 J	10 *	5.2	-
Chrysene	NV	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2 J	16	18	6.5 J	-	32	-
Di-n-butyl phthalate	50	NV	1.2 J, B	-	-	-	-	-	-	-	-	-	-	-	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							
Fluoranthene	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5 J	0.34 J	1.3 J	1.2 J	-
Fluorene	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9	9.7	4.3	18	22	-
Indeno[1,2,3-cd]pyrene	NV	0.002																				
Isophorone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	10	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.2	9.8	2.5	8	1.4 JB	-
Nitrobenzene	0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8 J	4.2 J	1.1 J	7.5	6.2	-
Phenol	1*	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1 J	-	0.74 J	0.47 J	-

Key:

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

Footnotes:

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BOLD = Value exceed the groundwater (GA) guidance values
** = The sum of all phenols
NV = No GW Quality Standard
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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.
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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	480-101786-5	480-109820-5	480-117975-5	480-127262-5	480-136146-5	480-154189-1	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	130617007-005	130930005-004B	480-62067-3
Sample Date			6/16/2016	11/17/2016	5/12/2017	11/8/2017	5/17/2018	05/29/2019	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	6/13/2013	9/26/2013	6/17/2014
Sample ID			MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	MW-7D	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-3	PZ-3	PZ-3
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	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	**71**	**41**	**36**	**64**	**44** F1 F2	**20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	NV	**230**	**140**	**150**	**210**	-	**96** F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	NV	**76**	**48**	**50**	**80**	**51** F1 F2	**43**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.6	NV	**4.9** J	**3.5** J	**3.6** J	**5.5**	**4.4**	**4.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	NV	50.0	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	NV	50.0	-	-	-	5.7	7.00 J*	-	-	12	-	-	-	-	-	-	-	-	-	-	-	8.6 J	16 ^
Benzene	1	NV	-	-	-	0.33	-	-	-	-			-	-	-	-	-	-	-	-			
Carbon disulfide	60	NV	-	-	-	-	-	0.85 J B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61 J
Carbon tetrachloride	5	NV	-	-	-	0.29	0.32 J F2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	6	NV	-	-	-	0.62	-	-	-	-			-	-	-	-	-	-	-	-			
Chloroethane	5	NV	**95**	**88** F1	**54**	**88**	**63** F1 F2	**65** F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	7	NV	-	-	-	0.49	0.57 J	-	**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	-	0.12 J	-	1.0	0.93 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	5	NV	-	2.0	4.2	1.6	1.60 F2	-	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-	-
Trichloroethene	5	NV	-	-	-	0.88	0.68 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	2	NV	**23**	**21** F1	**16**	**26**	**26** F1 F2	**24** F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Organics by GC/MS (US EPA Method 8270C)																							
Biphenyl	5	NV	**18** F1	-	**77**	-	**24** J F1 F2	**-**	-	-	-	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	24 F1	-	72	3.6	31 J F1 F2	-	-	-	-	-	-	-	1.5 J	0.94	-	-	-	-	-	-	0.79 J
2-Nitroaniline	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**2.6** J	-
4-Methylphenol & 3-Methylphenol	1	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	20	NV	**87** J	**71**	**260**	**38**	**95** F1 F2	**63** F1 F2	-	1.4 J	0.88 J	4.1 J	3.5 J	5	11	11	3.9 J	7.8	-	-	-	3.7 J	1.6 J
Acenaphthylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	NV	50.0	3 J	7.2 J F1	26	-	15 J F1	10 J F1	-	-	0.23 J	1.2 J	0.75 J	-	1.6 J	1.3	0.54 J	0.97	-	-	1.1 J	- J	-
Benzaldehyde	NV	NV	-	-	-	-	-	-	-	-	-	0.87 JB	-	0.26 J	-	- J	-	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	1.5 J	4.8 J F1	8.0 J	-	7.1 J	11 J, F2	-	2.0 J	0.38 J	0.53 J	-	-	-	-	-	-	-	-	1.3 J	- J	-
Benzo(a)pyrene	ND	ND	**0.53** J	-	**3.6** J	-	-	**9.2** J, F3	-	**1.6** J	-	**0.5** J	-	-	-	-	-	-	-	-	**1** J	- J	-
Benzo(b)fluoranthene	NV	0.002	**1** J	**4.7** J F2 F1	**4.9** J	-	**5.2** J	**14** J, F4	-	-	-	**0.43** J	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NV	NV	0.36 J	-	-	-	-	7.1 J, F5					-			-	-	-	-	-			
Bis(2-ethylhexyl)phthalate	5	NV	-	-	-	-	-	-	1.5 J	1.1 J	-	3.4 J	-	1.8 J	-	3.5 JB	-	-	-	-	1.2 J	- J	-
Butyl benzyl phthalate	5	50.0	-	-	-	-	-	-	-	-	-	-	-	0.47 JB	-	-	-	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	-	27	-	-	-	-	-	-	-	140 DL	-	-	-	-	-	-	-	-	-
Carbazole	NV	NV	7	-	14 J	5.7	5.4 J	3.9 J	-	-	-	1.1 J*	0.88 J	1.2 J	2.8 J	2.7 J	1 J	2.5	-	-	-	-	-
Chrysene	NV	0.002	**1.6** J F1	**4.7** J F1	**7.4** J	-	**7.7** J	**14** J	**1.1** J	**2.2** J	**0.42** J	**0.59** J	**0.42** J	**0.33** J	-	-	-	-	-	-	**1.4** J	- J	-
Dibenzofuran	NV	NV	71 J	49 J F1	230	25	87 J F1 F2	35 J F1 F2	-	-	-	-	-	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	0.25 J	-	-	-	-	-								-	-	-	-	-			
Fluoranthene	NV	50.0	19 F1	36 J F2 F1	**100**	5.2	**66** F1 F2	**65** F1 F2	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	-	-	1.6 J	- J	-
Fluorene	NV	50.0	46 J	41 J F1	**200**	17	**80** F1 F2	36 J F1	-	-	0.32 J	1.9 J	1.5 J	2.2 J	4.2 J	4.2 J	1.4 J	3.0	-	-	-	-	0.34 J
Indeno[1,2,3-cd]pyrene	NV	0.002					-	**6.4** J F1 F2															
Isophorone	NV	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	NV	NV	-	-	-	-	-	-	-	-	-	4.1 JB	-	-	1 J	-	-	-	-	-	-	-	-
Naphthalene	10	NV	**70** J	**11** J F2 F1	**190**	**59**	**72.00** F1 F2	- F1 F2	-	1.5 J	0.54 J	1.3 J	2.4 JB	1.4 J	3.7 J	2.3 J	-	1.6	-	-	-	3.4 J	2.5
Nitrobenzene	0.4	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	**76** J	**62** F2 F1	**420**	9.2	**210.0** F2	**61.0** F2	1.2 J	3.3 J	1 J	5.4	3.1 J	6.1	8.6	6.8	2.5 J	4.5	-	-	3.3 J	2.4 J	0.52 J
Phenol	1*	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**130**	**38**
Pyrene	NV	50.0	11 F1	21 J F2 F1	**59**	3.6	43.00 J F1 F2	45.00 J F1 F2	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	2.8 J	-	-

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Plant Monitoring Well Sample Results
Piezometer Sample Results

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LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	NYS TOGS (1.1.1.) Groundwater Guidance Values	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	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
Sample Date			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	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
Sample ID			PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-3	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4	PZ-4
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	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	6 J	9.1 J	4.9 J	5.4 J	-	-	4.1	5 J*	-	8.3 J, B	-	-	-	-	-	3.1 J	-	-	-	-	-
Benzene	1	NV		-	-	-	-	-	-	-	-					-	-	-	-	-	-	-	-
Carbon disulfide	60	NV	-	-	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	5	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	2	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	1.3 J	1.9 J	2.0 J	0.72 J	-	-	4.6	3.8 J	4.8 J	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	5	NV	1.1 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol	1	NV	**1.2** J	**1.5** J	**1.4** J	0.49 J	-	-	**3.3**	**3.3** J	**1.7** J	-	-	-	-	-	-	-	-	-	-	-	-
4-Methylphenol & 3-Methylphenol	1	NV	-	-	-	-	-	-	-	**1.7** J		**5.9** J	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	20	NV	2.7 J	4.2 J	3.7 J	1.0 J	-	1.2 J	5.5	3.9 J	6.1	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	NV	50.0	-	0.32 J	0.38 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzaldehyde	NV	NV	1.5 JB*	-	-	0.33 J	-	-	0.39	0.52 J	-	-	-	-	0.89 JB*	-	-	-	-	-	-	-	-
Benzo(a)anthracene	NV	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	NV	0.002	-	-	-	-	**0.44** JK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	NV	NV				-	-	-	-	-	-							-	-	-	-	-	-
Bis(2-ethylhexyl)phthalate	5	NV	**6.3**	-	2.7 j	-	-	-	-	-	-	-	-	**15** J	3.1 J	-	1.7 J	-	-	-	-	-	-
Butyl benzyl phthalate	5	50.0	-	-	0.48 J B	-	-	-	-	-	-	-	-	-	-	-	0.61 JB	-	-	-	-	-	-
Caprolactam	NV	NV	-	-	280	3.9 J	-	-	-	-	6.5	-	-	-	-	-	110	-	-	-	-	-	-
Carbazole	NV	NV	-	0.62 J	0.48 J	-	-	0.39 J	1.2	0.63 J	0.99 J	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-							1 J	-	-	0.77	-	-
Diethyl phthalate	NV	50.0				1 J	-	-	-	-	-							-	-	-	-	-	-
Fluoranthene	NV	50.0	-	-	-	-	0.52 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	NV	50.0	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	-	-	-	-	-	-	-	-	-	-	-	-	4.2 JB	-	-	-	-	-	-	-	-
Naphthalene	10	NV	4.4 J	7 B	6.6 B	2.2 J	1.3 J	-	**15**	**12**	**16**	4.3 J	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	0.4	NV	**0.49** J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	NV	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	**53**	**50**	**73**	**19**	**-**	**7.2**	-	**56**	**59**	**260**	**1.4** J	-	0.61 J	-	-	-	-	-	-	0.49 J	-
Pyrene	NV	50.0	-	-	0.46 J	-	0.65 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

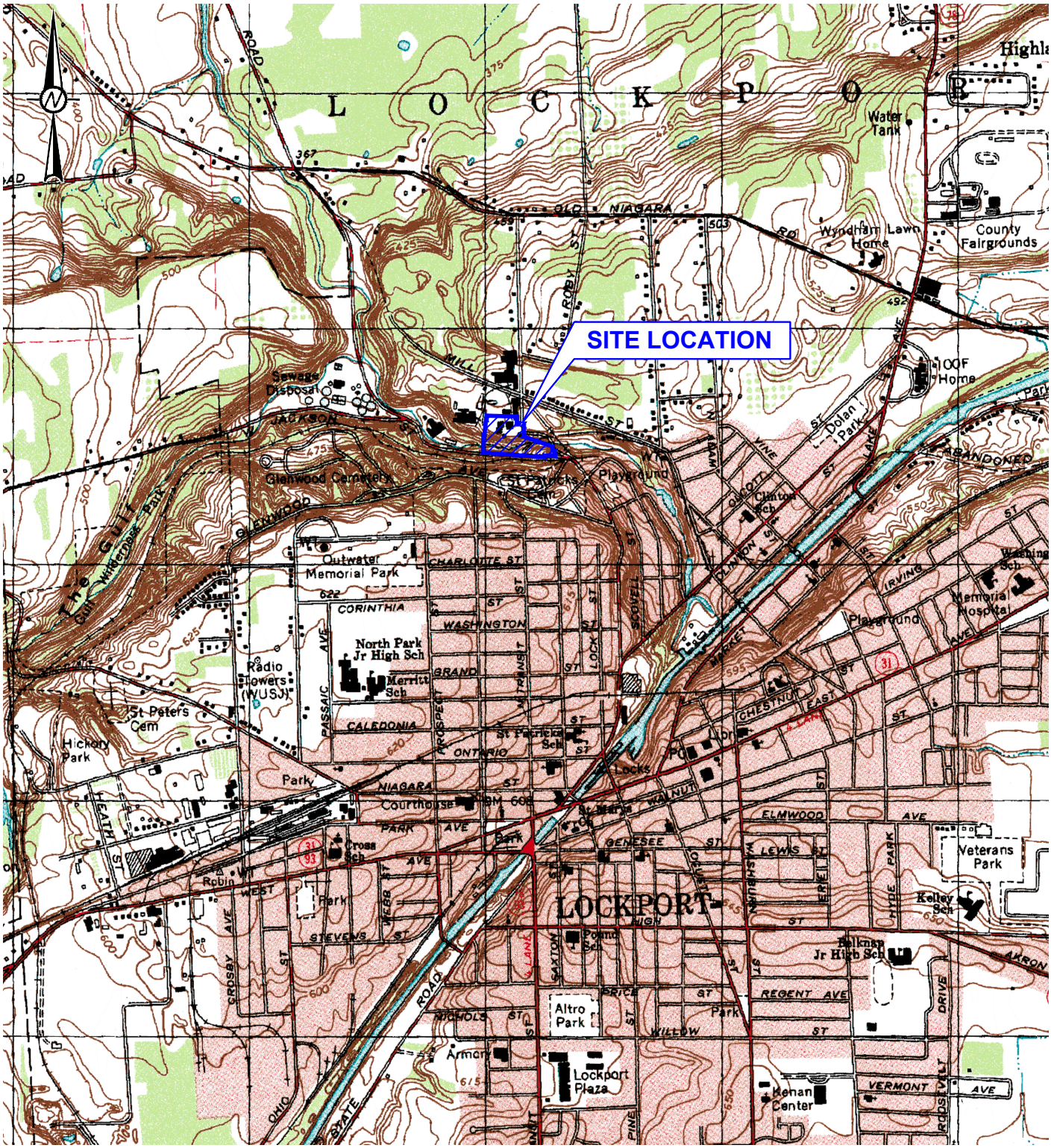
Key:
Vault Effluent Sample Results
Plant Monitoring Well Sample Results
Piezometer Sample Results

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

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

GOLDER

FIGURES



NOTE(S)

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

0 1000 2000
1" = 2000' FEET

CLIENT
SNPE - VANDEMARK

CONSULTANT
GOLDER

PROJECT
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

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

TITLE
SITE LOCATION MAP

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

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

1 in

0

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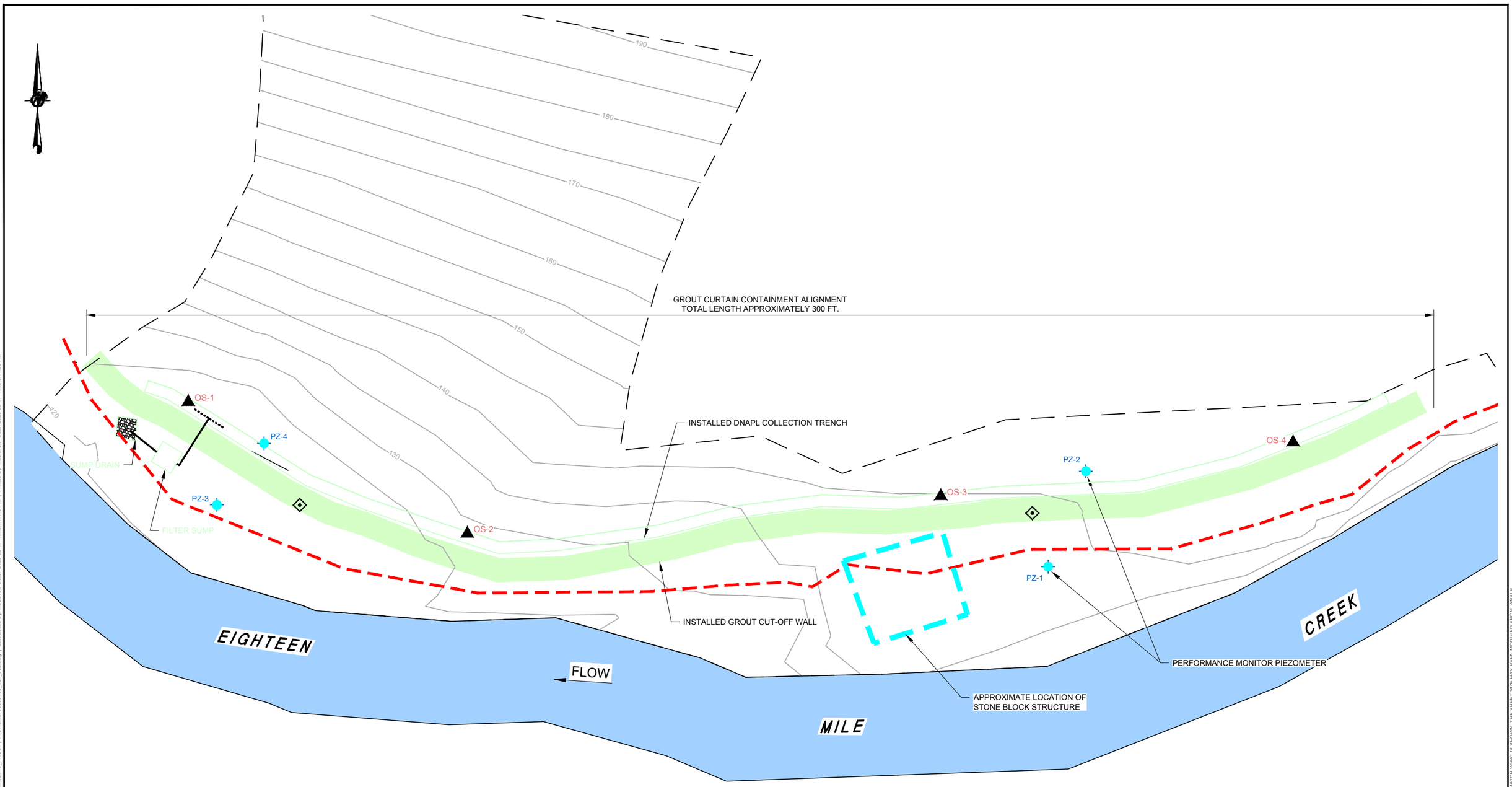

0 10 20
1" = 20' FEET

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

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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: 5/29/19

WEATHER: CLOUD COVER: cloudy
TEMPERATURE: LOW: 60 @ 9:30 AM HIGH 65 @ 11:00 AM
PRECIPITATION: —
WIND: —

GOLDER PERSONNEL ON SITE:

JOSH VERNOLD / PAT MARTIN

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

(1) EFFLUENT VAULT: WATER CLEAR, NO OVERFLOW IN DISCHARGE CHAMBER BUT WATER LEVEL JUST BELOW OVERFLOW PIPE. SEDIMENT ACCUMULATION ON TOP OF SAND BED IS APPROX ½" THICK. NO SHEEN OR DNAPL OBSERVED.

(2) OBSERVATION SUMPS:

OS-1: APPROX 48" WATER, NO SHEEN, 2" SEDIMENT
OS-2: DRY
OS-3: APPROX 14" WATER, 3 INCHES OF SEDIMENT
OS-4: DRY, NO DNAPL PRESENT

(3) UPGRADIENT SLOPE OBSERVATIONS (NORTH SIDE OF DNAPL TRENCH): DENSE FOLIAGE OBSCURED MANY AREAS, HOWEVER NO SIGNS OF DNAPL ACCUMULATIONS OBSERVED WHERE GROUND WAS VISIBLE.

(4) DOWNGRADIENT SLOPE OBSERVATIONS (SOUTH OF DNAPL TRENCH): DNAPL ACCUMULATIONS ON SOUTH SIDE OF BURIED STONE STRUCTURE WERE REMOVED TO EXTENT FEASIBLE W/OUT DISTURBING/DE-STABILIZING BANK. ONE LARGE ACCUMULATION (DUE SOUTH OF PZ-1) WAS LEFT IN PLACE FOR REMOVAL DURING FALL 2019 INSPECTION. APPROX. 5.5 FIVE GAL. BUCKETS OF RESIDUALS WERE COLLECTED AND REMOVED FOR DISPOSAL BY VDM.

GOLDER ACTIVITIES AND TEST RESULTS:

- 5+ BUCKETS (5 GAL PAILS) OF COAL TAR RESIDUALS WERE REMOVED FROM SEEP LOCATIONS ON THE SOUTH SIDE OF BURIED STONE MILLRACE STRUCTURE ADJACENT TO CREEK'S EDGE.
- MET W/STEVE MOELLER OF NYSDEC. HE OBSERVED INSPECTION & COAL TAR REMOVAL ACTIVITIES.

Golder Associates

SUBMITTED BY: Patrick J. Martin
5/29/19

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: 11/25/19

WEATHER: CLOUDY
TEMPERATURE: LOW: 41 @ 9:30 HIGH 45 @ 10:30
CLOUD COVER
PRECIPITATION
WIND

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

(1) EFFLUENT VAULT: WATER WAS CLEAR, OVERFLOW IN DISCHARGE CHAMBER. NO SHEEN OR DNAPL OBSERVED. SEDIMENT ACCUM ON TOP OF SAND BED REMAINS STATIC AT AROUND 1/4 TO 1/2" THICK

(2) OBSERVATION SUMPS:

OS-1 APPROX 48" WATER, NO SHEEN, MUDDY SEDIMENT

OS-2 DRY

OS-3 APPROX 14" WATER, 2-3" BLACK SEDIMENT

OS-4 DRY

(3) UPGRADIENT SLOPE OBSERVATIONS (NORTH SIDE OF DNAPL TRENCH):

NO OBSERVABLE DNAPL ACCUMULATIONS WHERE GROUND WAS VISIBLE. VEGETATIVE DEBRIS COVER WAS HEAVY IN MOST AREAS.

(4) DOWNGRADIENT SLOPE OBSERVATIONS (SOUTH SIDE OF DNAPL TRENCH):

RESIDUAL DNAPL ACCUMULATIONS ON SOUTH SIDE OF BURIED STONE STRUCTURE REMAIN IN ISOLATED LOCATIONS INTERSPERSED AMONGST THE ROCKS CLOSER TO BOTTOM OF CREEK BANK. REMOVAL OF VISIBLE ACCUMULATIONS WILL CONTINUE DURING THE SPRING 2020 INSPECTION EVENT.

GOLDER ACTIVITIES AND TEST RESULTS:

- MET W/ STEVE MOELLER OF NYDEC & C. BANACH / J. WARREN OF VDM, THEY OBSERVED INSPECTION ACTIVITIES.
- A TEST PIT WAS MANUALLY DUG IN THE DNAPL COLLECTION TRENCH GRAVEL SUBSTRATE NEAR P2-3 TO VISUALLY INSPECT FOR THE PRESENCE OF DNAPL. THE TEST PIT WAS DUG TO AN APPROX. DEPTH OF 2.5-3' BELOW GRADE. NO DNAPL WAS OBSERVED IN THE TEST PIT.

Golder Associates

SUBMITTED BY:

Patrick J. Martin

11/25/19

GOLDER FORM: R4-0699
(JANUARY 2005)

GOLDER ASSOCIATES INC.

AMMENDED 4/7/20 PTM

APPENDIX B

Inspection Photographs

November 2019

Photo 1: Interior of filter vault – top of sand filter bed (November 25, 2019).

Photo 2: Interior of filter vault – overflow in discharge chamber (November 25, 2019).

May 2019

Photo 3: Edge of lower creek bank, facing west (May 29, 2019).

Photo 4: Lower creek bank, facing east (May 29, 2019).

Photo 5: OS-1 (May 29, 2019).

Photo 6: Residual tar deposit - south side of stone structure (May 29, 2019).

Photo 7: Residual tar removal area- south side of stone structure (May 29, 2019).

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):		TIME (24 HR CLOCK):		ELAPSED HRS:	
CASING VOL.(Gal.):		GAL. PURGED (Gal.):			
PURGING DEVICE (SEE BELOW):		PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	

SAMPLE COLLECTION INFORMATION

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

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

WELL INFORMATION (IF APPLICABLE)

REFERENCE POINT:	Top of casing (TOC)	LAND ELEVATION (FT./MSL):	
REF. PT. ELEV.(FT. MSL):		WELL DEPTH (FT.):	10.60'
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:

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 — DRY — NO SAMPLE

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

SAMPLER SIGNATURE: [signature]

DATE: 5/29/19

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):	5/29/19	TIME (24 HR CLOCK):	0908	ELAPSED HRS:	0:17
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):	5/29/19	TIME (24 HR CLOCK):	~~0959~~ 0959	MATRIX:	Water
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.):	11.02'
DEPTH TO WATER (REF. PT.):	6.33	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)	___.___	___.___	___.___	7.42
SPEC. COND.(uS)	____	____	____	3462
TEMPERATURE (C)	___.___	___.___	___.___	11.6
OTHER (SPECIFY) TDS	____	____	____	1726

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 54°F, cloudy, calm

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.

11.02 - 6.33 = 4.69 x 0.041 = 0.2 gal/casing x 3 = 0.6 gal per 3 casings

1" full bailer = 0.053 GAL

Blind Dup sampled here

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

SAMPLER SIGNATURE: [signature] DATE: 5/29/19

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):	5-29-19	TIME (24 HR CLOCK):	1115	ELAPSED HRS:	0:08
CASING VOL.(Gal.):	0.20	GAL. PURGED (Gal.):	0.6		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5-29-19	TIME (24 HR CLOCK):	1120	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'
DEPTH TO WATER (REF. PT.):	4.21	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)	——.——	——.——	——.——	12.54
SPEC. COND.(uS)	——————	——————	——————	3064
TEMPERATURE (C)	——.——	——.——	——.——	11.4
OTHER (SPECIFY) ~~TDS~~	——————	——————	——————	1531

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 55 °F, cloudy, damp

SAMPLE APPEARANCE: Clear, aqueous, no odor → GW effervesced (fizzed) when added to HCl VOAs

1" DIA. CASING CONTAINS .041 Gal./Ft. 9.12 - 4.21 = 4.91 x 0.041 = 0.20 gal x 3 = 0.6 gal per 3 casings

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

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

1" full bailer = 0.053 GAL

EXISTING BAILER TWINE BROKE, bring bailer hooks to extract poly bailer in 2020

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

SAMPLER SIGNATURE: [signature] DATE: 5/29/19

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):	5/29/19	TIME (24 HR CLOCK):	~~0950~~ 1020	ELAPSED HRS:	0:10
CASING VOL.(Gal.):	0.26	GAL. PURGED (Gal.):	0.9		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5/29/19	TIME (24 HR CLOCK):	1044	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'
DEPTH TO WATER (REF. PT.):	4.05	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)	——.——	——.——	——.——	7.60
SPEC. COND.(uS)	—— ——	—— ——	—— ——	3012
TEMPERATURE (C)	——.——	——.——	——.——	11.5
OTHER (SPECIFY) ~~TDS~~	—— ——	—— ——	—— ——	1387

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 55°F, cloudy, damp

SAMPLE APPEARANCE: clear, aqueous, odorless

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

6.28' × 0.041 = 0.26 gal × 3 = 0.77 gal per 3 casings

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: 5/29/19

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) N/A

~~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):	5/29/19	TIME (24 HR CLOCK):	1010	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.) STICKUP (FT.):~~	
~~GW. ELEV.(FT. MSL):~~		~~WELL DIAMETER (INCHES):~~	

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	---.---	---.---	---.---	7.40
SPEC. COND.(uS)	----	----	----	3132
TEMPERATURE (C)	---.---	---.---	---.---	13.3
OTHER (SPECIFY) ~~TDS~~	----	----	----	1557

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 54°F, overcast, light rain from 0945 - 1015 (approx)

SAMPLE APPEARANCE: clear, aqueous, odorless

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: 5/29/19

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):	5-29-19	TIME (24 HR CLOCK):	1226	ELAPSED HRS:	0:30
CASING VOL.(Gal.):	2.47	GAL. PURGED (Gal.):	8.0		
PURGING DEVICE (SEE BELOW):	BAILER	PURGING DEVICE MATERIAL:	HD Polyethylene	DEDICATED:	YES

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd):	5-29-19	TIME (24 HR CLOCK):	1233	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'
DEPTH TO WATER (REF. PT.):	30.69	STICKUP (FT.):	N/A - FLUSH MOUNT
GW. ELEV.(FT. MSL.):		WELL DIAMETER (INCHES):	2.00"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Init à ISample	Final Sample
pH (STD)	——.——	——.——	——.——	7.96
SPEC. COND.(uS)	—— ——	—— ——	—— ——	3678
TEMPERATURE (C)	——.——	——.——	——.——	11.6
OTHER (SPECIFY) ORP	—— ——	—— ——	—— ——	1838

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: 58°F, cloudy, damp

SAMPLE APPEARANCE: rainbow sheen atop purge water

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

45.85' − 30.69' = 15.16' × 0.163 = 2.47 gal × 3 = 7.4 gal per 3 casings

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: 5/29/19

GOLDER

SAMPLE COLLECTION INFORMATION FORM

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

WELL ID.: BLIND DUPLICATE @ PZ-2 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:

SAMPLE APPEARANCE:

1" DIA. CASING CONTAINS .041 Gal./Ft. — SEE PZ-2 field form for further details

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 Blind DUP @ PZ-2

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

SAMPLER SIGNATURE: [signature] DATE: 5/29/19

APPENDIX D

Analytical Data

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 480-154189-1
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:
6/10/2019 9:05:31 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: 480-154189-1
Project/Site: Vandemark Chemical site

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance 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.

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)
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: 480-154189-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-154189-1

Comments
No additional comments.

Receipt
The samples were received on 5/29/2019 3:44 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

GC/MS VOA
Method(s) 8260C: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: BLIND DUP (480-154189-2). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-475786 recovered outside acceptance criteria, low biased, for Cyclohexane and Methylcyclohexane. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-475804 recovered above the upper control limit for Tetrachloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-7D (480-154189-1) and P2-4 (480-154189-6).

Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 480-475804 recovered outside control limits for the following analytes: Tetrachloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. The following samples are impacted: MW-7D (480-154189-1) and P2-4 (480-154189-6).

Method(s) 8260C: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-7D (480-154189-1), MW-7D (480-154189-1[MS]) and MW-7D (480-154189-1[MSD]). 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(s) 8270D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 480-475496 and analytical batch 480-476375 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 8270D: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7D (480-154189-1), MW-7D (480-154189-1[MS]) and MW-7D (480-154189-1[MSD]). Elevated reporting limits (RLs) are provided.

Method(s) 8270D: The matrix spike / matrix spike duplicate (MS/MSD/) precision for preparation batch 480-475496 and analytical batch 480-476375 was outside control limits.

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: 480-154189-1

Client Sample ID: MW-7D — Lab Sample ID: 480-154189-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	20		4.0	3.3	ug/L	4		8260C	Total/NA
1,1-Dichloroethane	96	F1	4.0	1.5	ug/L	4		8260C	Total/NA
1,1-Dichloroethene	43		4.0	1.2	ug/L	4		8260C	Total/NA
1,2-Dichloroethane	4.3		4.0	0.84	ug/L	4		8260C	Total/NA
Carbon disulfide	0.85	J B	4.0	0.76	ug/L	4		8260C	Total/NA
Chloroethane	65	F1	4.0	1.3	ug/L	4		8260C	Total/NA
Vinyl chloride	24	F1	4.0	3.6	ug/L	4		8260C	Total/NA
Acenaphthene	63	F1 F2	50	4.1	ug/L	10		8270D	Total/NA
Anthracene	10	J F2	50	2.8	ug/L	10		8270D	Total/NA
Benzo[a]anthracene	11	J F2	50	3.6	ug/L	10		8270D	Total/NA
Benzo[a]pyrene	9.2	J F2	50	4.7	ug/L	10		8270D	Total/NA
Benzo[b]fluoranthene	14	J F2	50	3.4	ug/L	10		8270D	Total/NA
Benzo[g,h,i]perylene	7.1	J F2	50	3.5	ug/L	10		8270D	Total/NA
Carbazole	3.9	J	50	3.0	ug/L	10		8270D	Total/NA
Chrysene	14	J F2	50	3.3	ug/L	10		8270D	Total/NA
Dibenzofuran	35	J F1 F2	100	5.1	ug/L	10		8270D	Total/NA
Fluoranthene	65	F1 F2	50	4.0	ug/L	10		8270D	Total/NA
Fluorene	36	J F1 F2	50	3.6	ug/L	10		8270D	Total/NA
Indeno[1,2,3-cd]pyrene	6.4	J F2	50	4.7	ug/L	10		8270D	Total/NA
Phenanthrene	61	F1 F2	50	4.4	ug/L	10		8270D	Total/NA
Pyrene	45	J F1 F2	50	3.4	ug/L	10		8270D	Total/NA

Client Sample ID: BLIND DUP — Lab Sample ID: 480-154189-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.41	J	5.0	0.41	ug/L	1		8270D	Total/NA
Pyrene	0.49	J	5.0	0.34	ug/L	1		8270D	Total/NA

Client Sample ID: FILTER VAULT EFF — Lab Sample ID: 480-154189-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	0.62	J	1.0	0.21	ug/L	1		8260C	Total/NA
Chloroform	19		1.0	0.34	ug/L	1		8260C	Total/NA

Client Sample ID: P2-2 — Lab Sample ID: 480-154189-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.61	J	1.0	0.34	ug/L	1		8260C	Total/NA
Pyrene	0.43	J	5.2	0.35	ug/L	1		8270D	Total/NA

Client Sample ID: P2-3 — Lab Sample ID: 480-154189-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	4.8	J	5.0	0.60	ug/L	1		8270D	Total/NA
4-Methylphenol	1.7	J	10	0.36	ug/L	1		8270D	Total/NA
Acenaphthene	6.1		5.0	0.41	ug/L	1		8270D	Total/NA
Caprolactam	6.5		5.0	2.2	ug/L	1		8270D	Total/NA
Carbazole	0.99	J	5.0	0.30	ug/L	1		8270D	Total/NA
Fluorene	1.2	J	5.0	0.36	ug/L	1		8270D	Total/NA
Naphthalene	16		5.0	0.76	ug/L	1		8270D	Total/NA
Phenanthrene	1.0	J	5.0	0.44	ug/L	1		8270D	Total/NA
Phenol	59		5.0	0.39	ug/L	1		8270D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

Client Sample ID: P2-4 **Lab Sample ID: 480-154189-6**

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 480-154189-1

Client Sample ID: MW-7D
Date Collected: 05/29/19 12:33
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-1
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	**20**		4.0	3.3	ug/L			06/03/19 12:13	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			06/03/19 12:13	4
1,1,2-Trichloroethane	ND		4.0	0.92	ug/L			06/03/19 12:13	4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.0	1.2	ug/L			06/03/19 12:13	4
1,1-Dichloroethane	**96**	**F1**	4.0	1.5	ug/L			06/03/19 12:13	4
1,1-Dichloroethene	**43**		4.0	1.2	ug/L			06/03/19 12:13	4
1,2,4-Trichlorobenzene	ND		4.0	1.6	ug/L			06/03/19 12:13	4
1,2-Dibromo-3-Chloropropane	ND		4.0	1.6	ug/L			06/03/19 12:13	4
1,2-Dibromoethane	ND		4.0	2.9	ug/L			06/03/19 12:13	4
1,2-Dichlorobenzene	ND		4.0	3.2	ug/L			06/03/19 12:13	4
1,2-Dichloroethane	**4.3**		4.0	0.84	ug/L			06/03/19 12:13	4
1,2-Dichloropropane	ND		4.0	2.9	ug/L			06/03/19 12:13	4
1,3-Dichlorobenzene	ND		4.0	3.1	ug/L			06/03/19 12:13	4
1,4-Dichlorobenzene	ND		4.0	3.4	ug/L			06/03/19 12:13	4
2-Hexanone	ND		20	5.0	ug/L			06/03/19 12:13	4
2-Butanone (MEK)	ND		40	5.3	ug/L			06/03/19 12:13	4
4-Methyl-2-pentanone (MIBK)	ND		20	8.4	ug/L			06/03/19 12:13	4
Acetone	ND		40	12	ug/L			06/03/19 12:13	4
Benzene	ND		4.0	1.6	ug/L			06/03/19 12:13	4
Bromodichloromethane	ND		4.0	1.6	ug/L			06/03/19 12:13	4
Bromoform	ND		4.0	1.0	ug/L			06/03/19 12:13	4
Bromomethane	ND		4.0	2.8	ug/L			06/03/19 12:13	4
Carbon disulfide	**0.85**	**J B**	4.0	0.76	ug/L			06/03/19 12:13	4
Carbon tetrachloride	ND		4.0	1.1	ug/L			06/03/19 12:13	4
Chlorobenzene	ND		4.0	3.0	ug/L			06/03/19 12:13	4
Dibromochloromethane	ND		4.0	1.3	ug/L			06/03/19 12:13	4
Chloroethane	**65**	**F1**	4.0	1.3	ug/L			06/03/19 12:13	4
Chloroform	ND		4.0	1.4	ug/L			06/03/19 12:13	4
Chloromethane	ND		4.0	1.4	ug/L			06/03/19 12:13	4
cis-1,2-Dichloroethene	ND		4.0	3.2	ug/L			06/03/19 12:13	4
cis-1,3-Dichloropropene	ND		4.0	1.4	ug/L			06/03/19 12:13	4
Cyclohexane	ND		4.0	0.72	ug/L			06/03/19 12:13	4
Dichlorodifluoromethane	ND		4.0	2.7	ug/L			06/03/19 12:13	4
Ethylbenzene	ND		4.0	3.0	ug/L			06/03/19 12:13	4
Isopropylbenzene	ND		4.0	3.2	ug/L			06/03/19 12:13	4
Methyl acetate	ND		10	5.2	ug/L			06/03/19 12:13	4
Methyl tert-butyl ether	ND		4.0	0.64	ug/L			06/03/19 12:13	4
Methylcyclohexane	ND		4.0	0.64	ug/L			06/03/19 12:13	4
Methylene Chloride	ND		4.0	1.8	ug/L			06/03/19 12:13	4
Styrene	ND		4.0	2.9	ug/L			06/03/19 12:13	4
Tetrachloroethene	ND	*	4.0	1.4	ug/L			06/03/19 12:13	4
Toluene	ND		4.0	2.0	ug/L			06/03/19 12:13	4
trans-1,2-Dichloroethene	ND		4.0	3.6	ug/L			06/03/19 12:13	4
trans-1,3-Dichloropropene	ND		4.0	1.5	ug/L			06/03/19 12:13	4
Trichloroethene	ND		4.0	1.8	ug/L			06/03/19 12:13	4
Trichlorofluoromethane	ND		4.0	3.5	ug/L			06/03/19 12:13	4
Vinyl chloride	**24**	**F1**	4.0	3.6	ug/L			06/03/19 12:13	4
Xylenes, Total	ND		8.0	2.6	ug/L			06/03/19 12:13	4

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

Job ID: 480-154189-1

Client Sample ID: MW-7D
Date Collected: 05/29/19 12:33
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-1
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*06/03/19 12:13*	*4*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/03/19 12:13*	*4*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*06/03/19 12:13*	*4*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*06/03/19 12:13*	*4*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		50	6.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
bis (2-chloroisopropyl) ether	ND		50	5.2	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4,5-Trichlorophenol	ND		50	4.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4,6-Trichlorophenol	ND		50	6.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4-Dichlorophenol	ND		50	5.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4-Dimethylphenol	ND		50	5.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4-Dinitrophenol	ND		100	22	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,4-Dinitrotoluene	ND		50	4.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
2,6-Dinitrotoluene	ND		50	4.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Chloronaphthalene	ND		50	4.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Chlorophenol	ND		50	5.3	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Methylphenol	ND		50	4.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Methylnaphthalene	ND		50	6.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Nitroaniline	ND		100	4.2	ug/L		05/31/19 07:55	06/06/19 01:10	10
2-Nitrophenol	ND		50	4.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
3,3'-Dichlorobenzidine	ND		50	4.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
3-Nitroaniline	ND		100	4.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
4,6-Dinitro-2-methylphenol	ND		100	22	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Bromophenyl phenyl ether	ND		50	4.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Chloro-3-methylphenol	ND		50	4.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Chloroaniline	ND		50	5.9	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Chlorophenyl phenyl ether	ND		50	3.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Methylphenol	ND		100	3.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Nitroaniline	ND		100	2.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
4-Nitrophenol	ND		100	15	ug/L		05/31/19 07:55	06/06/19 01:10	10
Acenaphthene	**63**	**F1 F2**	50	4.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
Acenaphthylene	ND		50	3.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
Acetophenone	ND		50	5.4	ug/L		05/31/19 07:55	06/06/19 01:10	10
Anthracene	**10**	**J F2**	50	2.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
Atrazine	ND		50	4.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzaldehyde	ND		50	2.7	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzo[a]anthracene	**11**	**J F2**	50	3.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzo[a]pyrene	**9.2**	**J F2**	50	4.7	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzo[b]fluoranthene	**14**	**J F2**	50	3.4	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzo[g,h,i]perylene	**7.1**	**J F2**	50	3.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
Benzo[k]fluoranthene	ND	F2	50	7.3	ug/L		05/31/19 07:55	06/06/19 01:10	10
Bis(2-chloroethoxy)methane	ND		50	3.5	ug/L		05/31/19 07:55	06/06/19 01:10	10
Bis(2-chloroethyl)ether	ND		50	4.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
Bis(2-ethylhexyl) phthalate	ND		50	22	ug/L		05/31/19 07:55	06/06/19 01:10	10
Butyl benzyl phthalate	ND		50	10	ug/L		05/31/19 07:55	06/06/19 01:10	10
Caprolactam	ND		50	22	ug/L		05/31/19 07:55	06/06/19 01:10	10
Carbazole	**3.9**	**J**	50	3.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
Chrysene	**14**	**J F2**	50	3.3	ug/L		05/31/19 07:55	06/06/19 01:10	10

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

Job ID: 480-154189-1

Client Sample ID: MW-7D
Date Collected: 05/29/19 12:33
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-1
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		50	4.2	ug/L		05/31/19 07:55	06/06/19 01:10	10
Di-n-butyl phthalate	ND		50	3.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
Di-n-octyl phthalate	ND		50	4.7	ug/L		05/31/19 07:55	06/06/19 01:10	10
Dibenzofuran	**35**	**J F1 F2**	100	5.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
Diethyl phthalate	ND		50	2.2	ug/L		05/31/19 07:55	06/06/19 01:10	10
Dimethyl phthalate	ND		50	3.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
Fluoranthene	**65**	**F1 F2**	50	4.0	ug/L		05/31/19 07:55	06/06/19 01:10	10
Fluorene	**36**	**J F1 F2**	50	3.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
Hexachlorobenzene	ND		50	5.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
Hexachlorobutadiene	ND		50	6.8	ug/L		05/31/19 07:55	06/06/19 01:10	10
Hexachlorocyclopentadiene	ND		50	5.9	ug/L		05/31/19 07:55	06/06/19 01:10	10
Hexachloroethane	ND		50	5.9	ug/L		05/31/19 07:55	06/06/19 01:10	10
Indeno[1,2,3-cd]pyrene	**6.4**	**J F2**	50	4.7	ug/L		05/31/19 07:55	06/06/19 01:10	10
Isophorone	ND		50	4.3	ug/L		05/31/19 07:55	06/06/19 01:10	10
N-Nitrosodi-n-propylamine	ND		50	5.4	ug/L		05/31/19 07:55	06/06/19 01:10	10
N-Nitrosodiphenylamine	ND		50	5.1	ug/L		05/31/19 07:55	06/06/19 01:10	10
Naphthalene	ND		50	7.6	ug/L		05/31/19 07:55	06/06/19 01:10	10
Nitrobenzene	ND		50	2.9	ug/L		05/31/19 07:55	06/06/19 01:10	10
Pentachlorophenol	ND		100	22	ug/L		05/31/19 07:55	06/06/19 01:10	10
Phenanthrene	**61**	**F1 F2**	50	4.4	ug/L		05/31/19 07:55	06/06/19 01:10	10
Phenol	ND		50	3.9	ug/L		05/31/19 07:55	06/06/19 01:10	10
Pyrene	**45**	**J F1 F2**	50	3.4	ug/L		05/31/19 07:55	06/06/19 01:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*69*		*46 - 120*	*05/31/19 07:55*	*06/06/19 01:10*	*10*
Phenol-d5 (Surr)	*38*		*22 - 120*	*05/31/19 07:55*	*06/06/19 01:10*	*10*
p-Terphenyl-d14 (Surr)	*66*		*59 - 136*	*05/31/19 07:55*	*06/06/19 01:10*	*10*
2,4,6-Tribromophenol (Surr)	*73*		*41 - 120*	*05/31/19 07:55*	*06/06/19 01:10*	*10*
2-Fluorobiphenyl	*83*		*48 - 120*	*05/31/19 07:55*	*06/06/19 01:10*	*10*
2-Fluorophenol (Surr)	*56*		*35 - 120*	*05/31/19 07:55*	*06/06/19 01:10*	*10*

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

Job ID: 480-154189-1

Client Sample ID: BLIND DUP
Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-2
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		4.0	3.3	ug/L			06/01/19 15:29	4
1,1,2,2-Tetrachloroethane	ND		4.0	0.84	ug/L			06/01/19 15:29	4
1,1,2-Trichloroethane	ND		4.0	0.92	ug/L			06/01/19 15:29	4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.0	1.2	ug/L			06/01/19 15:29	4
1,1-Dichloroethane	ND		4.0	1.5	ug/L			06/01/19 15:29	4
1,1-Dichloroethene	ND		4.0	1.2	ug/L			06/01/19 15:29	4
1,2,4-Trichlorobenzene	ND		4.0	1.6	ug/L			06/01/19 15:29	4
1,2-Dibromo-3-Chloropropane	ND		4.0	1.6	ug/L			06/01/19 15:29	4
1,2-Dibromoethane	ND		4.0	2.9	ug/L			06/01/19 15:29	4
1,2-Dichlorobenzene	ND		4.0	3.2	ug/L			06/01/19 15:29	4
1,2-Dichloroethane	ND		4.0	0.84	ug/L			06/01/19 15:29	4
1,2-Dichloropropane	ND		4.0	2.9	ug/L			06/01/19 15:29	4
1,3-Dichlorobenzene	ND		4.0	3.1	ug/L			06/01/19 15:29	4
1,4-Dichlorobenzene	ND		4.0	3.4	ug/L			06/01/19 15:29	4
2-Hexanone	ND		20	5.0	ug/L			06/01/19 15:29	4
2-Butanone (MEK)	ND		40	5.3	ug/L			06/01/19 15:29	4
4-Methyl-2-pentanone (MIBK)	ND		20	8.4	ug/L			06/01/19 15:29	4
Acetone	ND		40	12	ug/L			06/01/19 15:29	4
Benzene	ND		4.0	1.6	ug/L			06/01/19 15:29	4
Bromodichloromethane	ND		4.0	1.6	ug/L			06/01/19 15:29	4
Bromoform	ND		4.0	1.0	ug/L			06/01/19 15:29	4
Bromomethane	ND		4.0	2.8	ug/L			06/01/19 15:29	4
Carbon disulfide	ND		4.0	0.76	ug/L			06/01/19 15:29	4
Carbon tetrachloride	ND		4.0	1.1	ug/L			06/01/19 15:29	4
Chlorobenzene	ND		4.0	3.0	ug/L			06/01/19 15:29	4
Dibromochloromethane	ND		4.0	1.3	ug/L			06/01/19 15:29	4
Chloroethane	ND		4.0	1.3	ug/L			06/01/19 15:29	4
Chloroform	ND		4.0	1.4	ug/L			06/01/19 15:29	4
Chloromethane	ND		4.0	1.4	ug/L			06/01/19 15:29	4
cis-1,2-Dichloroethene	ND		4.0	3.2	ug/L			06/01/19 15:29	4
cis-1,3-Dichloropropene	ND		4.0	1.4	ug/L			06/01/19 15:29	4
Cyclohexane	ND		4.0	0.72	ug/L			06/01/19 15:29	4
Dichlorodifluoromethane	ND		4.0	2.7	ug/L			06/01/19 15:29	4
Ethylbenzene	ND		4.0	3.0	ug/L			06/01/19 15:29	4
Isopropylbenzene	ND		4.0	3.2	ug/L			06/01/19 15:29	4
Methyl acetate	ND		10	5.2	ug/L			06/01/19 15:29	4
Methyl tert-butyl ether	ND		4.0	0.64	ug/L			06/01/19 15:29	4
Methylcyclohexane	ND		4.0	0.64	ug/L			06/01/19 15:29	4
Methylene Chloride	ND		4.0	1.8	ug/L			06/01/19 15:29	4
Styrene	ND		4.0	2.9	ug/L			06/01/19 15:29	4
Tetrachloroethene	ND		4.0	1.4	ug/L			06/01/19 15:29	4
Toluene	ND		4.0	2.0	ug/L			06/01/19 15:29	4
trans-1,2-Dichloroethene	ND		4.0	3.6	ug/L			06/01/19 15:29	4
trans-1,3-Dichloropropene	ND		4.0	1.5	ug/L			06/01/19 15:29	4
Trichloroethene	ND		4.0	1.8	ug/L			06/01/19 15:29	4
Trichlorofluoromethane	ND		4.0	3.5	ug/L			06/01/19 15:29	4
Vinyl chloride	ND		4.0	3.6	ug/L			06/01/19 15:29	4
Xylenes, Total	ND		8.0	2.6	ug/L			06/01/19 15:29	4

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

Job ID: 480-154189-1

Client Sample ID: BLIND DUP

Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-2

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*06/01/19 15:29*	*4*
Toluene-d8 (Surr)	*93*		*80 - 120*		*06/01/19 15:29*	*4*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*06/01/19 15:29*	*4*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*06/01/19 15:29*	*4*

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		05/31/19 07:55	06/06/19 01:37	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 01:37	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Nitroaniline	ND		10	0.42	ug/L		05/31/19 07:55	06/06/19 01:37	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 01:37	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 01:37	1
3-Nitroaniline	ND		10	0.48	ug/L		05/31/19 07:55	06/06/19 01:37	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Methylphenol	ND		10	0.36	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Nitroaniline	ND		10	0.25	ug/L		05/31/19 07:55	06/06/19 01:37	1
4-Nitrophenol	ND		10	1.5	ug/L		05/31/19 07:55	06/06/19 01:37	1
Acenaphthene	**0.41**	**J**	5.0	0.41	ug/L		05/31/19 07:55	06/06/19 01:37	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/31/19 07:55	06/06/19 01:37	1
Acetophenone	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 01:37	1
Anthracene	ND		5.0	0.28	ug/L		05/31/19 07:55	06/06/19 01:37	1
Atrazine	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 01:37	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/31/19 07:55	06/06/19 01:37	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 01:37	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 01:37	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 01:37	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/31/19 07:55	06/06/19 01:37	1
Caprolactam	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 01:37	1
Carbazole	ND		5.0	0.30	ug/L		05/31/19 07:55	06/06/19 01:37	1
Chrysene	ND		5.0	0.33	ug/L		05/31/19 07:55	06/06/19 01:37	1

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

Job ID: 480-154189-1

Client Sample ID: BLIND DUP
Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/31/19 07:55	06/06/19 01:37	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/31/19 07:55	06/06/19 01:37	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 01:37	1
Dibenzofuran	ND		10	0.51	ug/L		05/31/19 07:55	06/06/19 01:37	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/31/19 07:55	06/06/19 01:37	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 01:37	1
Fluoranthene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 01:37	1
Fluorene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 01:37	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 01:37	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/31/19 07:55	06/06/19 01:37	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 01:37	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 01:37	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 01:37	1
Isophorone	ND		5.0	0.43	ug/L		05/31/19 07:55	06/06/19 01:37	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 01:37	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 01:37	1
Naphthalene	ND		5.0	0.76	ug/L		05/31/19 07:55	06/06/19 01:37	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/31/19 07:55	06/06/19 01:37	1
Pentachlorophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 01:37	1
Phenanthrene	ND		5.0	0.44	ug/L		05/31/19 07:55	06/06/19 01:37	1
Phenol	ND		5.0	0.39	ug/L		05/31/19 07:55	06/06/19 01:37	1
Pyrene	**0.49**	**J**	5.0	0.34	ug/L		05/31/19 07:55	06/06/19 01:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*05/31/19 07:55*	*06/06/19 01:37*	*1*
Phenol-d5 (Surr)	*49*		*22 - 120*	*05/31/19 07:55*	*06/06/19 01:37*	*1*
p-Terphenyl-d14 (Surr)	*79*		*59 - 136*	*05/31/19 07:55*	*06/06/19 01:37*	*1*
2,4,6-Tribromophenol (Surr)	*97*		*41 - 120*	*05/31/19 07:55*	*06/06/19 01:37*	*1*
2-Fluorobiphenyl	*99*		*48 - 120*	*05/31/19 07:55*	*06/06/19 01:37*	*1*
2-Fluorophenol (Surr)	*69*		*35 - 120*	*05/31/19 07:55*	*06/06/19 01:37*	*1*

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

Job ID: 480-154189-1

Client Sample ID: FILTER VAULT EFF

Date Collected: 05/29/19 10:10
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-3

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			06/03/19 12:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 12:31	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 12:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 12:31	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 12:31	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 12:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 12:31	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 12:31	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 12:31	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 12:31	1
1,2-Dichloroethane	**0.62**	**J**	1.0	0.21	ug/L			06/03/19 12:31	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 12:31	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 12:31	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 12:31	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 12:31	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 12:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 12:31	1
Acetone	ND		10	3.0	ug/L			06/03/19 12:31	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 12:31	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 12:31	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 12:31	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 12:31	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/03/19 12:31	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 12:31	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 12:31	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 12:31	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 12:31	1
Chloroform	**19**		1.0	0.34	ug/L			06/03/19 12:31	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 12:31	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 12:31	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 12:31	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 12:31	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 12:31	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 12:31	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 12:31	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 12:31	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 12:31	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 12:31	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 12:31	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 12:31	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/03/19 12:31	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 12:31	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 12:31	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 12:31	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 12:31	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 12:31	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 12:31	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 12:31	1

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

Job ID: 480-154189-1

Client Sample ID: FILTER VAULT EFF

Date Collected: 05/29/19 10:10
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-3

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*06/03/19 12:31*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/03/19 12:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*06/03/19 12:31*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*06/03/19 12:31*	*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		05/31/19 07:55	06/06/19 02:05	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 02:05	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Nitroaniline	ND		10	0.42	ug/L		05/31/19 07:55	06/06/19 02:05	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 02:05	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 02:05	1
3-Nitroaniline	ND		10	0.48	ug/L		05/31/19 07:55	06/06/19 02:05	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Methylphenol	ND		10	0.36	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Nitroaniline	ND		10	0.25	ug/L		05/31/19 07:55	06/06/19 02:05	1
4-Nitrophenol	ND		10	1.5	ug/L		05/31/19 07:55	06/06/19 02:05	1
Acenaphthene	ND		5.0	0.41	ug/L		05/31/19 07:55	06/06/19 02:05	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/31/19 07:55	06/06/19 02:05	1
Acetophenone	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 02:05	1
Anthracene	ND		5.0	0.28	ug/L		05/31/19 07:55	06/06/19 02:05	1
Atrazine	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 02:05	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/31/19 07:55	06/06/19 02:05	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 02:05	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 02:05	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 02:05	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/31/19 07:55	06/06/19 02:05	1
Caprolactam	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 02:05	1
Carbazole	ND		5.0	0.30	ug/L		05/31/19 07:55	06/06/19 02:05	1
Chrysene	ND		5.0	0.33	ug/L		05/31/19 07:55	06/06/19 02:05	1

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

Job ID: 480-154189-1

Client Sample ID: FILTER VAULT EFF
Date Collected: 05/29/19 10:10
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-3
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		05/31/19 07:55	06/06/19 02:05	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/31/19 07:55	06/06/19 02:05	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 02:05	1
Dibenzofuran	ND		10	0.51	ug/L		05/31/19 07:55	06/06/19 02:05	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/31/19 07:55	06/06/19 02:05	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 02:05	1
Fluoranthene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 02:05	1
Fluorene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 02:05	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 02:05	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/31/19 07:55	06/06/19 02:05	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 02:05	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 02:05	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 02:05	1
Isophorone	ND		5.0	0.43	ug/L		05/31/19 07:55	06/06/19 02:05	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 02:05	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 02:05	1
Naphthalene	ND		5.0	0.76	ug/L		05/31/19 07:55	06/06/19 02:05	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/31/19 07:55	06/06/19 02:05	1
Pentachlorophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 02:05	1
Phenanthrene	ND		5.0	0.44	ug/L		05/31/19 07:55	06/06/19 02:05	1
Phenol	ND		5.0	0.39	ug/L		05/31/19 07:55	06/06/19 02:05	1
Pyrene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 02:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*05/31/19 07:55*	*06/06/19 02:05*	*1*
Phenol-d5 (Surr)	*55*		*22 - 120*	*05/31/19 07:55*	*06/06/19 02:05*	*1*
p-Terphenyl-d14 (Surr)	*84*		*59 - 136*	*05/31/19 07:55*	*06/06/19 02:05*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*41 - 120*	*05/31/19 07:55*	*06/06/19 02:05*	*1*
2-Fluorobiphenyl	*100*		*48 - 120*	*05/31/19 07:55*	*06/06/19 02:05*	*1*
2-Fluorophenol (Surr)	*76*		*35 - 120*	*05/31/19 07:55*	*06/06/19 02:05*	*1*

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

Job ID: 480-154189-1

Client Sample ID: P2-2

Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/03/19 12:54	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 12:54	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 12:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 12:54	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 12:54	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 12:54	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 12:54	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 12:54	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 12:54	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 12:54	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/03/19 12:54	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 12:54	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 12:54	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 12:54	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 12:54	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 12:54	1
Acetone	ND		10	3.0	ug/L			06/03/19 12:54	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 12:54	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 12:54	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 12:54	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 12:54	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/03/19 12:54	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 12:54	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 12:54	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 12:54	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 12:54	1
Chloroform	**0.61**	**J**	1.0	0.34	ug/L			06/03/19 12:54	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 12:54	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 12:54	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 12:54	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 12:54	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 12:54	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 12:54	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 12:54	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 12:54	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 12:54	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 12:54	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 12:54	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 12:54	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/03/19 12:54	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 12:54	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 12:54	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 12:54	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 12:54	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 12:54	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 12:54	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 12:54	1

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

Job ID: 480-154189-1

Client Sample ID: P2-2

Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-4

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*06/03/19 12:54*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*06/03/19 12:54*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*06/03/19 12:54*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*06/03/19 12:54*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.2	0.68	ug/L		05/31/19 07:55	06/06/19 02:33	1
bis (2-chloroisopropyl) ether	ND		5.2	0.54	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4,5-Trichlorophenol	ND		5.2	0.50	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4,6-Trichlorophenol	ND		5.2	0.64	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4-Dichlorophenol	ND		5.2	0.53	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4-Dimethylphenol	ND		5.2	0.52	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4-Dinitrophenol	ND		10	2.3	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,4-Dinitrotoluene	ND		5.2	0.47	ug/L		05/31/19 07:55	06/06/19 02:33	1
2,6-Dinitrotoluene	ND		5.2	0.42	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Chloronaphthalene	ND		5.2	0.48	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Chlorophenol	ND		5.2	0.55	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Methylphenol	ND		5.2	0.42	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Methylnaphthalene	ND		5.2	0.63	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Nitroaniline	ND		10	0.44	ug/L		05/31/19 07:55	06/06/19 02:33	1
2-Nitrophenol	ND		5.2	0.50	ug/L		05/31/19 07:55	06/06/19 02:33	1
3,3'-Dichlorobenzidine	ND		5.2	0.42	ug/L		05/31/19 07:55	06/06/19 02:33	1
3-Nitroaniline	ND		10	0.50	ug/L		05/31/19 07:55	06/06/19 02:33	1
4,6-Dinitro-2-methylphenol	ND		10	2.3	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Bromophenyl phenyl ether	ND		5.2	0.47	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Chloro-3-methylphenol	ND		5.2	0.47	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Chloroaniline	ND		5.2	0.61	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Chlorophenyl phenyl ether	ND		5.2	0.36	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Methylphenol	ND		10	0.38	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Nitroaniline	ND		10	0.26	ug/L		05/31/19 07:55	06/06/19 02:33	1
4-Nitrophenol	ND		10	1.6	ug/L		05/31/19 07:55	06/06/19 02:33	1
Acenaphthene	ND		5.2	0.43	ug/L		05/31/19 07:55	06/06/19 02:33	1
Acenaphthylene	ND		5.2	0.40	ug/L		05/31/19 07:55	06/06/19 02:33	1
Acetophenone	ND		5.2	0.56	ug/L		05/31/19 07:55	06/06/19 02:33	1
Anthracene	ND		5.2	0.29	ug/L		05/31/19 07:55	06/06/19 02:33	1
Atrazine	ND		5.2	0.48	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzaldehyde	ND		5.2	0.28	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzo[a]anthracene	ND		5.2	0.38	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzo[a]pyrene	ND		5.2	0.49	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzo[b]fluoranthene	ND		5.2	0.35	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzo[g,h,i]perylene	ND		5.2	0.36	ug/L		05/31/19 07:55	06/06/19 02:33	1
Benzo[k]fluoranthene	ND		5.2	0.76	ug/L		05/31/19 07:55	06/06/19 02:33	1
Bis(2-chloroethoxy)methane	ND		5.2	0.36	ug/L		05/31/19 07:55	06/06/19 02:33	1
Bis(2-chloroethyl)ether	ND		5.2	0.42	ug/L		05/31/19 07:55	06/06/19 02:33	1
Bis(2-ethylhexyl) phthalate	ND		5.2	2.3	ug/L		05/31/19 07:55	06/06/19 02:33	1
Butyl benzyl phthalate	ND		5.2	1.0	ug/L		05/31/19 07:55	06/06/19 02:33	1
Caprolactam	ND		5.2	2.3	ug/L		05/31/19 07:55	06/06/19 02:33	1
Carbazole	ND		5.2	0.31	ug/L		05/31/19 07:55	06/06/19 02:33	1
Chrysene	ND		5.2	0.34	ug/L		05/31/19 07:55	06/06/19 02:33	1

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

Job ID: 480-154189-1

Client Sample ID: P2-2
Date Collected: 05/29/19 09:59
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-4
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		5.2	0.44	ug/L		05/31/19 07:55	06/06/19 02:33	1
Di-n-butyl phthalate	ND		5.2	0.32	ug/L		05/31/19 07:55	06/06/19 02:33	1
Di-n-octyl phthalate	ND		5.2	0.49	ug/L		05/31/19 07:55	06/06/19 02:33	1
Dibenzofuran	ND		10	0.53	ug/L		05/31/19 07:55	06/06/19 02:33	1
Diethyl phthalate	ND		5.2	0.23	ug/L		05/31/19 07:55	06/06/19 02:33	1
Dimethyl phthalate	ND		5.2	0.38	ug/L		05/31/19 07:55	06/06/19 02:33	1
Fluoranthene	ND		5.2	0.42	ug/L		05/31/19 07:55	06/06/19 02:33	1
Fluorene	ND		5.2	0.38	ug/L		05/31/19 07:55	06/06/19 02:33	1
Hexachlorobenzene	ND		5.2	0.53	ug/L		05/31/19 07:55	06/06/19 02:33	1
Hexachlorobutadiene	ND		5.2	0.71	ug/L		05/31/19 07:55	06/06/19 02:33	1
Hexachlorocyclopentadiene	ND		5.2	0.61	ug/L		05/31/19 07:55	06/06/19 02:33	1
Hexachloroethane	ND		5.2	0.61	ug/L		05/31/19 07:55	06/06/19 02:33	1
Indeno[1,2,3-cd]pyrene	ND		5.2	0.49	ug/L		05/31/19 07:55	06/06/19 02:33	1
Isophorone	ND		5.2	0.45	ug/L		05/31/19 07:55	06/06/19 02:33	1
N-Nitrosodi-n-propylamine	ND		5.2	0.56	ug/L		05/31/19 07:55	06/06/19 02:33	1
N-Nitrosodiphenylamine	ND		5.2	0.53	ug/L		05/31/19 07:55	06/06/19 02:33	1
Naphthalene	ND		5.2	0.79	ug/L		05/31/19 07:55	06/06/19 02:33	1
Nitrobenzene	ND		5.2	0.30	ug/L		05/31/19 07:55	06/06/19 02:33	1
Pentachlorophenol	ND		10	2.3	ug/L		05/31/19 07:55	06/06/19 02:33	1
Phenanthrene	ND		5.2	0.46	ug/L		05/31/19 07:55	06/06/19 02:33	1
Phenol	ND		5.2	0.41	ug/L		05/31/19 07:55	06/06/19 02:33	1
Pyrene	**0.43**	**J**	5.2	0.35	ug/L		05/31/19 07:55	06/06/19 02:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*	*05/31/19 07:55*	*06/06/19 02:33*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*05/31/19 07:55*	*06/06/19 02:33*	*1*
p-Terphenyl-d14 (Surr)	*82*		*59 - 136*	*05/31/19 07:55*	*06/06/19 02:33*	*1*
2,4,6-Tribromophenol (Surr)	*100*		*41 - 120*	*05/31/19 07:55*	*06/06/19 02:33*	*1*
2-Fluorobiphenyl	*97*		*48 - 120*	*05/31/19 07:55*	*06/06/19 02:33*	*1*
2-Fluorophenol (Surr)	*73*		*35 - 120*	*05/31/19 07:55*	*06/06/19 02:33*	*1*

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

Job ID: 480-154189-1

Client Sample ID: P2-3
Date Collected: 05/29/19 11:20
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/03/19 13:18	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 13:18	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 13:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 13:18	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 13:18	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 13:18	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 13:18	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 13:18	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 13:18	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 13:18	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/03/19 13:18	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 13:18	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 13:18	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 13:18	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 13:18	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 13:18	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 13:18	1
Acetone	ND		10	3.0	ug/L			06/03/19 13:18	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 13:18	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 13:18	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 13:18	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 13:18	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/03/19 13:18	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 13:18	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 13:18	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 13:18	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 13:18	1
Chloroform	ND		1.0	0.34	ug/L			06/03/19 13:18	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 13:18	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 13:18	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 13:18	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 13:18	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 13:18	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 13:18	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 13:18	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 13:18	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 13:18	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 13:18	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 13:18	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 13:18	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/03/19 13:18	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 13:18	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 13:18	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 13:18	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 13:18	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 13:18	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 13:18	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 13:18	1

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

Job ID: 480-154189-1

Client Sample ID: P2-3

Date Collected: 05/29/19 11:20
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-5

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*111*		*77 - 120*		*06/03/19 13:18*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*06/03/19 13:18*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*06/03/19 13:18*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 123*		*06/03/19 13:18*	*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		05/31/19 07:55	06/06/19 03:01	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:01	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Methylnaphthalene	**4.8**	**J**	5.0	0.60	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Nitroaniline	ND		10	0.42	ug/L		05/31/19 07:55	06/06/19 03:01	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 03:01	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:01	1
3-Nitroaniline	ND		10	0.48	ug/L		05/31/19 07:55	06/06/19 03:01	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Methylphenol	**1.7**	**J**	10	0.36	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Nitroaniline	ND		10	0.25	ug/L		05/31/19 07:55	06/06/19 03:01	1
4-Nitrophenol	ND		10	1.5	ug/L		05/31/19 07:55	06/06/19 03:01	1
Acenaphthene	**6.1**		5.0	0.41	ug/L		05/31/19 07:55	06/06/19 03:01	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/31/19 07:55	06/06/19 03:01	1
Acetophenone	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 03:01	1
Anthracene	ND		5.0	0.28	ug/L		05/31/19 07:55	06/06/19 03:01	1
Atrazine	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:01	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/31/19 07:55	06/06/19 03:01	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:01	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:01	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 03:01	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/31/19 07:55	06/06/19 03:01	1
Caprolactam	**6.5**		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 03:01	1
Carbazole	**0.99**	**J**	5.0	0.30	ug/L		05/31/19 07:55	06/06/19 03:01	1
Chrysene	ND		5.0	0.33	ug/L		05/31/19 07:55	06/06/19 03:01	1

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

Job ID: 480-154189-1

Client Sample ID: P2-3
Date Collected: 05/29/19 11:20
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-5
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		5.0	0.42	ug/L		05/31/19 07:55	06/06/19 03:01	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/31/19 07:55	06/06/19 03:01	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:01	1
Dibenzofuran	ND		10	0.51	ug/L		05/31/19 07:55	06/06/19 03:01	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/31/19 07:55	06/06/19 03:01	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:01	1
Fluoranthene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:01	1
Fluorene	**1.2**	**J**	5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:01	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:01	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/31/19 07:55	06/06/19 03:01	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:01	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:01	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:01	1
Isophorone	ND		5.0	0.43	ug/L		05/31/19 07:55	06/06/19 03:01	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 03:01	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:01	1
Naphthalene	**16**		5.0	0.76	ug/L		05/31/19 07:55	06/06/19 03:01	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/31/19 07:55	06/06/19 03:01	1
Pentachlorophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:01	1
Phenanthrene	**1.0**	**J**	5.0	0.44	ug/L		05/31/19 07:55	06/06/19 03:01	1
Phenol	**59**		5.0	0.39	ug/L		05/31/19 07:55	06/06/19 03:01	1
Pyrene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/31/19 07:55*	*06/06/19 03:01*	*1*
Phenol-d5 (Surr)	*54*		*22 - 120*	*05/31/19 07:55*	*06/06/19 03:01*	*1*
p-Terphenyl-d14 (Surr)	*96*		*59 - 136*	*05/31/19 07:55*	*06/06/19 03:01*	*1*
2,4,6-Tribromophenol (Surr)	*107*		*41 - 120*	*05/31/19 07:55*	*06/06/19 03:01*	*1*
2-Fluorobiphenyl	*97*		*48 - 120*	*05/31/19 07:55*	*06/06/19 03:01*	*1*
2-Fluorophenol (Surr)	*69*		*35 - 120*	*05/31/19 07:55*	*06/06/19 03:01*	*1*

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

Job ID: 480-154189-1

Client Sample ID: P2-4
Date Collected: 05/29/19 10:40
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/03/19 12:40	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 12:40	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 12:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 12:40	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 12:40	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 12:40	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 12:40	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 12:40	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 12:40	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 12:40	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/03/19 12:40	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 12:40	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 12:40	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 12:40	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 12:40	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 12:40	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 12:40	1
Acetone	ND		10	3.0	ug/L			06/03/19 12:40	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 12:40	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 12:40	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 12:40	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 12:40	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/03/19 12:40	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 12:40	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 12:40	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 12:40	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 12:40	1
Chloroform	ND		1.0	0.34	ug/L			06/03/19 12:40	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 12:40	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 12:40	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 12:40	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 12:40	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 12:40	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 12:40	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 12:40	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 12:40	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 12:40	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 12:40	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 12:40	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 12:40	1
Tetrachloroethene	ND	*	1.0	0.36	ug/L			06/03/19 12:40	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 12:40	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 12:40	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 12:40	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 12:40	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 12:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 12:40	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 12:40	1

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

Job ID: 480-154189-1

Client Sample ID: P2-4
Date Collected: 05/29/19 10:40
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-6
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*06/03/19 12:40*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*06/03/19 12:40*	*1*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*		*06/03/19 12:40*	*1*
Dibromofluoromethane (Surr)	*92*		*75 - 123*		*06/03/19 12:40*	*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		05/31/19 07:55	06/06/19 03:29	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:29	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Nitroaniline	ND		10	0.42	ug/L		05/31/19 07:55	06/06/19 03:29	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/06/19 03:29	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:29	1
3-Nitroaniline	ND		10	0.48	ug/L		05/31/19 07:55	06/06/19 03:29	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Methylphenol	ND		10	0.36	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Nitroaniline	ND		10	0.25	ug/L		05/31/19 07:55	06/06/19 03:29	1
4-Nitrophenol	ND		10	1.5	ug/L		05/31/19 07:55	06/06/19 03:29	1
Acenaphthene	ND		5.0	0.41	ug/L		05/31/19 07:55	06/06/19 03:29	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/31/19 07:55	06/06/19 03:29	1
Acetophenone	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 03:29	1
Anthracene	ND		5.0	0.28	ug/L		05/31/19 07:55	06/06/19 03:29	1
Atrazine	ND		5.0	0.46	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:29	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/31/19 07:55	06/06/19 03:29	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/31/19 07:55	06/06/19 03:29	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:29	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 03:29	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/31/19 07:55	06/06/19 03:29	1
Caprolactam	ND		5.0	2.2	ug/L		05/31/19 07:55	06/06/19 03:29	1
Carbazole	ND		5.0	0.30	ug/L		05/31/19 07:55	06/06/19 03:29	1
Chrysene	ND		5.0	0.33	ug/L		05/31/19 07:55	06/06/19 03:29	1

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

Job ID: 480-154189-1

Client Sample ID: P2-4
Date Collected: 05/29/19 10:40
Date Received: 05/29/19 15:44

Lab Sample ID: 480-154189-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/31/19 07:55	06/06/19 03:29	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/31/19 07:55	06/06/19 03:29	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:29	1
Dibenzofuran	ND		10	0.51	ug/L		05/31/19 07:55	06/06/19 03:29	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/31/19 07:55	06/06/19 03:29	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:29	1
Fluoranthene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/06/19 03:29	1
Fluorene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/06/19 03:29	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:29	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/31/19 07:55	06/06/19 03:29	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:29	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/31/19 07:55	06/06/19 03:29	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/06/19 03:29	1
Isophorone	ND		5.0	0.43	ug/L		05/31/19 07:55	06/06/19 03:29	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/31/19 07:55	06/06/19 03:29	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/31/19 07:55	06/06/19 03:29	1
Naphthalene	ND		5.0	0.76	ug/L		05/31/19 07:55	06/06/19 03:29	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/31/19 07:55	06/06/19 03:29	1
Pentachlorophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/06/19 03:29	1
Phenanthrene	ND		5.0	0.44	ug/L		05/31/19 07:55	06/06/19 03:29	1
Phenol	ND		5.0	0.39	ug/L		05/31/19 07:55	06/06/19 03:29	1
Pyrene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/06/19 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*05/31/19 07:55*	*06/06/19 03:29*	*1*
Phenol-d5 (Surr)	*50*		*22 - 120*	*05/31/19 07:55*	*06/06/19 03:29*	*1*
p-Terphenyl-d14 (Surr)	*74*		*59 - 136*	*05/31/19 07:55*	*06/06/19 03:29*	*1*
2,4,6-Tribromophenol (Surr)	*97*		*41 - 120*	*05/31/19 07:55*	*06/06/19 03:29*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*05/31/19 07:55*	*06/06/19 03:29*	*1*
2-Fluorophenol (Surr)	*70*		*35 - 120*	*05/31/19 07:55*	*06/06/19 03:29*	*1*

Surrogate Summary

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

Job ID: 480-154189-1

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)
480-154189-1	MW-7D	100	103	105	95
480-154189-1 MS	MW-7D	100	105	105	94
480-154189-1 MSD	MW-7D	97	102	106	93
480-154189-2	BLIND DUP	113	93	101	104
480-154189-3	FILTER VAULT EFF	106	104	100	105
480-154189-4	P2-2	105	100	102	104
480-154189-5	P2-3	111	99	100	110
480-154189-6	P2-4	97	105	106	92
LCS 480-475702/5	Lab Control Sample	112	93	98	106
LCS 480-475786/5	Lab Control Sample	110	102	98	105
LCS 480-475804/5	Lab Control Sample	98	101	106	94
MB 480-475702/7	Method Blank	111	97	101	101
MB 480-475786/7	Method Blank	106	100	98	106
MB 480-475804/7	Method Blank	100	105	107	96

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 (59-136)	TBP (41-120)	FBP (48-120)	2FP (35-120)
480-154189-1	MW-7D	69	38	66	73	83	56
480-154189-1 MS	MW-7D	87	52	73	96	92	66
480-154189-1 MSD	MW-7D	83	45	72	88	88	63
480-154189-2	BLIND DUP	89	49	79	97	99	69
480-154189-3	FILTER VAULT EFF	93	55	84	90	100	76
480-154189-4	P2-2	88	51	82	100	97	73
480-154189-5	P2-3	86	54	96	107	97	69
480-154189-6	P2-4	86	50	74	97	95	70
LCS 480-475496/2-A	Lab Control Sample	88	55	97	100	91	69
MB 480-475496/1-A	Method Blank	84	51	99	84	90	70

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 480-475702/7
Matrix: Water
Analysis Batch: 475702

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/01/19 12:25	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/01/19 12:25	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/01/19 12:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/01/19 12:25	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/01/19 12:25	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/01/19 12:25	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/01/19 12:25	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/01/19 12:25	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/01/19 12:25	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/01/19 12:25	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/01/19 12:25	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/01/19 12:25	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/01/19 12:25	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/01/19 12:25	1
2-Hexanone	ND		5.0	1.2	ug/L			06/01/19 12:25	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/01/19 12:25	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/01/19 12:25	1
Acetone	ND		10	3.0	ug/L			06/01/19 12:25	1
Benzene	ND		1.0	0.41	ug/L			06/01/19 12:25	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/01/19 12:25	1
Bromoform	ND		1.0	0.26	ug/L			06/01/19 12:25	1
Bromomethane	ND		1.0	0.69	ug/L			06/01/19 12:25	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/01/19 12:25	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/01/19 12:25	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/01/19 12:25	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/01/19 12:25	1
Chloroethane	ND		1.0	0.32	ug/L			06/01/19 12:25	1
Chloroform	ND		1.0	0.34	ug/L			06/01/19 12:25	1
Chloromethane	ND		1.0	0.35	ug/L			06/01/19 12:25	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/01/19 12:25	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/01/19 12:25	1
Cyclohexane	ND		1.0	0.18	ug/L			06/01/19 12:25	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/01/19 12:25	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/01/19 12:25	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/01/19 12:25	1
Methyl acetate	ND		2.5	1.3	ug/L			06/01/19 12:25	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/01/19 12:25	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/01/19 12:25	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/01/19 12:25	1
Styrene	ND		1.0	0.73	ug/L			06/01/19 12:25	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/01/19 12:25	1
Toluene	ND		1.0	0.51	ug/L			06/01/19 12:25	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/01/19 12:25	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/01/19 12:25	1
Trichloroethene	ND		1.0	0.46	ug/L			06/01/19 12:25	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/01/19 12:25	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/01/19 12:25	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/01/19 12:25	1

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

Lab Sample ID: MB 480-475702/7
Matrix: Water
Analysis Batch: 475702

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		77 - 120		06/01/19 12:25	1
Toluene-d8 (Surr)	97		80 - 120		06/01/19 12:25	1
4-Bromofluorobenzene (Surr)	101		73 - 120		06/01/19 12:25	1
Dibromofluoromethane (Surr)	101		75 - 123		06/01/19 12:25	1

Lab Sample ID: LCS 480-475702/5
Matrix: Water
Analysis Batch: 475702

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	29.2		ug/L		117	73 - 126
1,1,2,2-Tetrachloroethane	25.0	23.1		ug/L		92	76 - 120
1,1,2-Trichloroethane	25.0	23.4		ug/L		94	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	23.5		ug/L		94	61 - 148
1,1-Dichloroethane	25.0	24.4		ug/L		98	77 - 120
1,1-Dichloroethene	25.0	24.4		ug/L		98	66 - 127
1,2,4-Trichlorobenzene	25.0	23.9		ug/L		96	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	27.9		ug/L		112	56 - 134
1,2-Dibromoethane	25.0	24.4		ug/L		97	77 - 120
1,2-Dichlorobenzene	25.0	24.1		ug/L		97	80 - 124
1,2-Dichloroethane	25.0	27.4		ug/L		110	75 - 120
1,2-Dichloropropane	25.0	23.3		ug/L		93	76 - 120
1,3-Dichlorobenzene	25.0	25.8		ug/L		103	77 - 120
1,4-Dichlorobenzene	25.0	23.4		ug/L		93	80 - 120
2-Hexanone	125	113		ug/L		91	65 - 127
2-Butanone (MEK)	125	110		ug/L		88	57 - 140
4-Methyl-2-pentanone (MIBK)	125	104		ug/L		83	71 - 125
Acetone	125	103		ug/L		83	56 - 142
Benzene	25.0	23.9		ug/L		96	71 - 124
Bromodichloromethane	25.0	26.9		ug/L		108	80 - 122
Bromoform	25.0	26.5		ug/L		106	61 - 132
Bromomethane	25.0	23.4		ug/L		93	55 - 144
Carbon disulfide	25.0	24.2		ug/L		97	59 - 134
Carbon tetrachloride	25.0	30.7		ug/L		123	72 - 134
Chlorobenzene	25.0	24.0		ug/L		96	80 - 120
Dibromochloromethane	25.0	27.9		ug/L		112	75 - 125
Chloroethane	25.0	24.5		ug/L		98	69 - 136
Chloroform	25.0	22.5		ug/L		90	73 - 127
Chloromethane	25.0	21.8		ug/L		87	68 - 124
cis-1,2-Dichloroethene	25.0	24.8		ug/L		99	74 - 124
cis-1,3-Dichloropropene	25.0	26.7		ug/L		107	74 - 124
Cyclohexane	25.0	21.6		ug/L		86	59 - 135
Dichlorodifluoromethane	25.0	24.8		ug/L		99	59 - 135
Ethylbenzene	25.0	24.8		ug/L		99	77 - 123
Isopropylbenzene	25.0	25.4		ug/L		102	77 - 122
Methyl acetate	50.0	43.6		ug/L		87	74 - 133
Methyl tert-butyl ether	25.0	25.7		ug/L		103	77 - 120
Methylcyclohexane	25.0	24.2		ug/L		97	68 - 134

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

Lab Sample ID: LCS 480-475702/5
Matrix: Water
Analysis Batch: 475702

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	21.2		ug/L		85	75 - 124
Styrene	25.0	24.7		ug/L		99	80 - 120
Tetrachloroethene	25.0	26.0		ug/L		104	74 - 122
Toluene	25.0	23.1		ug/L		92	80 - 122
trans-1,2-Dichloroethene	25.0	25.8		ug/L		103	73 - 127
trans-1,3-Dichloropropene	25.0	27.6		ug/L		111	80 - 120
Trichloroethene	25.0	23.2		ug/L		93	74 - 123
Trichlorofluoromethane	25.0	28.7		ug/L		115	62 - 150
Vinyl chloride	25.0	23.9		ug/L		96	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*112*		*77 - 120*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*106*		*75 - 123*

Lab Sample ID: MB 480-475786/7
Matrix: Water
Analysis Batch: 475786

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/03/19 09:49	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 09:49	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 09:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 09:49	1
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 09:49	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 09:49	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 09:49	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 09:49	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 09:49	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 09:49	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/03/19 09:49	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 09:49	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 09:49	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 09:49	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 09:49	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 09:49	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 09:49	1
Acetone	ND		10	3.0	ug/L			06/03/19 09:49	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 09:49	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 09:49	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 09:49	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 09:49	1
Carbon disulfide	ND		1.0	0.19	ug/L			06/03/19 09:49	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 09:49	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 09:49	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 09:49	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 09:49	1

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

Lab Sample ID: MB 480-475786/7
Matrix: Water
Analysis Batch: 475786

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			06/03/19 09:49	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 09:49	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 09:49	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 09:49	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 09:49	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 09:49	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 09:49	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 09:49	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 09:49	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 09:49	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 09:49	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 09:49	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 09:49	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/03/19 09:49	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 09:49	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 09:49	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 09:49	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 09:49	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 09:49	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 09:49	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 09:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*06/03/19 09:49*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*06/03/19 09:49*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*06/03/19 09:49*	*1*
Dibromofluoromethane (Surr)	*106*		*75 - 123*		*06/03/19 09:49*	*1*

Lab Sample ID: LCS 480-475786/5
Matrix: Water
Analysis Batch: 475786

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	22.6		ug/L		91	73 - 126
1,1,2,2-Tetrachloroethane	25.0	25.7		ug/L		103	76 - 120
1,1,2-Trichloroethane	25.0	24.9		ug/L		100	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	21.1		ug/L		84	61 - 148
1,1-Dichloroethane	25.0	25.6		ug/L		102	77 - 120
1,1-Dichloroethene	25.0	23.4		ug/L		93	66 - 127
1,2,4-Trichlorobenzene	25.0	25.7		ug/L		103	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.5		ug/L		94	56 - 134
1,2-Dibromoethane	25.0	25.0		ug/L		100	77 - 120
1,2-Dichlorobenzene	25.0	26.3		ug/L		105	80 - 124
1,2-Dichloroethane	25.0	26.8		ug/L		107	75 - 120
1,2-Dichloropropane	25.0	27.1		ug/L		108	76 - 120
1,3-Dichlorobenzene	25.0	26.0		ug/L		104	77 - 120
1,4-Dichlorobenzene	25.0	25.0		ug/L		100	80 - 120
2-Hexanone	125	121		ug/L		97	65 - 127

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

Lab Sample ID: LCS 480-475786/5
Matrix: Water
Analysis Batch: 475786

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	102		ug/L		81	57 - 140
4-Methyl-2-pentanone (MIBK)	125	126		ug/L		101	71 - 125
Acetone	125	109		ug/L		87	56 - 142
Benzene	25.0	26.6		ug/L		107	71 - 124
Bromodichloromethane	25.0	25.5		ug/L		102	80 - 122
Bromoform	25.0	21.6		ug/L		86	61 - 132
Bromomethane	25.0	24.9		ug/L		100	55 - 144
Carbon disulfide	25.0	24.7		ug/L		99	59 - 134
Carbon tetrachloride	25.0	20.8		ug/L		83	72 - 134
Chlorobenzene	25.0	26.3		ug/L		105	80 - 120
Dibromochloromethane	25.0	24.1		ug/L		96	75 - 125
Chloroethane	25.0	24.7		ug/L		99	69 - 136
Chloroform	25.0	23.2		ug/L		93	73 - 127
Chloromethane	25.0	26.4		ug/L		106	68 - 124
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	74 - 124
cis-1,3-Dichloropropene	25.0	26.8		ug/L		107	74 - 124
Cyclohexane	25.0	21.2		ug/L		85	59 - 135
Dichlorodifluoromethane	25.0	29.2		ug/L		117	59 - 135
Ethylbenzene	25.0	24.6		ug/L		99	77 - 123
Isopropylbenzene	25.0	24.6		ug/L		99	77 - 122
Methyl acetate	50.0	45.2		ug/L		90	74 - 133
Methyl tert-butyl ether	25.0	25.0		ug/L		100	77 - 120
Methylcyclohexane	25.0	21.4		ug/L		86	68 - 134
Methylene Chloride	25.0	24.4		ug/L		97	75 - 124
Styrene	25.0	25.4		ug/L		102	80 - 120
Tetrachloroethene	25.0	24.8		ug/L		99	74 - 122
Toluene	25.0	25.4		ug/L		102	80 - 122
trans-1,2-Dichloroethene	25.0	24.5		ug/L		98	73 - 127
trans-1,3-Dichloropropene	25.0	25.5		ug/L		102	80 - 120
Trichloroethene	25.0	25.6		ug/L		102	74 - 123
Trichlorofluoromethane	25.0	27.1		ug/L		109	62 - 150
Vinyl chloride	25.0	27.0		ug/L		108	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*110*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*
Dibromofluoromethane (Surr)	*105*		*75 - 123*

Lab Sample ID: MB 480-475804/7
Matrix: Water
Analysis Batch: 475804

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.82	ug/L			06/03/19 11:32	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.21	ug/L			06/03/19 11:32	1
1,1,2-Trichloroethane	ND		1.0	0.23	ug/L			06/03/19 11:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			06/03/19 11:32	1

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

Lab Sample ID: MB 480-475804/7
Matrix: Water
Analysis Batch: 475804

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		1.0	0.38	ug/L			06/03/19 11:32	1
1,1-Dichloroethene	ND		1.0	0.29	ug/L			06/03/19 11:32	1
1,2,4-Trichlorobenzene	ND		1.0	0.41	ug/L			06/03/19 11:32	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.39	ug/L			06/03/19 11:32	1
1,2-Dibromoethane	ND		1.0	0.73	ug/L			06/03/19 11:32	1
1,2-Dichlorobenzene	ND		1.0	0.79	ug/L			06/03/19 11:32	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			06/03/19 11:32	1
1,2-Dichloropropane	ND		1.0	0.72	ug/L			06/03/19 11:32	1
1,3-Dichlorobenzene	ND		1.0	0.78	ug/L			06/03/19 11:32	1
1,4-Dichlorobenzene	ND		1.0	0.84	ug/L			06/03/19 11:32	1
2-Hexanone	ND		5.0	1.2	ug/L			06/03/19 11:32	1
2-Butanone (MEK)	ND		10	1.3	ug/L			06/03/19 11:32	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1	ug/L			06/03/19 11:32	1
Acetone	ND		10	3.0	ug/L			06/03/19 11:32	1
Benzene	ND		1.0	0.41	ug/L			06/03/19 11:32	1
Bromodichloromethane	ND		1.0	0.39	ug/L			06/03/19 11:32	1
Bromoform	ND		1.0	0.26	ug/L			06/03/19 11:32	1
Bromomethane	ND		1.0	0.69	ug/L			06/03/19 11:32	1
Carbon disulfide	0.207	J	1.0	0.19	ug/L			06/03/19 11:32	1
Carbon tetrachloride	ND		1.0	0.27	ug/L			06/03/19 11:32	1
Chlorobenzene	ND		1.0	0.75	ug/L			06/03/19 11:32	1
Dibromochloromethane	ND		1.0	0.32	ug/L			06/03/19 11:32	1
Chloroethane	ND		1.0	0.32	ug/L			06/03/19 11:32	1
Chloroform	ND		1.0	0.34	ug/L			06/03/19 11:32	1
Chloromethane	ND		1.0	0.35	ug/L			06/03/19 11:32	1
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			06/03/19 11:32	1
cis-1,3-Dichloropropene	ND		1.0	0.36	ug/L			06/03/19 11:32	1
Cyclohexane	ND		1.0	0.18	ug/L			06/03/19 11:32	1
Dichlorodifluoromethane	ND		1.0	0.68	ug/L			06/03/19 11:32	1
Ethylbenzene	ND		1.0	0.74	ug/L			06/03/19 11:32	1
Isopropylbenzene	ND		1.0	0.79	ug/L			06/03/19 11:32	1
Methyl acetate	ND		2.5	1.3	ug/L			06/03/19 11:32	1
Methyl tert-butyl ether	ND		1.0	0.16	ug/L			06/03/19 11:32	1
Methylcyclohexane	ND		1.0	0.16	ug/L			06/03/19 11:32	1
Methylene Chloride	ND		1.0	0.44	ug/L			06/03/19 11:32	1
Styrene	ND		1.0	0.73	ug/L			06/03/19 11:32	1
Tetrachloroethene	ND		1.0	0.36	ug/L			06/03/19 11:32	1
Toluene	ND		1.0	0.51	ug/L			06/03/19 11:32	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			06/03/19 11:32	1
trans-1,3-Dichloropropene	ND		1.0	0.37	ug/L			06/03/19 11:32	1
Trichloroethene	ND		1.0	0.46	ug/L			06/03/19 11:32	1
Trichlorofluoromethane	ND		1.0	0.88	ug/L			06/03/19 11:32	1
Vinyl chloride	ND		1.0	0.90	ug/L			06/03/19 11:32	1
Xylenes, Total	ND		2.0	0.66	ug/L			06/03/19 11:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*06/03/19 11:32*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*06/03/19 11:32*	*1*

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

Lab Sample ID: MB 480-475804/7
Matrix: Water
Analysis Batch: 475804

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*		*06/03/19 11:32*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*06/03/19 11:32*	*1*

Lab Sample ID: LCS 480-475804/5
Matrix: Water
Analysis Batch: 475804

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	26.7		ug/L		107	73 - 126
1,1,2,2-Tetrachloroethane	25.0	24.4		ug/L		98	76 - 120
1,1,2-Trichloroethane	25.0	26.8		ug/L		107	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	29.0		ug/L		116	61 - 148
1,1-Dichloroethane	25.0	24.9		ug/L		100	77 - 120
1,1-Dichloroethene	25.0	25.7		ug/L		103	66 - 127
1,2,4-Trichlorobenzene	25.0	25.5		ug/L		102	79 - 122
1,2-Dibromo-3-Chloropropane	25.0	19.1		ug/L		77	56 - 134
1,2-Dibromoethane	25.0	28.1		ug/L		113	77 - 120
1,2-Dichlorobenzene	25.0	25.9		ug/L		104	80 - 124
1,2-Dichloroethane	25.0	26.2		ug/L		105	75 - 120
1,2-Dichloropropane	25.0	28.4		ug/L		114	76 - 120
1,3-Dichlorobenzene	25.0	27.5		ug/L		110	77 - 120
1,4-Dichlorobenzene	25.0	27.7		ug/L		111	80 - 120
2-Hexanone	125	124		ug/L		99	65 - 127
2-Butanone (MEK)	125	131		ug/L		105	57 - 140
4-Methyl-2-pentanone (MIBK)	125	121		ug/L		97	71 - 125
Acetone	125	119		ug/L		95	56 - 142
Benzene	25.0	27.9		ug/L		112	71 - 124
Bromodichloromethane	25.0	25.8		ug/L		103	80 - 122
Bromoform	25.0	22.9		ug/L		92	61 - 132
Bromomethane	25.0	24.6		ug/L		98	55 - 144
Carbon disulfide	25.0	25.1		ug/L		101	59 - 134
Carbon tetrachloride	25.0	25.5		ug/L		102	72 - 134
Chlorobenzene	25.0	27.9		ug/L		111	80 - 120
Dibromochloromethane	25.0	25.2		ug/L		101	75 - 125
Chloroethane	25.0	23.5		ug/L		94	69 - 136
Chloroform	25.0	24.9		ug/L		100	73 - 127
Chloromethane	25.0	23.8		ug/L		95	68 - 124
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	74 - 124
cis-1,3-Dichloropropene	25.0	28.6		ug/L		115	74 - 124
Cyclohexane	25.0	26.9		ug/L		108	59 - 135
Dichlorodifluoromethane	25.0	24.2		ug/L		97	59 - 135
Ethylbenzene	25.0	27.3		ug/L		109	77 - 123
Isopropylbenzene	25.0	28.3		ug/L		113	77 - 122
Methyl acetate	50.0	48.3		ug/L		97	74 - 133
Methyl tert-butyl ether	25.0	23.6		ug/L		94	77 - 120
Methylcyclohexane	25.0	28.9		ug/L		115	68 - 134
Methylene Chloride	25.0	23.7		ug/L		95	75 - 124
Styrene	25.0	27.3		ug/L		109	80 - 120

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

Lab Sample ID: LCS 480-475804/5
Matrix: Water
Analysis Batch: 475804

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrachloroethene	25.0	31.5	*	ug/L		126	74 - 122
Toluene	25.0	27.7		ug/L		111	80 - 122
trans-1,2-Dichloroethene	25.0	25.4		ug/L		102	73 - 127
trans-1,3-Dichloropropene	25.0	27.8		ug/L		111	80 - 120
Trichloroethene	25.0	28.3		ug/L		113	74 - 123
Trichlorofluoromethane	25.0	26.5		ug/L		106	62 - 150
Vinyl chloride	25.0	22.9		ug/L		92	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*
Dibromofluoromethane (Surr)	*94*		*75 - 123*

Lab Sample ID: 480-154189-1 MS
Matrix: Water
Analysis Batch: 475804

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20		100	117		ug/L		97	73 - 126
1,1,2,2-Tetrachloroethane	ND		100	99.9		ug/L		100	76 - 120
1,1,2-Trichloroethane	ND		100	108		ug/L		108	76 - 122
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		100	110		ug/L		110	61 - 148
1,1-Dichloroethane	96	F1	100	168	F1	ug/L		72	77 - 120
1,1-Dichloroethene	43		100	131		ug/L		89	66 - 127
1,2,4-Trichlorobenzene	ND		100	104		ug/L		104	79 - 122
1,2-Dibromo-3-Chloropropane	ND		100	80.2		ug/L		80	56 - 134
1,2-Dibromoethane	ND		100	108		ug/L		108	77 - 120
1,2-Dichlorobenzene	ND		100	102		ug/L		102	80 - 124
1,2-Dichloroethane	4.3		100	107		ug/L		102	75 - 120
1,2-Dichloropropane	ND		100	110		ug/L		110	76 - 120
1,3-Dichlorobenzene	ND		100	107		ug/L		107	77 - 120
1,4-Dichlorobenzene	ND		100	107		ug/L		107	78 - 124
2-Hexanone	ND		500	475		ug/L		95	65 - 127
2-Butanone (MEK)	ND		500	499		ug/L		100	57 - 140
4-Methyl-2-pentanone (MIBK)	ND		500	471		ug/L		94	71 - 125
Acetone	ND		500	432		ug/L		86	56 - 142
Benzene	ND		100	111		ug/L		111	71 - 124
Bromodichloromethane	ND		100	100		ug/L		100	80 - 122
Bromoform	ND		100	76.4		ug/L		76	61 - 132
Bromomethane	ND		100	80.4		ug/L		80	55 - 144
Carbon disulfide	0.85	J B	100	99.2		ug/L		98	59 - 134
Carbon tetrachloride	ND		100	102		ug/L		102	72 - 134
Chlorobenzene	ND		100	111		ug/L		111	80 - 120
Dibromochloromethane	ND		100	91.7		ug/L		92	75 - 125
Chloroethane	65	F1	100	127	F1	ug/L		62	69 - 136
Chloroform	ND		100	100		ug/L		100	73 - 127
Chloromethane	ND		100	78.0		ug/L		78	68 - 124

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

Lab Sample ID: 480-154189-1 MS
Matrix: Water
Analysis Batch: 475804

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	ND		100	96.1		ug/L		96	74 - 124
cis-1,3-Dichloropropene	ND		100	103		ug/L		103	74 - 124
Cyclohexane	ND		100	108		ug/L		108	59 - 135
Dichlorodifluoromethane	ND		100	81.3		ug/L		81	59 - 135
Ethylbenzene	ND		100	107		ug/L		107	77 - 123
Isopropylbenzene	ND		100	113		ug/L		113	77 - 122
Methyl acetate	ND		200	183		ug/L		91	74 - 133
Methyl tert-butyl ether	ND		100	91.0		ug/L		91	77 - 120
Methylcyclohexane	ND		100	111		ug/L		111	68 - 134
Methylene Chloride	ND		100	96.0		ug/L		96	75 - 124
Styrene	ND		100	105		ug/L		105	80 - 120
Tetrachloroethene	ND	*	100	119		ug/L		119	74 - 122
Toluene	ND		100	111		ug/L		111	80 - 122
trans-1,2-Dichloroethene	ND		100	102		ug/L		102	73 - 127
trans-1,3-Dichloropropene	ND		100	100		ug/L		100	80 - 120
Trichloroethene	ND		100	112		ug/L		112	74 - 123
Trichlorofluoromethane	ND		100	90.3		ug/L		90	62 - 150
Vinyl chloride	24	F1	100	93.5		ug/L		70	65 - 133

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*
Dibromofluoromethane (Surr)	*94*		*75 - 123*

Lab Sample ID: 480-154189-1 MSD
Matrix: Water
Analysis Batch: 475804

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	20		100	111		ug/L		92	73 - 126	5	15
1,1,2,2-Tetrachloroethane	ND		100	97.4		ug/L		97	76 - 120	3	15
1,1,2-Trichloroethane	ND		100	105		ug/L		105	76 - 122	3	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		100	105		ug/L		105	61 - 148	5	20
1,1-Dichloroethane	96	F1	100	159	F1	ug/L		63	77 - 120	5	20
1,1-Dichloroethene	43		100	125		ug/L		82	66 - 127	5	16
1,2,4-Trichlorobenzene	ND		100	103		ug/L		103	79 - 122	0	20
1,2-Dibromo-3-Chloropropane	ND		100	82.2		ug/L		82	56 - 134	2	15
1,2-Dibromoethane	ND		100	106		ug/L		106	77 - 120	2	15
1,2-Dichlorobenzene	ND		100	100		ug/L		100	80 - 124	1	20
1,2-Dichloroethane	4.3		100	102		ug/L		98	75 - 120	4	20
1,2-Dichloropropane	ND		100	106		ug/L		106	76 - 120	4	20
1,3-Dichlorobenzene	ND		100	103		ug/L		103	77 - 120	4	20
1,4-Dichlorobenzene	ND		100	104		ug/L		104	78 - 124	2	20
2-Hexanone	ND		500	467		ug/L		93	65 - 127	2	15
2-Butanone (MEK)	ND		500	473		ug/L		95	57 - 140	5	20
4-Methyl-2-pentanone (MIBK)	ND		500	464		ug/L		93	71 - 125	2	35
Acetone	ND		500	414		ug/L		83	56 - 142	4	15

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

Lab Sample ID: 480-154189-1 MSD
Matrix: Water
Analysis Batch: 475804

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		100	102		ug/L		102	71 - 124	8	13
Bromodichloromethane	ND		100	94.6		ug/L		95	80 - 122	6	15
Bromoform	ND		100	75.2		ug/L		75	61 - 132	2	15
Bromomethane	ND		100	75.3		ug/L		75	55 - 144	7	15
Carbon disulfide	0.85	J B	100	94.9		ug/L		94	59 - 134	4	15
Carbon tetrachloride	ND		100	96.3		ug/L		96	72 - 134	6	15
Chlorobenzene	ND		100	107		ug/L		107	80 - 120	3	25
Dibromochloromethane	ND		100	90.5		ug/L		91	75 - 125	1	15
Chloroethane	65	F1	100	120	F1	ug/L		55	69 - 136	6	15
Chloroform	ND		100	93.2		ug/L		93	73 - 127	7	20
Chloromethane	ND		100	68.4		ug/L		68	68 - 124	13	15
cis-1,2-Dichloroethene	ND		100	91.5		ug/L		91	74 - 124	5	15
cis-1,3-Dichloropropene	ND		100	100		ug/L		100	74 - 124	3	15
Cyclohexane	ND		100	99.6		ug/L		100	59 - 135	8	20
Dichlorodifluoromethane	ND		100	73.7		ug/L		74	59 - 135	10	20
Ethylbenzene	ND		100	104		ug/L		104	77 - 123	3	15
Isopropylbenzene	ND		100	109		ug/L		109	77 - 122	4	20
Methyl acetate	ND		200	175		ug/L		87	74 - 133	4	20
Methyl tert-butyl ether	ND		100	89.5		ug/L		89	77 - 120	2	37
Methylcyclohexane	ND		100	102		ug/L		102	68 - 134	9	20
Methylene Chloride	ND		100	93.4		ug/L		93	75 - 124	3	15
Styrene	ND		100	102		ug/L		102	80 - 120	3	20
Tetrachloroethene	ND	*	100	118		ug/L		118	74 - 122	1	20
Toluene	ND		100	108		ug/L		108	80 - 122	3	15
trans-1,2-Dichloroethene	ND		100	98.2		ug/L		98	73 - 127	4	20
trans-1,3-Dichloropropene	ND		100	99.1		ug/L		99	80 - 120	1	15
Trichloroethene	ND		100	104		ug/L		104	74 - 123	7	16
Trichlorofluoromethane	ND		100	81.2		ug/L		81	62 - 150	11	20
Vinyl chloride	24	F1	100	87.6	F1	ug/L		64	65 - 133	7	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*
Dibromofluoromethane (Surr)	*93*		*75 - 123*

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

Lab Sample ID: MB 480-475496/1-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 475496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		5.0	0.65	ug/L		05/31/19 07:55	06/05/19 23:18	1
bis (2-chloroisopropyl) ether	ND		5.0	0.52	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,4,5-Trichlorophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,4,6-Trichlorophenol	ND		5.0	0.61	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,4-Dichlorophenol	ND		5.0	0.51	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,4-Dimethylphenol	ND		5.0	0.50	ug/L		05/31/19 07:55	06/05/19 23:18	1

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

Lab Sample ID: MB 480-475496/1-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 475496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,4-Dinitrotoluene	ND		5.0	0.45	ug/L		05/31/19 07:55	06/05/19 23:18	1
2,6-Dinitrotoluene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Chloronaphthalene	ND		5.0	0.46	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Chlorophenol	ND		5.0	0.53	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Methylphenol	ND		5.0	0.40	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Methylnaphthalene	ND		5.0	0.60	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Nitroaniline	ND		10	0.42	ug/L		05/31/19 07:55	06/05/19 23:18	1
2-Nitrophenol	ND		5.0	0.48	ug/L		05/31/19 07:55	06/05/19 23:18	1
3,3'-Dichlorobenzidine	ND		5.0	0.40	ug/L		05/31/19 07:55	06/05/19 23:18	1
3-Nitroaniline	ND		10	0.48	ug/L		05/31/19 07:55	06/05/19 23:18	1
4,6-Dinitro-2-methylphenol	ND		10	2.2	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Bromophenyl phenyl ether	ND		5.0	0.45	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Chloro-3-methylphenol	ND		5.0	0.45	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Chloroaniline	ND		5.0	0.59	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Chlorophenyl phenyl ether	ND		5.0	0.35	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Methylphenol	ND		10	0.36	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Nitroaniline	ND		10	0.25	ug/L		05/31/19 07:55	06/05/19 23:18	1
4-Nitrophenol	ND		10	1.5	ug/L		05/31/19 07:55	06/05/19 23:18	1
Acenaphthene	ND		5.0	0.41	ug/L		05/31/19 07:55	06/05/19 23:18	1
Acenaphthylene	ND		5.0	0.38	ug/L		05/31/19 07:55	06/05/19 23:18	1
Acetophenone	ND		5.0	0.54	ug/L		05/31/19 07:55	06/05/19 23:18	1
Anthracene	ND		5.0	0.28	ug/L		05/31/19 07:55	06/05/19 23:18	1
Atrazine	ND		5.0	0.46	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzaldehyde	ND		5.0	0.27	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzo[a]anthracene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzo[a]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzo[b]fluoranthene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzo[g,h,i]perylene	ND		5.0	0.35	ug/L		05/31/19 07:55	06/05/19 23:18	1
Benzo[k]fluoranthene	ND		5.0	0.73	ug/L		05/31/19 07:55	06/05/19 23:18	1
Bis(2-chloroethoxy)methane	ND		5.0	0.35	ug/L		05/31/19 07:55	06/05/19 23:18	1
Bis(2-chloroethyl)ether	ND		5.0	0.40	ug/L		05/31/19 07:55	06/05/19 23:18	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		05/31/19 07:55	06/05/19 23:18	1
Butyl benzyl phthalate	ND		5.0	1.0	ug/L		05/31/19 07:55	06/05/19 23:18	1
Caprolactam	ND		5.0	2.2	ug/L		05/31/19 07:55	06/05/19 23:18	1
Carbazole	ND		5.0	0.30	ug/L		05/31/19 07:55	06/05/19 23:18	1
Chrysene	ND		5.0	0.33	ug/L		05/31/19 07:55	06/05/19 23:18	1
Dibenz(a,h)anthracene	ND		5.0	0.42	ug/L		05/31/19 07:55	06/05/19 23:18	1
Di-n-butyl phthalate	ND		5.0	0.31	ug/L		05/31/19 07:55	06/05/19 23:18	1
Di-n-octyl phthalate	ND		5.0	0.47	ug/L		05/31/19 07:55	06/05/19 23:18	1
Dibenzofuran	ND		10	0.51	ug/L		05/31/19 07:55	06/05/19 23:18	1
Diethyl phthalate	ND		5.0	0.22	ug/L		05/31/19 07:55	06/05/19 23:18	1
Dimethyl phthalate	ND		5.0	0.36	ug/L		05/31/19 07:55	06/05/19 23:18	1
Fluoranthene	ND		5.0	0.40	ug/L		05/31/19 07:55	06/05/19 23:18	1
Fluorene	ND		5.0	0.36	ug/L		05/31/19 07:55	06/05/19 23:18	1
Hexachlorobenzene	ND		5.0	0.51	ug/L		05/31/19 07:55	06/05/19 23:18	1
Hexachlorobutadiene	ND		5.0	0.68	ug/L		05/31/19 07:55	06/05/19 23:18	1
Hexachlorocyclopentadiene	ND		5.0	0.59	ug/L		05/31/19 07:55	06/05/19 23:18	1
Hexachloroethane	ND		5.0	0.59	ug/L		05/31/19 07:55	06/05/19 23:18	1

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

Lab Sample ID: MB 480-475496/1-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 475496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		5.0	0.47	ug/L		05/31/19 07:55	06/05/19 23:18	1
Isophorone	ND		5.0	0.43	ug/L		05/31/19 07:55	06/05/19 23:18	1
N-Nitrosodi-n-propylamine	ND		5.0	0.54	ug/L		05/31/19 07:55	06/05/19 23:18	1
N-Nitrosodiphenylamine	ND		5.0	0.51	ug/L		05/31/19 07:55	06/05/19 23:18	1
Naphthalene	ND		5.0	0.76	ug/L		05/31/19 07:55	06/05/19 23:18	1
Nitrobenzene	ND		5.0	0.29	ug/L		05/31/19 07:55	06/05/19 23:18	1
Pentachlorophenol	ND		10	2.2	ug/L		05/31/19 07:55	06/05/19 23:18	1
Phenanthrene	ND		5.0	0.44	ug/L		05/31/19 07:55	06/05/19 23:18	1
Phenol	ND		5.0	0.39	ug/L		05/31/19 07:55	06/05/19 23:18	1
Pyrene	ND		5.0	0.34	ug/L		05/31/19 07:55	06/05/19 23:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*84*		*46 - 120*	*05/31/19 07:55*	*06/05/19 23:18*	*1*
Phenol-d5 (Surr)	*51*		*22 - 120*	*05/31/19 07:55*	*06/05/19 23:18*	*1*
p-Terphenyl-d14 (Surr)	*99*		*59 - 136*	*05/31/19 07:55*	*06/05/19 23:18*	*1*
2,4,6-Tribromophenol (Surr)	*84*		*41 - 120*	*05/31/19 07:55*	*06/05/19 23:18*	*1*
2-Fluorobiphenyl	*90*		*48 - 120*	*05/31/19 07:55*	*06/05/19 23:18*	*1*
2-Fluorophenol (Surr)	*70*		*35 - 120*	*05/31/19 07:55*	*06/05/19 23:18*	*1*

Lab Sample ID: LCS 480-475496/2-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl	32.0	28.8		ug/L		90	59 - 120
bis (2-chloroisopropyl) ether	32.0	27.7		ug/L		87	21 - 136
2,4,5-Trichlorophenol	32.0	30.5		ug/L		95	65 - 126
2,4,6-Trichlorophenol	32.0	31.8		ug/L		99	64 - 120
2,4-Dichlorophenol	32.0	30.4		ug/L		95	63 - 120
2,4-Dimethylphenol	32.0	29.6		ug/L		93	47 - 120
2,4-Dinitrophenol	64.0	63.9		ug/L		100	31 - 137
2,4-Dinitrotoluene	32.0	32.0		ug/L		100	69 - 120
2,6-Dinitrotoluene	32.0	32.4		ug/L		101	68 - 120
2-Chloronaphthalene	32.0	28.0		ug/L		87	58 - 120
2-Chlorophenol	32.0	27.5		ug/L		86	48 - 120
2-Methylphenol	32.0	28.7		ug/L		90	39 - 120
2-Methylnaphthalene	32.0	28.4		ug/L		89	59 - 120
2-Nitroaniline	32.0	30.9		ug/L		96	54 - 127
2-Nitrophenol	32.0	29.1		ug/L		91	52 - 125
3,3'-Dichlorobenzidine	64.0	70.6		ug/L		110	49 - 135
3-Nitroaniline	32.0	26.8		ug/L		84	51 - 120
4,6-Dinitro-2-methylphenol	64.0	71.9		ug/L		112	46 - 136
4-Bromophenyl phenyl ether	32.0	30.6		ug/L		96	65 - 120
4-Chloro-3-methylphenol	32.0	29.8		ug/L		93	61 - 123
4-Chloroaniline	32.0	13.8		ug/L		43	30 - 120
4-Chlorophenyl phenyl ether	32.0	29.3		ug/L		91	62 - 120
4-Methylphenol	32.0	27.8		ug/L		87	29 - 131
4-Nitroaniline	32.0	28.2		ug/L		88	65 - 120

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

Lab Sample ID: LCS 480-475496/2-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Nitrophenol	64.0	50.2		ug/L		78	45 - 120
Acenaphthene	32.0	29.5		ug/L		92	60 - 120
Acenaphthylene	32.0	31.3		ug/L		98	63 - 120
Acetophenone	32.0	29.2		ug/L		91	45 - 120
Anthracene	32.0	32.3		ug/L		101	67 - 120
Atrazine	64.0	66.6		ug/L		104	71 - 130
Benzaldehyde	64.0	50.1		ug/L		78	10 - 140
Benzo[a]anthracene	32.0	31.5		ug/L		98	70 - 121
Benzo[a]pyrene	32.0	29.5		ug/L		92	60 - 123
Benzo[b]fluoranthene	32.0	32.3		ug/L		101	66 - 126
Benzo[g,h,i]perylene	32.0	32.4		ug/L		101	66 - 150
Benzo[k]fluoranthene	32.0	34.0		ug/L		106	65 - 124
Bis(2-chloroethoxy)methane	32.0	29.6		ug/L		93	50 - 128
Bis(2-chloroethyl)ether	32.0	29.5		ug/L		92	44 - 120
Bis(2-ethylhexyl) phthalate	32.0	33.7		ug/L		105	63 - 139
Butyl benzyl phthalate	32.0	33.3		ug/L		104	70 - 129
Caprolactam	64.0	22.8		ug/L		36	22 - 120
Carbazole	32.0	34.9		ug/L		109	66 - 123
Chrysene	32.0	33.4		ug/L		104	69 - 120
Dibenz(a,h)anthracene	32.0	32.6		ug/L		102	65 - 135
Di-n-butyl phthalate	32.0	32.6		ug/L		102	69 - 131
Di-n-octyl phthalate	32.0	32.3		ug/L		101	63 - 140
Dibenzofuran	32.0	29.6		ug/L		92	66 - 120
Diethyl phthalate	32.0	31.7		ug/L		99	59 - 127
Dimethyl phthalate	32.0	32.0		ug/L		100	68 - 120
Fluoranthene	32.0	33.0		ug/L		103	69 - 126
Fluorene	32.0	30.6		ug/L		96	66 - 120
Hexachlorobenzene	32.0	31.0		ug/L		97	61 - 120
Hexachlorobutadiene	32.0	23.2		ug/L		73	35 - 120
Hexachlorocyclopentadiene	32.0	22.4		ug/L		70	31 - 120
Hexachloroethane	32.0	23.4		ug/L		73	43 - 120
Indeno[1,2,3-cd]pyrene	32.0	32.0		ug/L		100	69 - 146
Isophorone	32.0	30.8		ug/L		96	55 - 120
N-Nitrosodi-n-propylamine	32.0	30.3		ug/L		95	32 - 140
N-Nitrosodiphenylamine	32.0	32.0		ug/L		100	61 - 120
Naphthalene	32.0	28.1		ug/L		88	57 - 120
Nitrobenzene	32.0	28.6		ug/L		90	53 - 123
Pentachlorophenol	64.0	63.7		ug/L		100	29 - 136
Phenanthrene	32.0	32.5		ug/L		101	68 - 120
Phenol	32.0	19.2		ug/L		60	17 - 120
Pyrene	32.0	33.0		ug/L		103	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*
Phenol-d5 (Surr)	*55*		*22 - 120*
p-Terphenyl-d14 (Surr)	*97*		*59 - 136*
2,4,6-Tribromophenol (Surr)	*100*		*41 - 120*
2-Fluorobiphenyl	*91*		*48 - 120*

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

Lab Sample ID: LCS 480-475496/2-A
Matrix: Water
Analysis Batch: 476375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 475496

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	69		35 - 120

Lab Sample ID: 480-154189-1 MS
Matrix: Water
Analysis Batch: 476375

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Biphenyl	ND		32.0	34.3	J	ug/L		107	57 - 120
bis (2-chloroisopropyl) ether	ND		32.0	30.0	J	ug/L		94	28 - 121
2,4,5-Trichlorophenol	ND		32.0	30.5	J	ug/L		95	65 - 126
2,4,6-Trichlorophenol	ND		32.0	28.4	J	ug/L		89	64 - 120
2,4-Dichlorophenol	ND		32.0	27.8	J	ug/L		87	48 - 132
2,4-Dimethylphenol	ND		32.0	28.6	J	ug/L		89	39 - 130
2,4-Dinitrophenol	ND		64.0	80.2	J	ug/L		125	21 - 150
2,4-Dinitrotoluene	ND		32.0	35.4	J	ug/L		111	54 - 138
2,6-Dinitrotoluene	ND		32.0	31.1	J	ug/L		97	17 - 150
2-Chloronaphthalene	ND		32.0	28.8	J	ug/L		90	52 - 124
2-Chlorophenol	ND		32.0	27.1	J	ug/L		85	48 - 120
2-Methylphenol	ND		32.0	26.5	J	ug/L		83	46 - 120
2-Methylnaphthalene	ND		32.0	31.3	J	ug/L		98	34 - 140
2-Nitroaniline	ND		32.0	28.4	J	ug/L		89	44 - 136
2-Nitrophenol	ND		32.0	27.0	J	ug/L		84	38 - 141
3,3'-Dichlorobenzidine	ND		64.0	66.9		ug/L		105	10 - 150
3-Nitroaniline	ND		32.0	29.9	J	ug/L		93	32 - 150
4,6-Dinitro-2-methylphenol	ND		64.0	82.2	J	ug/L		128	38 - 150
4-Bromophenyl phenyl ether	ND		32.0	29.3	J	ug/L		92	63 - 126
4-Chloro-3-methylphenol	ND		32.0	30.5	J	ug/L		95	64 - 127
4-Chloroaniline	ND		32.0	29.1	J	ug/L		91	16 - 124
4-Chlorophenyl phenyl ether	ND		32.0	29.3	J	ug/L		91	61 - 120
4-Methylphenol	ND		32.0	24.3	J	ug/L		76	36 - 120
4-Nitroaniline	ND		32.0	32.7	J	ug/L		102	32 - 150
4-Nitrophenol	ND		64.0	41.7	J	ug/L		65	23 - 132
Acenaphthene	63	F1 F2	32.0	110	F1	ug/L		148	48 - 120
Acenaphthylene	ND		32.0	34.1	J	ug/L		107	63 - 120
Acetophenone	ND		32.0	29.9	J	ug/L		93	53 - 120
Anthracene	10	J F2	32.0	42.6	J	ug/L		101	65 - 122
Atrazine	ND		64.0	63.9		ug/L		100	50 - 150
Benzaldehyde	ND		64.0	56.0		ug/L		87	10 - 150
Benzo[a]anthracene	11	J F2	32.0	48.5	J	ug/L		118	43 - 124
Benzo[a]pyrene	9.2	J F2	32.0	38.9	J	ug/L		93	23 - 125
Benzo[b]fluoranthene	14	J F2	32.0	46.8	J	ug/L		103	27 - 127
Benzo[g,h,i]perylene	7.1	J F2	32.0	38.9	J	ug/L		100	16 - 147
Benzo[k]fluoranthene	ND	F2	32.0	39.1	J	ug/L		122	20 - 124
Bis(2-chloroethoxy)methane	ND		32.0	29.3	J	ug/L		92	44 - 128
Bis(2-chloroethyl)ether	ND		32.0	27.9	J	ug/L		87	45 - 120
Bis(2-ethylhexyl) phthalate	ND		32.0	26.4	J	ug/L		83	16 - 150
Butyl benzyl phthalate	ND		32.0	29.5	J	ug/L		92	51 - 140
Caprolactam	ND		64.0	29.1	J	ug/L		45	10 - 120

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

Lab Sample ID: 480-154189-1 MS
Matrix: Water
Analysis Batch: 476375

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbazole	3.9	J	32.0	39.6	J	ug/L		112	16 - 148
Chrysene	14	J F2	32.0	52.6		ug/L		121	44 - 122
Dibenz(a,h)anthracene	ND		32.0	29.0	J	ug/L		91	16 - 139
Di-n-butyl phthalate	ND		32.0	30.4	J	ug/L		95	65 - 129
Di-n-octyl phthalate	ND		32.0	27.7	J	ug/L		87	16 - 150
Dibenzofuran	35	J F1 F2	32.0	78.1	J F1	ug/L		135	60 - 120
Diethyl phthalate	ND		32.0	31.8	J	ug/L		99	53 - 133
Dimethyl phthalate	ND		32.0	32.3	J	ug/L		101	59 - 123
Fluoranthene	65	F1 F2	32.0	143	F1	ug/L		244	63 - 129
Fluorene	36	J F1 F2	32.0	88.0	F1	ug/L		161	62 - 120
Hexachlorobenzene	ND		32.0	29.1	J	ug/L		91	57 - 121
Hexachlorobutadiene	ND		32.0	24.4	J	ug/L		76	37 - 120
Hexachlorocyclopentadiene	ND		32.0	19.7	J	ug/L		62	21 - 120
Hexachloroethane	ND		32.0	25.0	J	ug/L		78	16 - 130
Indeno[1,2,3-cd]pyrene	6.4	J F2	32.0	35.0	J	ug/L		89	16 - 140
Isophorone	ND		32.0	29.9	J	ug/L		93	48 - 133
N-Nitrosodi-n-propylamine	ND		32.0	29.6	J	ug/L		93	49 - 120
N-Nitrosodiphenylamine	ND		32.0	33.5	J	ug/L		105	39 - 138
Naphthalene	ND		32.0	29.2	J	ug/L		91	45 - 120
Nitrobenzene	ND		32.0	28.9	J	ug/L		90	45 - 123
Pentachlorophenol	ND		64.0	78.3	J	ug/L		122	23 - 149
Phenanthrene	61	F1 F2	32.0	136	F1	ug/L		235	65 - 122
Phenol	ND		32.0	18.3	J	ug/L		57	16 - 120
Pyrene	45	J F1 F2	32.0	113	F1	ug/L		213	58 - 128

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*87*		*46 - 120*
Phenol-d5 (Surr)	*52*		*22 - 120*
p-Terphenyl-d14 (Surr)	*73*		*59 - 136*
2,4,6-Tribromophenol (Surr)	*96*		*41 - 120*
2-Fluorobiphenyl	*92*		*48 - 120*
2-Fluorophenol (Surr)	*66*		*35 - 120*

Lab Sample ID: 480-154189-1 MSD
Matrix: Water
Analysis Batch: 476375

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biphenyl	ND		32.0	30.0	J	ug/L		94	57 - 120	13	20
bis (2-chloroisopropyl) ether	ND		32.0	28.2	J	ug/L		88	28 - 121	6	24
2,4,5-Trichlorophenol	ND		32.0	26.7	J	ug/L		83	65 - 126	13	18
2,4,6-Trichlorophenol	ND		32.0	26.5	J	ug/L		83	64 - 120	7	19
2,4-Dichlorophenol	ND		32.0	26.5	J	ug/L		83	48 - 132	5	19
2,4-Dimethylphenol	ND		32.0	27.1	J	ug/L		85	39 - 130	5	42
2,4-Dinitrophenol	ND		64.0	75.0	J	ug/L		117	21 - 150	7	22
2,4-Dinitrotoluene	ND		32.0	30.2	J	ug/L		94	54 - 138	16	20
2,6-Dinitrotoluene	ND		32.0	28.2	J	ug/L		88	17 - 150	10	15
2-Chloronaphthalene	ND		32.0	26.5	J	ug/L		83	52 - 124	8	21

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

Lab Sample ID: 480-154189-1 MSD
Matrix: Water
Analysis Batch: 476375

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chlorophenol	ND		32.0	25.1	J	ug/L		78	48 - 120	8	25
2-Methylphenol	ND		32.0	25.3	J	ug/L		79	46 - 120	5	27
2-Methylnaphthalene	ND		32.0	28.9	J	ug/L		90	34 - 140	8	21
2-Nitroaniline	ND		32.0	27.5	J	ug/L		86	44 - 136	3	15
2-Nitrophenol	ND		32.0	25.9	J	ug/L		81	38 - 141	4	18
3,3'-Dichlorobenzidine	ND		64.0	62.6		ug/L		98	10 - 150	7	25
3-Nitroaniline	ND		32.0	28.0	J	ug/L		88	32 - 150	6	19
4,6-Dinitro-2-methylphenol	ND		64.0	80.8	J	ug/L		126	38 - 150	2	15
4-Bromophenyl phenyl ether	ND		32.0	28.5	J	ug/L		89	63 - 126	3	15
4-Chloro-3-methylphenol	ND		32.0	28.2	J	ug/L		88	64 - 127	8	27
4-Chloroaniline	ND		32.0	25.5	J	ug/L		80	16 - 124	13	22
4-Chlorophenyl phenyl ether	ND		32.0	27.5	J	ug/L		86	61 - 120	6	16
4-Methylphenol	ND		32.0	24.7	J	ug/L		77	36 - 120	2	24
4-Nitroaniline	ND		32.0	31.7	J	ug/L		99	32 - 150	3	24
4-Nitrophenol	ND		64.0	33.3	J	ug/L		52	23 - 132	22	48
Acenaphthene	63	F1 F2	32.0	70.0	F1 F2	ug/L		22	48 - 120	45	24
Acenaphthylene	ND		32.0	30.6	J	ug/L		96	63 - 120	11	18
Acetophenone	ND		32.0	27.6	J	ug/L		86	53 - 120	8	20
Anthracene	10	J F2	32.0	34.7	J F2	ug/L		77	65 - 122	20	15
Atrazine	ND		64.0	58.2		ug/L		91	50 - 150	9	20
Benzaldehyde	ND		64.0	54.9		ug/L		86	10 - 150	2	20
Benzo[a]anthracene	11	J F2	32.0	33.6	J F2	ug/L		72	43 - 124	36	15
Benzo[a]pyrene	9.2	J F2	32.0	29.0	J F2	ug/L		62	23 - 125	29	15
Benzo[b]fluoranthene	14	J F2	32.0	31.9	J F2	ug/L		56	27 - 127	38	15
Benzo[g,h,i]perylene	7.1	J F2	32.0	29.0	J F2	ug/L		68	16 - 147	29	15
Benzo[k]fluoranthene	ND	F2	32.0	30.5	J F2	ug/L		95	20 - 124	25	22
Bis(2-chloroethoxy)methane	ND		32.0	28.9	J	ug/L		90	44 - 128	2	17
Bis(2-chloroethyl)ether	ND		32.0	26.1	J	ug/L		81	45 - 120	7	21
Bis(2-ethylhexyl) phthalate	ND		32.0	25.7	J	ug/L		80	16 - 150	3	15
Butyl benzyl phthalate	ND		32.0	28.0	J	ug/L		88	51 - 140	5	16
Caprolactam	ND		64.0	26.6	J	ug/L		42	10 - 120	9	20
Carbazole	3.9	J	32.0	34.5	J	ug/L		96	16 - 148	14	20
Chrysene	14	J F2	32.0	36.1	J F2	ug/L		70	44 - 122	37	15
Dibenz(a,h)anthracene	ND		32.0	26.5	J	ug/L		83	16 - 139	9	15
Di-n-butyl phthalate	ND		32.0	29.0	J	ug/L		91	65 - 129	5	15
Di-n-octyl phthalate	ND		32.0	26.6	J	ug/L		83	16 - 150	4	16
Dibenzofuran	35	J F1 F2	32.0	50.4	J F1 F2	ug/L		48	60 - 120	43	15
Diethyl phthalate	ND		32.0	29.8	J	ug/L		93	53 - 133	7	15
Dimethyl phthalate	ND		32.0	30.4	J	ug/L		95	59 - 123	6	15
Fluoranthene	65	F1 F2	32.0	68.9	F1 F2	ug/L		11	63 - 129	70	15
Fluorene	36	J F1 F2	32.0	53.4	F1 F2	ug/L		53	62 - 120	49	15
Hexachlorobenzene	ND		32.0	28.0	J	ug/L		88	57 - 121	4	15
Hexachlorobutadiene	ND		32.0	23.4	J	ug/L		73	37 - 120	4	44
Hexachlorocyclopentadiene	ND		32.0	18.0	J	ug/L		56	21 - 120	9	49
Hexachloroethane	ND		32.0	23.0	J	ug/L		72	16 - 130	8	46
Indeno[1,2,3-cd]pyrene	6.4	J F2	32.0	27.9	J F2	ug/L		67	16 - 140	22	15
Isophorone	ND		32.0	29.2	J	ug/L		91	48 - 133	2	17
N-Nitrosodi-n-propylamine	ND		32.0	28.2	J	ug/L		88	49 - 120	5	31
N-Nitrosodiphenylamine	ND		32.0	29.7	J	ug/L		93	39 - 138	12	15

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

Lab Sample ID: 480-154189-1 MSD
Matrix: Water
Analysis Batch: 476375

Client Sample ID: MW-7D
Prep Type: Total/NA
Prep Batch: 475496

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	ND		32.0	28.4	J	ug/L		89	45 - 120	3	29
Nitrobenzene	ND		32.0	28.2	J	ug/L		88	45 - 123	2	24
Pentachlorophenol	ND		64.0	77.3	J	ug/L		121	23 - 149	1	37
Phenanthrene	61	F1 F2	32.0	60.4	F1 F2	ug/L		-1	65 - 122	77	15
Phenol	ND		32.0	16.4	J	ug/L		51	16 - 120	11	34
Pyrene	45	J F1 F2	32.0	59.4	F1 F2	ug/L		44	58 - 128	63	19

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*
Phenol-d5 (Surr)	*45*		*22 - 120*
p-Terphenyl-d14 (Surr)	*72*		*59 - 136*
2,4,6-Tribromophenol (Surr)	*88*		*41 - 120*
2-Fluorobiphenyl	*88*		*48 - 120*
2-Fluorophenol (Surr)	*63*		*35 - 120*

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

GC/MS VOA

Analysis Batch: 475702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-154189-2	BLIND DUP	Total/NA	Water	8260C	
MB 480-475702/7	Method Blank	Total/NA	Water	8260C	
LCS 480-475702/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 475786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-154189-3	FILTER VAULT EFF	Total/NA	Water	8260C	
480-154189-4	P2-2	Total/NA	Water	8260C	
480-154189-5	P2-3	Total/NA	Water	8260C	
MB 480-475786/7	Method Blank	Total/NA	Water	8260C	
LCS 480-475786/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 475804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-154189-1	MW-7D	Total/NA	Water	8260C	
480-154189-6	P2-4	Total/NA	Water	8260C	
MB 480-475804/7	Method Blank	Total/NA	Water	8260C	
LCS 480-475804/5	Lab Control Sample	Total/NA	Water	8260C	
480-154189-1 MS	MW-7D	Total/NA	Water	8260C	
480-154189-1 MSD	MW-7D	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 475496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-154189-1	MW-7D	Total/NA	Water	3510C	
480-154189-2	BLIND DUP	Total/NA	Water	3510C	
480-154189-3	FILTER VAULT EFF	Total/NA	Water	3510C	
480-154189-4	P2-2	Total/NA	Water	3510C	
480-154189-5	P2-3	Total/NA	Water	3510C	
480-154189-6	P2-4	Total/NA	Water	3510C	
MB 480-475496/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-475496/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-154189-1 MS	MW-7D	Total/NA	Water	3510C	
480-154189-1 MSD	MW-7D	Total/NA	Water	3510C	

Analysis Batch: 476375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-154189-1	MW-7D	Total/NA	Water	8270D	475496
480-154189-2	BLIND DUP	Total/NA	Water	8270D	475496
480-154189-3	FILTER VAULT EFF	Total/NA	Water	8270D	475496
480-154189-4	P2-2	Total/NA	Water	8270D	475496
480-154189-5	P2-3	Total/NA	Water	8270D	475496
480-154189-6	P2-4	Total/NA	Water	8270D	475496
MB 480-475496/1-A	Method Blank	Total/NA	Water	8270D	475496
LCS 480-475496/2-A	Lab Control Sample	Total/NA	Water	8270D	475496
480-154189-1 MS	MW-7D	Total/NA	Water	8270D	475496
480-154189-1 MSD	MW-7D	Total/NA	Water	8270D	475496

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

Client Sample ID: MW-7D
Lab Sample ID: 480-154189-1
Date Collected: 05/29/19 12:33
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	475804	06/03/19 12:13	KMN	TAL BUF
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		10	476375	06/06/19 01:10	RJS	TAL BUF

Client Sample ID: BLIND DUP
Lab Sample ID: 480-154189-2
Date Collected: 05/29/19 09:59
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	475702	06/01/19 15:29	AMM	TAL BUF
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		1	476375	06/06/19 01:37	RJS	TAL BUF

Client Sample ID: FILTER VAULT EFF
Lab Sample ID: 480-154189-3
Date Collected: 05/29/19 10:10
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	475786	06/03/19 12:31	AMM	TAL BUF
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		1	476375	06/06/19 02:05	RJS	TAL BUF

Client Sample ID: P2-2
Lab Sample ID: 480-154189-4
Date Collected: 05/29/19 09:59
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	475786	06/03/19 12:54	AMM	TAL BUF
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		1	476375	06/06/19 02:33	RJS	TAL BUF

Client Sample ID: P2-3
Lab Sample ID: 480-154189-5
Date Collected: 05/29/19 11:20
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	475786	06/03/19 13:18	AMM	TAL BUF
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		1	476375	06/06/19 03:01	RJS	TAL BUF

Client Sample ID: P2-4
Lab Sample ID: 480-154189-6
Date Collected: 05/29/19 10:40
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	475804	06/03/19 12:40	KMN	TAL BUF

Lab Chronicle

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

Client Sample ID: P2-4
Lab Sample ID: 480-154189-6
Date Collected: 05/29/19 10:40
Matrix: Water
Date Received: 05/29/19 15:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			475496	05/31/19 07:55	JMP	TAL BUF
Total/NA	Analysis	8270D		1	476375	06/06/19 03:29	RJS	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: 480-154189-1
Project/Site: Vandemark Chemical site

Laboratory: Eurofins TestAmerica, Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-20

Method Summary

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

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

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: Golder Associates Inc.
Job ID: 480-154189-1
Project/Site: Vandemark Chemical site

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-154189-1	MW-7D	Water	05/29/19 12:33	05/29/19 15:44	
480-154189-2	BLIND DUP	Water	05/29/19 09:59	05/29/19 15:44	
480-154189-3	FILTER VAULT EFF	Water	05/29/19 10:10	05/29/19 15:44	
480-154189-4	P2-2	Water	05/29/19 09:59	05/29/19 15:44	
480-154189-5	P2-3	Water	05/29/19 11:20	05/29/19 15:44	
480-154189-6	P2-4	Water	05/29/19 10:40	05/29/19 15:44	

Chain of Custody Record 314817

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Pat Martin	Site Contact:	Date:	COC No:
Company Name: Golder Associates Inc (GAI)	Tel/Fax:	Lab Contact: Brian J. Fischer	Carrier:	1 of
Address: 2430 N. Forest Rd #106	Analysis Turnaround Time			
City/State/Zip: Getzville, NY 14068	☐ CALENDAR DAYS ☐ WORKING DAYS			
Phone: 716-204-5880	TAT if different from Below			
Fax:	☒ 2 weeks			
Project Name: SNPE VanDeMark	☐ 1 week			
Site:	☐ 2 days			
PO# 09389168	☐ 1 day			

480-154189 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	8270D TCL SVOC	8260C TCL List	Sample Specific Notes:
MW-7D	5/29/19	1233	Grab	Water		N	Y	2	3	5 bottles total
MW-7D MS		1233					Y			
MW-7D MSD		1233					Y			
Blind Duplicate		0959					N			
Filter Vault Eff		1010								
PZ-2		0959								
PZ-3		1120								
PZ-4		1040								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: patrick_martin@golder.com jvernold@golder.com #(3,4

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: Golder	Date/Time: 5/29/19 1544	Received by:	Company: TAS	Date/Time: 5/29/19 1544
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/10/2019

Login Sample Receipt Checklist

Client: Golder Associates Inc.

Job Number: 480-154189-1

Login Number: 154189

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Stopa, Erik S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	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.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GOLDER
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

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