REPORT

2013 ANNUAL MONITORING / INSPECTION REPORT

SNPE- VDM Creek Bank Corrective Actions

VanDeMark Chemical Inc. – Lockport, New York

Order on Consent: R9-20080205-5

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February 2014 **Project No. 093-89168**

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Golder Associates

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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 2013, in support of the Operations and Maintenance Plan (OMP) that was prepared for the VDM Lockport facility by Golder (Golder, April 2013). This summary report describes the activities that were undertaken during 2013 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 1-1.

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 2013 monitoring period:

- Quarterly visual inspections for presence of DNAPL in the passive upgradient permeable collection trench installed along the grout cutoff wall alignment;
- Quarterly visual inspections for presence of DNAPL along the Eighteen Mile Creek bank areas where coal tar residuals have previously been observed;
- Semi-annual groundwater sampling of the four piezometers installed upgradient and downgradient of the grout cutoff wall;
- Semi-annual sampling of the water discharge from the collection trench Filter Sump overflow chamber;
- Semi-annual groundwater sampling of two representative monitoring wells 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 1-2 shows the locations of the areas both within the active VDM facility and to the south along the Eighteen Mile Creek Bank Area (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 QUARTERLY MONITORING AND INSPECTIONS

Due to the timing of the O & M Plan approval (May 2013) and coordination of final site restoration activities a first quarter spring inspection was not conducted. Therefore, in this initial year of inspection and monitoring only 3 of the 4 planned inspections were completed.

2.1 Passive DNAPL Collection Trench

Visual inspections were performed on the DNAPL collection trench by Golder personnel in May, July and September 2013. Based on the visual inspections performed by Golder personnel, the following observations were recorded and summarized on daily 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 2013 Inspection

DNAPL accumulation was not observed during the May 2013 inspection period within the DNAPL observation sumps located within the DNAPL collection trench based on visual inspection and use of a wooden probe stick inserted to 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 and OS-3, while OS-2 and OS-4 were dry. In addition, two (2) small test pits were hand dug into the collection stone along the lower Creek Bank Area trench alignment as follows:

- One test pit located approximately 14-ft. east of piezometer PZ-4 to a depth of 2.5-ft below ground surface (bgs); groundwater encountered at 2-ft bgs, no DNAPL observed based on absence of sheen on water surface; and,
- One test pit located approximately 11-ft. west of piezometer PZ-4 to a depth of 1.5-ft bgs; groundwater encountered at 10 to 12-inches bgs, no DNAPL observed based on absence of sheen on water surface.

2.1.2 July 2013 Inspection

DNAPL accumulation was not observed during the July 2013 inspection period within the DNAPL observation sumps located within the DNAPL collection trench based on visual inspection and use of a wooden probe stick inserted to 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 and OS-3, while OS-2 and OS-4 were dry. In the absence of DNAPL in the observation sumps and at the surface of the trench, test pits were not dug into the collection stone during the July 2013 inspection period.

2.1.3 September 2013 Inspection

DNAPL accumulation was not observed during the September 2013 inspection period within the DNAPL observation sumps located within the DNAPL collection trench based on visual inspection and use of a wooden probe stick inserted to 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 and OS-3, while OS-2 and OS-4 were

dry. In the absence of DNAPL in the observation sumps and at the surface of the trench, test pits were not dug into the collection stone during the September 2013 inspection period.

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, July and September, 2013. Based on the visual inspections performed by Golder personnel, the following observations were recorded and summarized on daily 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 2013 Inspection

Several locations of small quantities of coal tar accumulations were observed north of the slurry wall during the May 2013 inspection period, including:

- Two locations approximately 17 ft. and 9 ft. west of observation sump OS-1 (or 36 ft. and 27 ft., respectively, west of piezometer PZ-4);
- One location approx. 11-15 ft. west of piezometer PZ-4 (approx. 4-6 ft. north of collection trench gravel northern edge;
- One location approx. 5 ft. west of piezometer PZ-1 at the creek edge (most likely existing material); and,
- One location approx. 30 ft. west of piezometer PZ-1 approximately halfway down creek bank in an area of previously remediated coal tar outbreak.

All accumulations were observed to be less than 6 inches wide in any dimension and localized at the surface. In conjunction with the final site restoration activities scheduled in May 2013 with Sevenson (the Corrective Measures contractor), Golder recommended and SNPE agreed to the removal of the observed DNAPL accumulations for disposal in accordance with the original contract provisions. The removals were performed and the total amount removed for disposal amounted to less than 10 pounds of mixed DNAPL residuals mixed with soil.

2.2.2 July 2013 Inspection

New DNAPL accumulations were not observed during the July 2013 inspection period along the upgradient slope and toe area of the creek bank north of the DNAPL collection trench, as well as the downgradient portion adjacent to the creek; however, as a result of a severe weather event near the end of June 2013, the creek bank access road exhibited significant erosion, including:

- Section of washed out gravel along access road approx. 100 to 150 ft. from paved portion of upper access road;
- Washed out gravel along access road along downslope to lower creek area, with exposed grout curtain surface visible beneath gravel roadbed; and,
- Areas of gravel washout accumulated adjacent to the edge of the Creek.

In August 2013, Sevenson performed repairs to the creek bank access road area where significant erosion was noted during the July 2013 inspection period. Repairs included placement of new, coarser gravel along the steep downslope portion of the access road, as well as along the lower creek area along the north side of the creek bank and removal of accumulated gravel adjacent to the Creek.

2.2.3 September 2013 Inspection

Following the access road repairs at the site, Golder personnel returned in September 2013 for a follow-up inspection. The access road was observed to be in satisfactory condition with the placement and re-grading of new gravel. In addition, no new DNAPL accumulations were observed during the September 2013 inspection period along the upgradient slope and toe area of the creek bank north of the DNAPL collection trench, although heavy foliage at the time of inspection may have limited full observation of possible small outbreaks. New DNAPL accumulations were not observed along the downgradient portion adjacent to the Creek.

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, July and September, 2013 inspection periods. 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. Based on the visual inspections performed by Golder personnel, the following observations were recorded and summarized on daily written inspection reports, included in this report as Appendix A. Photos taken during the inspections were also recorded and are included as Appendix B.

2.3.1 May 2013 Inspection

During the May 2013 inspection period, there was no observation of DNAPL present on the surface of accumulated water in the overflow filter sump. There was no erosion or disturbance of the drainage sump filter media, with only negligible 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.

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 July 2013 Inspection

During the July 2013 inspection period, due to an access lock malfunction there were no observations made of the interior of the overflow filter sump structure.

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.

2.3.3 September 2013 Inspection

During the September 2013 inspection period, water was observed draining through a minor amount of muddy sediment on top of the filter media. A wooden probe stick was used to push into the filter sand with no evidence of coal tar or DNAPL sheen present. There was no erosion or disturbance of the drainage sump filter media, and the overflow treated water chamber of the sump structure was clear and free of any sediment or solids.

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.

3.0 SEMI-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

Piezometer development and semi-annual groundwater sampling was performed 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 3-1) as described below.

3.2.1 Piezometer Development

The 2-inch diameter piezometers were developed in June 2013 by bailing using dedicated polyethylene bailers to remove drill cuttings and water introduced into the formation during installation. All piezometers installed along the creek bank were developed, with the exception of PZ-1, which was dry or contained a negligible amount of standing water at the time of development and sampling activities.

Development of the remaining piezometers continued until field measured turbidity readings stabilized and further reductions were not observed in the extracted groundwater and pH, specific conductivity and temperature as measured in the field stabilized. It should be noted that during development of piezometer PZ-4, the pH readings were noted to be on the high (basic) side of neutral (above 10.0 pH) and may be attributed to bentonite or grout contamination in the borehole during the installation process.

Well development data, including the duration of the development process, methods employed, and the volume of water removed, are included on the Development Field Logs provided in Appendix C. Water purged from the piezometers during the development 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 development, groundwater samples were collected from each of the piezometers to assess the general groundwater quality up gradient and down gradient of the grout wall and bedrock cutoff system. Pre-sampling activities included determining the piezometer's water elevation, a piezometer-maintenance check, and non-aqueous phase liquid (NAPL) determination. All piezometers were measured, however piezometer PZ-1 was found to be dry during sampling activities and no measurements could be obtained.

After completion of these pre-sampling activities, the piezometers were purged of three well volumes (or until dry). A sample of 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 chain of custody procedures to Adirondack Environmental Services, Inc. (Adirondack) in Albany, New York, a New York State Department of Health Environmental Laboratory Accreditation Program (ELAP) certified laboratory, within 24 hours of collection. 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 each semi-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 sampling logs provided in Appendix C.

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 is the first year of Site monitoring following the completion of the Corrective Measures, therefore the results presented in Table 3-1 establish a baseline set of groundwater quality data.

The results of the piezometer sampling and analyses identified one VOC, (chloroform in PZ-2) and SVOCs, (methyphenol compounds and phenol in PZ-3 and PZ-4) in one or both sampling events as exceeding the NYSDEC Part 703 groundwater quality standards (GWQS). No other compounds were detected above the GWQS. Golder will assess the piezometer groundwater data for trends and evaluate the effectiveness of the Corrective Measures when additional analytical data is collected during future annual monitoring events.

3.3 Plant Monitoring Well Sampling & Analytical Results

Semi-annual groundwater sampling was performed on two (2) existing monitoring wells, MW-3D and MW-7D, located within the operational portion of the VDM facility at the top of the escarpment, to assess the general groundwater quality at these up gradient locations on the top of the escarpment. Monitoring well MW-3D was installed in 1999 by Dames and Moore and MW-7D was installed in 2006 by Benchmark as part of voluntary site investigations associated with the sale of the facility. Refer to Figure 1-2 for their location.

During the June 2013 sampling period, plant well MW-7D was sampled and inadvertently labeled as plant well MW-2D on the chain of custody due to faded well identification tags in the field. Wells MW-2D and MW-7D are located within approximately 10-feet of each other and are installed to similar depths into the

bedrock formation. Future monitoring events will continue to sample MW-7D (in lieu of MW-2D) due to its accessibility and nearly identical installation characteristics.

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 of 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 chain of custody procedures to Adirondack within 24 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 first year of Site monitoring following the completion of the Corrective Measures, therefore the results presented in Table 3-1 establish a baseline set of groundwater quality data.

The results of the monitoring well sampling and analyses identified six VOCs in one or both monitoring wells as exceeding the NYSDEC Part 703 GWQS. No SVOCS were detected in the monitoring wells above the GWS. Golder will assess the Plant monitoring well groundwater data for trends and evaluate potential impacts of the upgradient groundwater on the Corrective Measures when additional analytical data is collected from future annual monitoring events.

At the conclusion of each semi-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 sampling logs provided in Appendix C.

3.4 Filter Sump Structure Sampling & Analytical Results

Semi-annual sampling was performed on the collection trench drainage/filtration system overflow chamber as part of the annual site inspection activities performed by Golder personnel in 2013. 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

samples were then collected for chemical analysis by direct fill methods. The aqueous samples were shipped via courier under proper chain of custody procedures to Adirondack within 24 hours of collection.

Samples collected from the collection trench drainage/filtration system 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 and the analytical results are presented in Table 3-1. This is the first year of Site monitoring following the completion of the Corrective Measures, therefore the results presented in Table 3-1 establish a baseline set of data. As additional analytical data is collected during future annual monitoring periods, Golder will assess the data for trends and evaluate the effectiveness of the Corrective Measures as appropriate.

No VOCs or SVOCs were detected above the GWQS in the Filter Sump effluent samples.

At the conclusion of each semi-annual sampling event, the physical condition of the collection vault was noted and any recommended repairs or maintenance required (if necessary) was documented on the sampling logs provided in Appendix C.

4.0 MAINTENANCE AND CLEAN-OUT ACTIVITIES

As described in Section 2.0 above, the inspections conducted in 2013 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.

Visual evidence of minor DNAPL accumulations, however, were observed during the May 2013 inspection event as noted in Section 2.2.1 and were addressed as described below.

4.1 Creek Bank Area

The results of the May inspection described in Section 2.2.1 indicated that the lower Creek Bank Area had accumulated small quantities of DNAPL residuals that were not present at the conclusion of remedial activities in November of 2012. Due to the accessibility of these accumlations and previous scheduling of the remedial contractor to be on-site for final restoration, Sevenson was tasked to manually remove and dispose of the accumulated DNAPL residuals and associated impacted soils. The five small areas of DNAPL accumulation noted in the May 2013 inspection report (Appendix A) were all surficial and readily removed with a shovel and placed in a 5-gallon bucket. This material was estimated to be less than 10 pounds total and transferred into an open top drum. The drum was disposed of at Modern Landfill as a non-hazardous industrial waste under the approved coal tar/soil profile previously obtained for the corrective measures work performed in the fall of 2012.

Subsequent to removal of impacted residuals, topsoil imported from a virgin off-site source was placed in the area of the removals to restore the area to pre-excavation grades and seeded to conform to the overall site restoration specifications.

5.0 REFERENCES

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

TABLES

SNPE-VANDEMARK SITE
2013 GROUNDWATER AND VAULT MONITORING RESULTS
LOCKPORT, NY

Lab ID	NYSDEC Part 703 Groundwater Quality Standards	130617007-001	130930005-006B	130617007-003	130617007-002	130930005-001B	130930005-002B	130617007-004	130930005-003B	130617007-005	130930005-004B	130617007-006	130930005-005B	130617007-007
Sample Date		6/13/2013	9/26/2013	6/13/2013	6/13/2013	9/26/2013	9/26/2013	6/13/2013	9/26/2013	6/13/2013	9/26/2013	6/13/2013	9/26/2013	6/13/2013
Sample ID		Vault Effluent	Vault Effluent	MW-3D	MW-7D+	MW-3D	MW-7D	PZ-2	PZ-2	PZ-3	PZ-3	PZ-4	PZ-4	Dup (MW-3D)
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
Volatile Organics by GC/MS (US EPA Method 8260B)														
1,1,1-Trichloroethane	5	-	-	**11**	**19**	**13**	**71**	-	-	-	-	-	-	**11**
1,1-Dichloroethane	5	-	-	**87**	**79**	**120**	**260**	-	-	-	-	-	-	**89**
1,1-Dichloroethene	5	-	-	**27**	**21**	**38**	**70**	-	-	-	-	-	-	**27**
1,2-Dichloroethane	0.6	-	-	**17**	**2** J	**23**	-	-	-	-	-	-	-	**17**
2-Butanone	50	-	-	-	-	-	-	-	35	-	-	-	-	-
Acetone	NS	1.8 J, B	-	-	-	-	-	-	12	-	8.6 J	8.3 J, B	-	-
Chloroethane	5	-	-	-	**20**	-	**58**	-	-	-	-	-	-	-
Chloroform	7	4.2 J	-	-	-	-	-	**12**	**14**	-	-	-	-	-
Ethylbenzene	5	-	-	-	2.9 J	-	-	-	-	-	-	-	-	-
Vinyl chloride	2	-	-	**17**	**5.3** J	**26**	**23**	-	-	-	-	-	-	**18**
Semivolatile Organics by GC/MS (US EPA Method 8270C)														
2-Methylnaphthalene	NS	-	-	-	-	-	1.1 J	-	-	-	-	-	-	-
4-Methylphenol	1*	-	-	-	-	-	-	-	-	-	**2.6** J	-	-	-
4-Methylphenol & 3-Methlyphenol	1*	-	-	-	-	-	-	-	-	-	-	**5.9** J	-	-
Acenaphthene	NS	-	-	2.5 J	27	2.9 J	28	-	1.4 J	-	3.7 J	-	-	2.3 J
Acenaphthylene	NS	-	-	-	1.2 J	-	-	-	-	-	-	-	-	-
Anthracene	NS	-	-	-	-	-	-	-	-	1.1 J	- J	-	-	-
Benz(a)anthracene	NS	-	-	-	-	-	-	-	2.0 J	1.3 J	- J	-	-	-
Benzo(a)pyrene	NS	-	-	-	-	-	-	-	1.6 J	1 J	- J	-	-	-
Bis(2-ethylhexyl)phthalate	5	-	-	-	-	-	2.5 J	1.5 J	1.1 J	1.2 J	- J	-	-	-
Carbazole	NS	-	-	-	2.3 J	1.2 J	5.1	-	-	-	-	-	-	-
Chrysene	NS	-	-	-	-	-	-	1.1 J	2.2 J	1.4 J	- J	-	-	-
Dibenzofuran	NS	-	-	-	16	1.2 J	18	-	-	-	-	-	-	-
Di-n-butyl phthalate	50	1.2 J, B	-	2 J, B	1.5 J, B	1.4 J	2.5 J	-	-	-	-	-	-	-
Fluoranthene	NS	-	-	-	-	-	1.5 J	1.1 J	2.6 J	1.6 J	- J	-	-	-
Fluorene	NS	-	-	-	8.9	-	9.7	-	-	-	-	-	-	-
Naphthalene	NS	-	-	-	8.2	-	9.8	-	1.5 J	-	3.4 J	4.3 J	-	-
Phenanthrene	NS	-	-	-	1.8 J	-	4.2 J	1.2 J	3.3 J	3.3 J	2.4 J	-	-	-
Phenol	1*	-	-	-	-	-	-	-	-	-	**130**	**260**	**1.4** J	-
Pyrene	NS	-	-	-	-	-	1.1 J	1.9 J	4.4 J	2.8 J	-	-	-	-

Footnotes:

Analyses performed by Adirondack Environmental Services Inc.

- Compound not detected above the Analytical Method Detection Limit

BOLD = Value exceed the groundwater quality standards.

+ This sample was incorrectly labeled as MW-2D on chain of custody and laboratory report

* = The sum of all phenols

NV = No GW Quality Standard

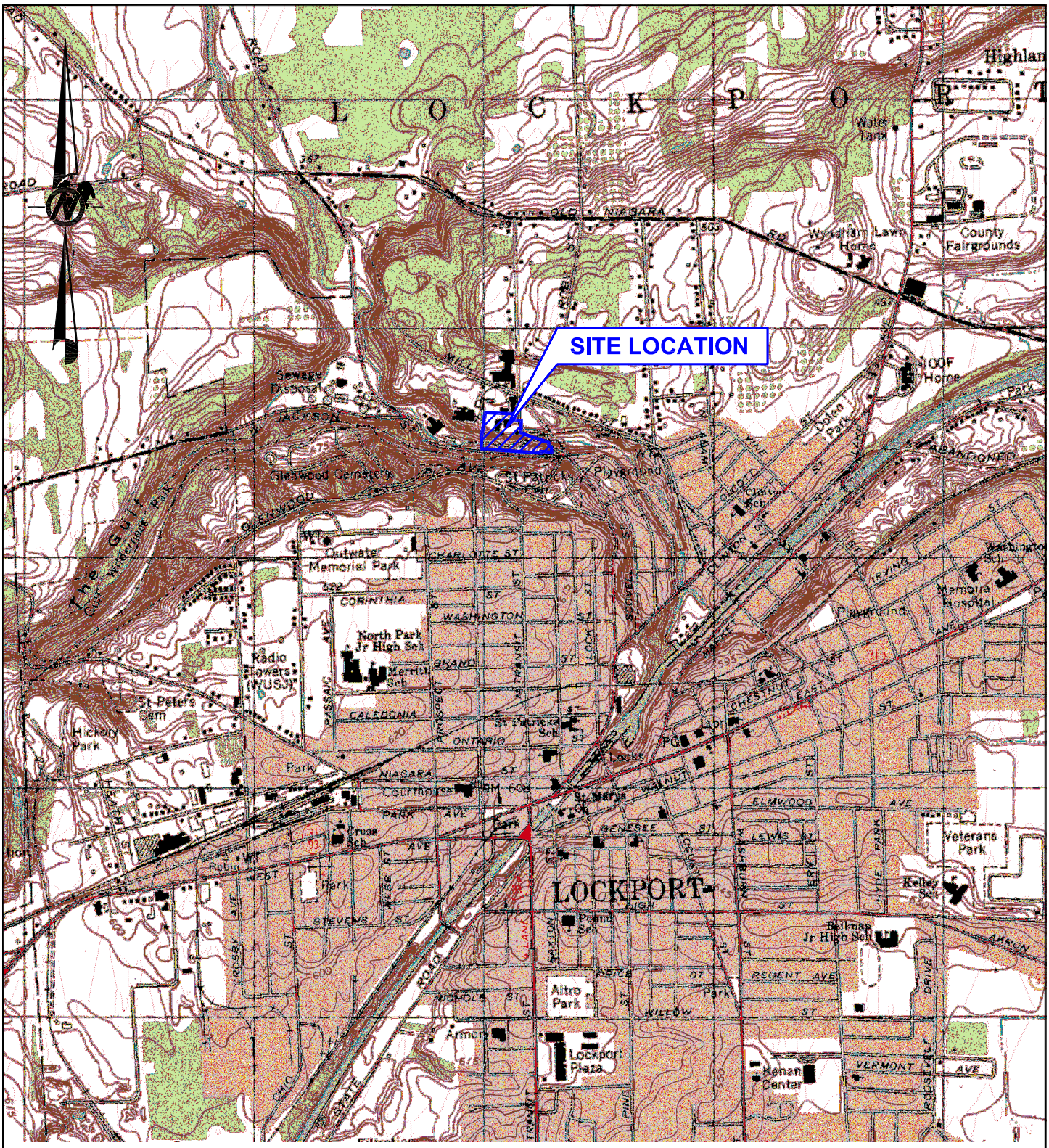
Qualifications:

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.

Table by: AML/RJM
Checked by: DMP
Reviewed by: PTM

FIGURES



REFERENCES

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

2000 0 2000
SCALE FEET

NJ Authorization #24GA28029100

Golder Associates
Buffalo, New York

SCALE	AS SHOWN
DATE	02/04/11
DESIGN	AML
CADD	GLS
CHECK	
REVIEW	

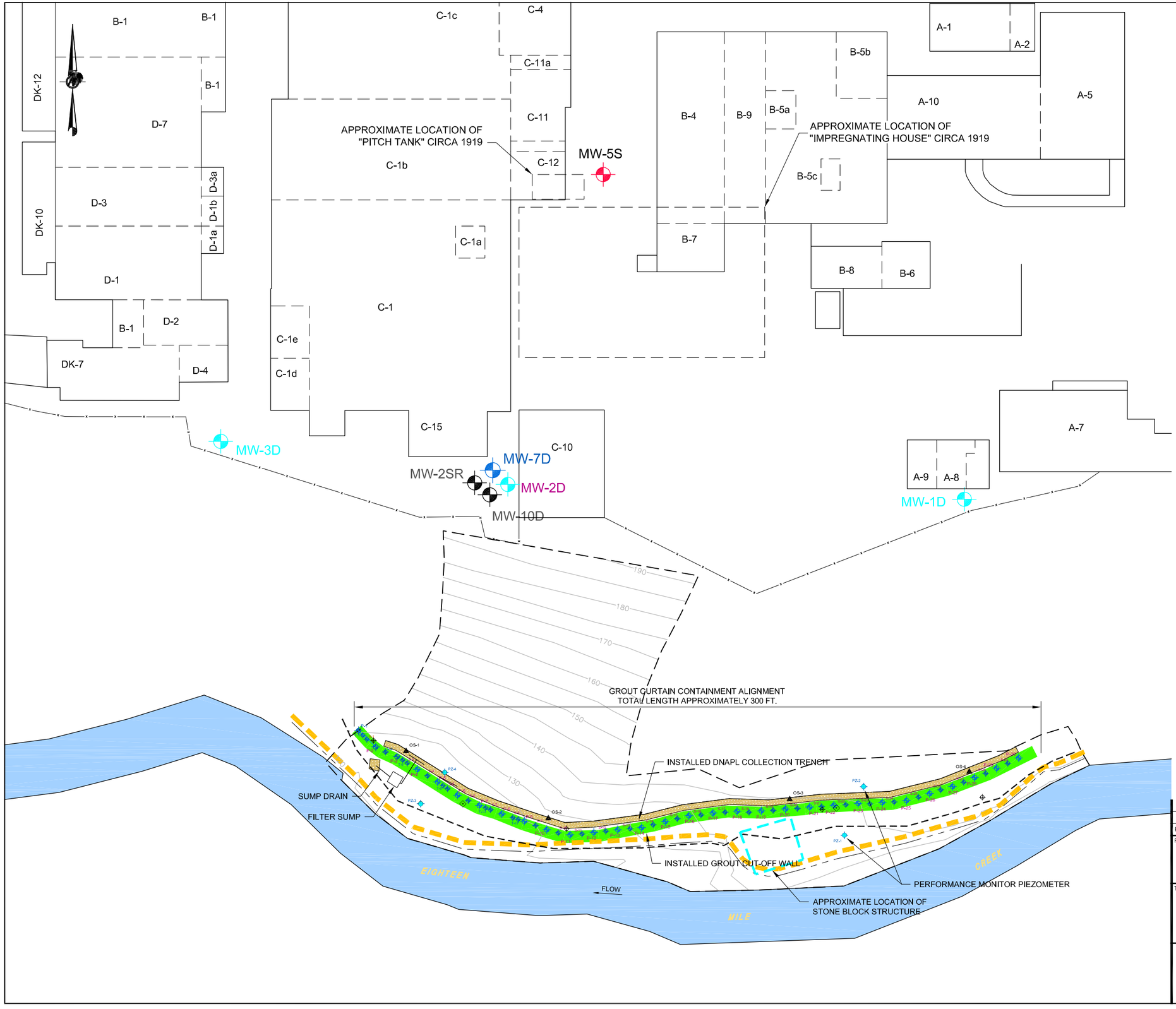
FILE No. 09389168A011
PROJECT No. 093-89168 REV. 0

TITLE

SITE LOCATION MAP

SNPE - VANDEMARK CHEMICAL

FIGURE 1-1



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

REFERENCE

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.

SCALE 20 0 20 40 FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
1	09/30/13	AML	Corrected the layout and IDs of several GW wells west of Building C-10	AML	PTM	PTM

PROJECT

SNPE - VANDEMARK
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE

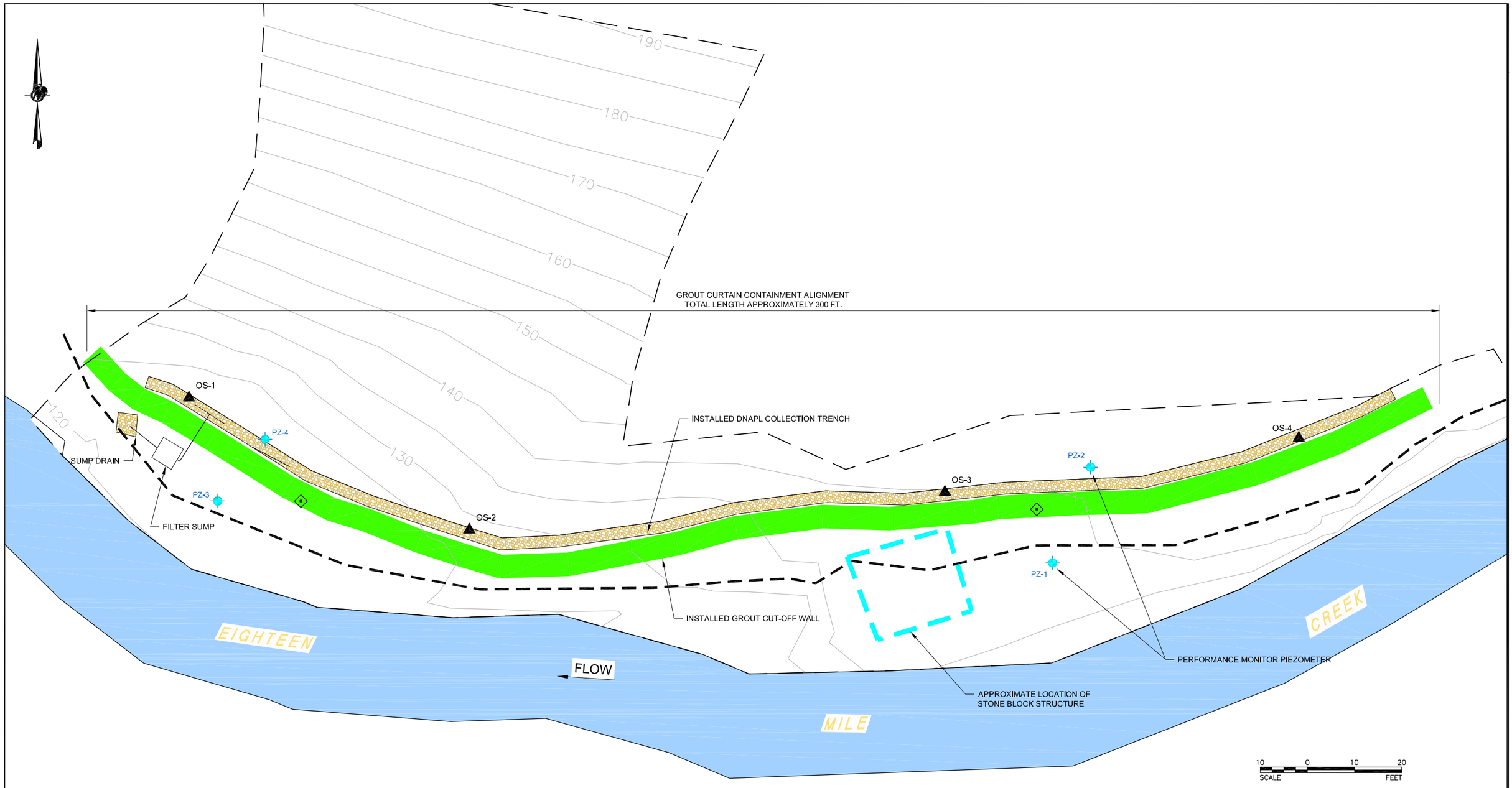
OMP SITE PLAN - VDM PLANT & CREEK BANK AREA

NJ Authorization #24GA28029100

Golder Associates
Mt. Laurel, New Jersey

PROJECT No.	093-89168		FILE No.	09389168A030	
DESIGN	PTM	04/16/13	SCALE	AS SHOWN	REV. 0
CADD	MJS	04/16/13			
CHECK	AML	04/17/13			
REVIEW					

FIGURE 1-2



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

REFERENCE

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.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

SNPE - VANDEMARK
CREEK BANK AREA CORRECTION MEASURES PROJECT
LOCKPORT, NEW YORK

TITLE

CREEK BANK AREA SITE PLAN
OPERATION & MAINTENANCE PLAN

NJ Authorization #24GA28029100
Golder Associates
Mt. Laurel, New Jersey

PROJECT No.		093-89168	FILE No.		09389168A028
DESIGN	PTM	12/11/12	SCALE	AS SHOWN	REV. 0
CADD	AML	03/28/13			
CHECK	PTM				
REVIEW	DCW				

FIGURE 3-1

APPENDIXA

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: 05/09/13

WEATHER: TEMPERATURE: 65 LOW: @ HIGH @
CLOUD COVER PTY CLOUDY PRECIPITATION NONE WIND

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN / AARON LANGE

SUMMARY OF INSPECTION OBSERVATIONS:

(1) COAL TAR OUTBREAKS NORTH of SLURRY WALL OBSERVED:

- 17' WEST of OS-1 (36' WEST of PZ-4) – IN LINE W/OS-1
- 9' WEST of OS-1 (27' WEST of ") – IN LINE W/OS-1
- 11-15' WEST of PZ-4 (APPROX. 4-6' NORTH of ~~PZ~~ EDGE of CHANNEL)
- 3' NORTH of PZ-4
- 10-12' EAST of PZ-4 (3-4' NORTH of EDGE of GRAVEL)
- 5' WEST of PZ-1 @ EDGE of CREEK (PROBABLY NOT NEW MATERIAL)
- 30 " " " APPLY HAND PUMP DOWN BANK IN AREA of PREVIOUSLY REMOVED OUTBREAK

TEST PITS IN DNAPL COLLECTION TRENCH

- DUG ONE PIT 14' EAST of PZ-4 TO A DEPTH of 2.5' BGS – HIT GW AT 2' BGS – NO SHEEN OR TAR OBSERVED (STAN R. PRESENT)
- DUG SECOND PIT 11' WEST of PZ-4 TO A DEPTH of 1.5' BGS – GW @ 10-12" BGS NO DNAPL OBSERVED (GW OBSERVED VISUAL ASSESSMENT) NO SHEEN

GOLDER ACTIVITIES AND TEST RESULTS:

DNAPL OBSERVATION SUMPS

OS-1: GW ~3.5' DEEP (AT 1-2" BGS) PROBED TO BOTTOM – NO DNAPL ENCOUNTERED
OS-2: DRY. PROBED TO BOTTOM, NO DNAPL OBSERVED
OS-3: GW ~10" DEEP PROBED TO BOTTOM – NO DNAPL ENCOUNTERED/OBSERVED
OS-4: DRY PROBED TO BOTTOM – NO DNAPL ENCOUNTERED/OBSERVED

FILTER SUMP

OPENED HATCH – FILTER BED IN EXCELLENT CONDITION, NO OBSERVED DNAPL ON SURFACE. NEGLIGIBLE SEDIMENT. OUTFLOW SECTION CLEAR; CLEAN.

Golder Associates

SUBMITTED BY: Patrick J. Martin

GOLDER FORM: R4/0609
(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: 07/12/13

WEATHER: TEMPERATURE: 73 LOW: ____ @ ____ HIGH ____ @ ____
CLOUD COVER: PTLY CLOUDY PRECIPITATION: NONE WIND: ____

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN

SUMMARY OF FIELD INSPECTION OBSERVATIONS:

① ACCESS RD HAS SOME AREAS OF SIGNIFICANT EROSION - I
- APPROX 100-150' FROM PAVED ROAD
- ON STEEP DOWNSLOPE TO LOWER CREEK

② DNAPL OBSERVATION SUMPS - PROBED WITH WOOD STICK
OS-1 APPROX 3.5' OF WATER - NO DNAPL PRESENT
OS-2 DRY - STONE OBSERVED @ BOTTOM
OS-3 - APPROX 8" WATER - NO DNAPL
OS-4 - DRY NO DNAPL (STONE OBSERVED @ BOTTOM)

③ OBSERVATION OF UPGRADIENT SLOPE / TOE AREA (NORTH OF DNAPL COLLECTION TRENCH)
- NO NEW DNAPL ACCUMULATIONS OBSERVED

④ OBSERVATION OF DOWNGRADIENT SLOPE ADJACENT TO CREEK
- NO NEW DNAPL ACCUMULATIONS OBSERVED

GOLDER ACTIVITIES AND TEST RESULTS:

Golder Associates

SUBMITTED BY: Patrick J. Martin

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: 09/26/13

WEATHER: NONE
TEMPERATURE: 65 LOW: _____ @ _____ HIGH _____ @ _____
CLOUD COVER
PRECIPITATION —
WIND —

GOLDER PERSONNEL ON SITE:

PATRICK MARTIN

SUMMARY OF INSPECTION OBSERVATIONS:

(1) ACCESS ROAD IN EXCELLENT CONDITION FOLLOWING REPAIRS PERFORMED IN AUGUST 2013 (PHOTOS TAKEN)

(2) DNAPL OBSERVATION SUMPS - PROBED W/WOOD POLE
OS-1: APPROX 3.5' OF WATER - NO DNAPL PRESENT ; NO SHEEN
OS-2: DRY - NO DNAPL (STONE OBSERVED @ BOTTOM)
OS-3: APPROX 6" WATER - NO DNAPL @ BOTTOM
OS-4: DRY - NO DNAPL (STONE @ BOTTOM)

(3) COLLECTION SUMP: HATCH OPENED, WATER IS DRAINING THROUGH SMALL AMOUNT OF ~~SED~~ MUDDY SEDIMENT ON TOP OF FILTER SAND PROBE WAS USED TO DIG INTO SAND ; NO COAL TAR OR SHEEN WAS NOTED - CLEANOUT DISCHARGE CHAMBER IS CLEAR.

(4) OBSERVATION OF UPGRADIENT SLOPE ; TOE AREA (NORTH OF DNAPL COLLECTION TRENCH)
- NO NEW DNAPL ACCUMULATIONS OBSERVED - HEAVY FOLIAGE GROWTH MAY HAVE OBSCURED SMALL OUTBREAKS

(5) OBSERVATION OF DOWNGRADIENT SLOPE ADJACENT TO CREEK
- NO NEW DNAPL ACCUMULATIONS OBSERVED

GOLDER ACTIVITIES AND TEST RESULTS:

Golder Associates

SUBMITTED BY: Patrick J. Martin

APPENDIX B

INSPECTION PHOTOGRAPHS

2013 Annual Report: VanDeMark Chemical Creek Bank Operations & Monitoring Plan

PHOTO 1

Observed coal tar outbreak along embankment on north side of collection trench during May 2013 inspection event.

PHOTO 2

Test pit hand dug into DNAPL collection trench gravel during May 2013 inspection event; groundwater observed with no coal tar or sheen present on water surface.

PHOTO 3 Collection trench filter sump hatch during May 2013 inspection event.	
PHOTO 4 Filter bed material on floor of filter sump in excellent condition during May 2013 event. No observed DNAPL on filter surface and negligible sediment was present.	

PHOTO 5 Access road erosion observed along downslope to lower creek area during July 2013 inspection event, looking southwest.	
PHOTO 6 Access road erosion observed along downslope to lower creek area during July 2013 inspection event, with exposed grout curtain surface visible beneath gravel roadbed, looking southwest.	

PHOTO 7 Condition of access road observed at lower creek area during July 2013 inspection event, with piezometers and filter sump at west end of collection trench alignment, looking west.	
PHOTO 8 Condition of embankment toe on north side of collection trench alignment observed at lower creek area during July 2013 inspection event, with no new DNAPL accumulations observed, looking north.	

PHOTO 9 Condition of downslope access road as observed during September 2013 monitoring event, following repairs made in August 2013, looking southwest.	
PHOTO 10 Condition of lower access road as observed during September 2013 monitoring event, following repairs made in August 2013, looking west.	

PHOTO 11 Repaired condition of downslope access road as observed during September 2013 monitoring event, following repairs made in August 2013, looking east.	
PHOTO 12 Repaired condition of lower creek area along north side of creek bank as observed during September 2013 monitoring event, following repairs made in August 2013, looking south.	

APPENDIX C

PIEZOMETER DEVELOPMENT AND SAMPLE COLLECTION FORMS

JOB NO. | CLIENT: Group SNPE | LOCATION: VAN DERMARK

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. B-2

SHEET 3 OF 3

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH						

DRILLING CONTR. _____ No. 190052

DATUM _____ ELEVATION _____

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
MW-2D						40	
			Grade			1	
						2	
						3	
						4	
			4-inch STEEL CASING			5	
						6	
			18'			7	
		20'				8	
			24.5 FT			9	
						50	
			3 7/8-inch borehole			1	
SAND Pack 18' to 50'						2	
			20 SLOT 2-inch DIAMETER PVC Screen			3	
						4	
		50'				5	
MW-2D finished 8/16/99						6	
						7	
						8	
						9	
						0	

Red Shale

GRAY SAND STONE — MOTTLED WITH ODOR from 30 FT TO 50 FT bg

MW-2S 2-INCH PVC RISER

GRADE

GROUT 1.0 - 1.5 FT

BENTONITE SEAL 1.5 - 3.5 bg

SAND Pack 3.5' TO 18' bg

4 FT TOP OF 10-SLOT 2-INCH DIAMETER PVC SCREEN

SAND Pack

18 FT

Bedrock

MW-2S finished 8/16/99 when PVC CASING + RISER INSTALLED IN borehole

BY _____ DATE _____ CHK'D BY _____

JOB NO. | CLIENT: Group SNPE | LOCATION: VanDenmark

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. B-3

SHEET 3 OF 3

					DRILLING START TIME	DRILLING FINISH TIME
WATER LEVEL						
TIME						
DATE					DATE	DATE
CASING DEPTH						

DRILLING CONTR. _____ DATE _____ BY _____ CHK'D BY _____

No. 190050

DATUM ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	BLOWS/FT. SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
						40	
						1	
						2	
						3	
						4	
						45	
						6	
						7	
						8	
						9	
						0	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	
						0	

MW-3D

Grade

2-inch PVC RISER

STEEL 4-INCH CASING

Bedrock 21.5'

25'

30 FT

10 SLOT 2-INCH PVC Screen 30-45'

SAND PACK 25' TO 45'

2 3 7/8-INCH borehole

45'

MW-3D finished on 8/16/99 with PVC Screen + RISER INSTALLED IN borehole.

SURFACE CONDITIONS:

GRAY SANDSTONE. WATER NOTED in return air

45 FT is BOTTOM of borehole

828.1 (3) (REV. 1-80)

Golder Associates

WELL DEVELOPMENT FIELD RECORD

JOB NAME VanDeMark 04M

JOB NO.

WELL NO. PZ-1

DEVELOPED BY A. Lange

DATE OF INSTALL. _____ SHEET 1 OF _____

STARTED DEVEL. 6-13-13 / — (DATE / TIME)

COMPLETED DEVEL. _____ / _____ (DATE / TIME)

W.L. BEFORE DEVEL. 10.50 / 6-13-13 / 1342 (DEPTH / DATE / TIME)

AFTER DEVEL. _____ / _____ / _____ (DEPTH / DATE / TIME)

WELL DEPTH: BEFORE DEVEL. 10.60

AFTER DEVEL. _____ WELL DIA. (In) _____

STANDING WATER COLUMN (FT.) 0.10

STANDING WELL VOLUME _____ gal.

SCREEN LENGTH _____

DRILLING WATER LOSS _____ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	OTHER	REMARKS
		= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: Dry - well not developed

NOTES:

WELL DEVELOPMENT FIELD RECORD

JOB NAME Van DeMark O&M
JOB NO. 093-89168
WELL NO. PZ-2
DEVELOPED BY A. Lange
DATE OF INSTALL. 11-13-12
SHEET 1 OF 1
STARTED DEVEL. 6-13-13 / 1218 (DATE / TIME)
COMPLETED DEVEL. 06-13-13 / 1311 (DATE / TIME)
W.L. BEFORE DEVEL. 6.38 / 6-13-13 / 0932 (DEPTH / DATE / TIME)
AFTER DEVEL. / / (DEPTH / DATE / TIME)
WELL DEPTH: BEFORE DEVEL. 10.53
AFTER DEVEL. 10.53
WELL DIA. (In) 1.0"
STANDING WATER COLUMN (FT.) 4.15
STANDING WELL VOLUME _____ gal.
SCREEN LENGTH 3'
DRILLING WATER LOSS _____ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	OTHER	REMARKS
6-13-13 / 1224	1.0	1189	~~8.7~~	6.80	temp: 55°	very turbid
1230	1.0~~.75~~	1193	54.8	6.76		853 NTU
1237	0.~~25~~	1207	54.8	6.79		690 NTU
1245	0.5	1206	54.9	6.79		514 NTU
1254	0.5	1206	54.8	6.78		429 NTU
1301	0.5	1205	54.6	6.76		348 NTU
1306	0.5	1204	54.6	6.76		288 NTU
1311	0.5	1205	54.6	6.76		243 NTU
		5.0 = TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: _____

NOTES:
~~1 well vol: 0.68~~
1 well vol: 0.17 gal.

WELL DEVELOPMENT FIELD RECORD

JOB NAME: Van DeMark O+M
JOB NO. 093-89168
WELL NO. PZ-3
DEVELOPED BY: A. Lange
DATE OF INSTALL. ____
SHEET 1 OF 1
STARTED DEVEL. 6-13-13 / 1404 (DATE / TIME)
COMPLETED DEVEL. 6-13-13 / 1508 (DATE / TIME)
W.L. BEFORE DEVEL. 4.58 / 6-13-13 / 1400 (DEPTH / DATE / TIME)
AFTER DEVEL. ____ / ____ / ____ (DEPTH / DATE / TIME)
WELL DEPTH: BEFORE DEVEL. 10.27
AFTER DEVEL. ____
WELL DIA. (In) 1.0
STANDING WATER COLUMN (FT.) 5.69
STANDING WELL VOLUME ____ gal.
SCREEN LENGTH ____
DRILLING WATER LOSS ____ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS: SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	(NTU) Turb. OTHER	REMARKS
6-13-13/ 1410	0.5	4.41	56.6	7.97	*OR	*out of range
1415	0.5	4.32	56.6	7.65	*OR	
1418	0.5	4.35	56.6	7.49	*OR	
1422	0.75	4.34	56.6	7.43	*OR	
1426	0.75	4.36	56.4	7.39	865	
1432	0.75	4.32	56.4	7.38	824	
1439	0.5	4.29	56.6	7.38	545	
1443	0.5	4.30	56.6	7.41	656	
1448	0.5	4.29	56.6	7.42	656	
1452	0.5	4.26	56.6	7.38	426	
1456	0.5	4.25	56.6	7.36	336	
1500	0.5	4.22	56.6	7.33	234	
1504	0.5	4.22	56.6	7.34	176	
1508	0.5	4.21		7.33	157	
		= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: ____

NOTES:
1 well vol: 0.23'

WELL DEVELOPMENT FIELD RECORD

JOB NAME VanDeMark O+M
JOB NO. 093-89168
WELL NO. PZ-4
DEVELOPED BY A. Lange
DATE OF INSTALL. ____ SHEET ___ OF ___
STARTED DEVEL. 6-13-13 / 1527 (DATE / TIME)
COMPLETED DEVEL. ____ / ____ (DATE / TIME)
W.L. BEFORE DEVEL. 6-13-13 / 1523 / 5.05 (DEPTH ← DATE ← TIME)
AFTER DEVEL. ____ / ____ / ____ (DEPTH / DATE / TIME)
WELL DEPTH: BEFORE DEVEL. 9.12
AFTER DEVEL. ____ WELL DIA. (In) ____
STANDING WATER COLUMN (FT.) 4.07
STANDING WELL VOLUME ____ gal.
SCREEN LENGTH ____
DRILLING WATER LOSS ____ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	Turb NTU OTHER	REMARKS
6-13-13 / 1533	0.5	2.24	55.5	10.20	*OR	*out of range, slight sheen
1536	0.5	2.15	55.5	10.48	*OR	" " "
1541	0.5	2.19	55.7	10.96	*OR	" " "
1545	0.5	2.35	55.5	11.40	591	Slight sheen
1548	0.5	2.50	55.5	11.60	463	Slight sheen
1552	0.5	2.64	55.5	11.74	368	" "
1558	0.5	2.69	55.5	11.80	278	
1603	0.5	2.70	55.5	11.84	272	
1608	0.5	2.67	55.5	11.85	286	
1611	0.5	2.64	55.5	11.83	282	
1615	0.5	2.33	55.5	11.77	281	
1618	0.5	2.30	55.5	11.77	266	
1621	0.5	2.29	55.5	11.76	208	
1626	0.5	2.30	55.5	11.77	208	
		= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: ____

NOTES:
1 well vol: 0.17

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VanDeMark O&M GAI PROJECT NO. 093-89168

SAMPLE ID. Vault effluent 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 (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	060131 13	TIME (24 HR CLOCK)	0948	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	direct fill	DEDICATED-(Y/N)	NA	FILTERED (Y/N)	NA
SAMPLING DEVICE MATERIAL	NA	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)	_____	_____	_____	7.43
SPEC. COND.(uS)	_____	_____	_____	801
TEMPERATURE (C)	_____	_____	_____	17.3
OTHER (SPECIFY)	_____	_____	_____	_____

COMMENTS/CALCULATIONS

WEATHER CONDITIONS rainy, 65°

SAMPLE APPEARANCE AG, ~~cl~~ colorless, no odor

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

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

SAMPLER SIGNATURE [signature] DATE 6-13-13

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME Van DeMark Odell GAI PROJECT NO. 093-89168

SAMPLE ID. MW-2D SOURCE CODES: RIVER OR STREAM, WELL, SOIL, OTHER (CIRCLE ONE)

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1036	ELAPSED HRS.	24min.
CASING VOL.(Gal.)	3.08	GAL. PURGED (Gal.)	9.32		
PURGING DEVICE (SEE BELOW)	bailer	PURGING DEVICE MATERIAL		DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1059	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	bailer	DEDICATED-(Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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.)	49.60
DEPTH TO WATER (REF. PT.)	30.73	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	2"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)				7.17
SPEC. COND. ~~(uS)~~ mS				3.15
TEMPERATURE (C)				13.8
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS rainy, 65°

SAMPLE APPEARANCE AQ, rust color, no odor

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

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

SAMPLER SIGNATURE DATE

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VanDeMark O&M GAI PROJECT NO. 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1132	ELAPSED HRS.	18min
CASING VOL.(Gal.)	1.10	GAL. PURGED (Gal.)	8.40		
PURGING DEVICE (SEE BELOW)	bailer	PURGING DEVICE MATERIAL		DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1152	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	bailer	DEDICATED-(Y/N)		FILTERED (Y/N)	
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.)	44.87
DEPTH TO WATER (REF. PT.)	38.10	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	2"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)				6.94
SPEC. COND.(uS)				7.07
TEMPERATURE (C)				13.8
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS rainy, 65°

SAMPLE APPEARANCE AQ, rust color, no odor

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

Duplicate collected
3.3 gal in 3 casings

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

SAMPLER SIGNATURE DATE

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VanDeMark Otm GAI PROJECT NO. 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	061313	TIME (24 HR CLOCK)	1218	ELAPSED HRS.	53min
CASING VOL.(Gal.)	0.17	GAL. PURGED (Gal.)	5.0		
PURGING DEVICE (SEE BELOW)	bailer	PURGING DEVICE MATERIAL		DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	061313	TIME (24 HR CLOCK)	1314	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	bailer	DEDICATED-(Y/N)		FILTERED (Y/N)	
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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	10.53
DEPTH TO WATER (REF. PT.)	6.38	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	1.0"

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)				6.74
SPEC. COND.(uS)				1206
TEMPERATURE (C)				54.6°
OTHER (SPECIFY)				179 NTU

COMMENTS/CALCULATIONS

WEATHER CONDITIONS 65°, rainy

SAMPLE APPEARANCE AQ, lt. brown, no odor

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

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

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

SAMPLER SIGNATURE DATE

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VanDeMark OAM GAI PROJECT NO. 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1404	ELAPSED HRS.	1:04
CASING VOL.(Gal.)	0.23	GAL. PURGED (Gal.)	7.75		
PURGING DEVICE (SEE BELOW)	bailer	PURGING DEVICE MATERIAL		DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1514	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	bailer	DEDICATED (Y/N)		FILTERED (Y/N)	
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.)	10.27
DEPTH TO WATER (REF. PT.)	4.58 ~~10.27~~	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	1.0

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)				7.34
SPEC. COND.(uS)				4.21
TEMPERATURE (C)				56.6
OTHER (SPECIFY) Turb.				121 NTU

COMMENTS/CALCULATIONS

WEATHER CONDITIONS 65°, rainy

SAMPLE APPEARANCE AQ, H. brown, no odor

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

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

SAMPLER SIGNATURE DATE

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VanDeMark O&M GAI PROJECT NO. 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1527	ELAPSED HRS.	____
CASING VOL.(Gal.)	0.17	GAL. PURGED (Gal.)	____		
PURGING DEVICE (SEE BELOW)	bailer	PURGING DEVICE MATERIAL		DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	06/13/13	TIME (24 HR CLOCK)	1635	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	bailer	DEDICATED-(Y/N)		FILTERED (Y/N)	
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.)	9.12
DEPTH TO WATER (REF. PT.)	5.05	STICKUP (FT.)	____
GW. ELEV.(FT. MSL.)	____	WELL DIAMETER (INCHES)	____

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	____	____	____	11.77
SPEC. COND.(uS)	____	____	____	2.29
TEMPERATURE (C)	____	____	____	55.5
OTHER (SPECIFY) Turb	____	____	____	119 NTU

COMMENTS/CALCULATIONS

WEATHER CONDITIONS 65°, rainy

SAMPLE APPEARANCE AQ, lt. brown, faint chemical oder

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

MS/MSD collected

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

SAMPLER SIGNATURE DATE

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME: VanDeMark O+M | GAI PROJECT NO.: 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	0930	ELAPSED HRS.	0:15
CASING VOL.(Gal.)	1.1	GAL. PURGED (Gal.)			
PURGING DEVICE (SEE BELOW)	E	PURGING DEVICE MATERIAL	Poly	DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	0945	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	E	DEDICATED (Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	44.87
DEPTH TO WATER (REF. PT.)	38.12	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	2.0

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	7.05		7.04	
SPEC. COND.(uS)	2.16		4.04	
TEMPERATURE (C)	15.70		14.30	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: Sunny, 55°F

SAMPLE APPEARANCE: AQ, light brown, very turbid, no odor

2" DIA. CASING CONTAINS .163 Gal./Ft.
4" DIA. CASING CONTAINS .652 Gal./Ft.: 3.3gal in 3 casings

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

SAMPLER SIGNATURE: [signature] DATE: 9-26-13

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME: VDM O+M | GAI PROJECT NO.: 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1025	ELAPSED HRS.	0:25
CASING VOL.(Gal.)	30	GAL. PURGED (Gal.)			
PURGING DEVICE (SEE BELOW)	E	PURGING DEVICE MATERIAL	Poly	DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1050	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	E	DEDICATED-(Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	49.65
DEPTH TO WATER (REF. PT.)	31.05	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	2.0

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	7.17		7.26	
SPEC. COND.(uS)	218		252	
TEMPERATURE (C)	15.0		14.7	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: Sunny, 60°F

SAMPLE APPEARANCE: NO, rusty brown, very turbid, no odor

2" DIA. CASING CONTAINS .163 Gal./Ft.
4" DIA. CASING CONTAINS .652 Gal./Ft.: 9 gal in 3 casings

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

SAMPLER SIGNATURE: [signature] DATE: 9-26-13

Golder Associates

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VDM O&M GAI PROJECT NO. 093-89168

SAMPLE ID. PZ-1 SOURCE CODES: RIVER OR STREAM, WEDL, 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 (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	__/__/__	TIME (24 HR CLOCK)	____	MATRIX	____
SAMPLING DEVICE (SEE BELOW)	____	DEDICATED-(Y/N)		FILTERED (Y/N)	
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	TOP	LAND ELEVATION (FT./MSL)	____
REF. PT. ELEV.(FT. MSL)	____	WELL DEPTH (FT.)	10.60
DEPTH TO WATER (REF. PT.)	10.55	STICKUP (FT.)	____
GW. ELEV.(FT. MSL.)	____	WELL DIAMETER (INCHES)	1.0

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 DRY. No Sample taken.

SAMPLE APPEARANCE

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

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

SAMPLER SIGNATURE [signature] DATE 9-26-13

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME: VDM O&M GAI PROJECT NO.: 043-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1140	ELAPSED HRS.	0:07
CASING VOL.(Gal.)	0.2	GAL. PURGED (Gal.)	0.7		
PURGING DEVICE (SEE BELOW)	E	PURGING DEVICE MATERIAL	Poly	DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1147	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	E	DEDICATED-(Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	10.53
DEPTH TO WATER (REF. PT.)	6.85	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	6.93		6.85	
SPEC. COND.(uS)	1423		1324	
TEMPERATURE (C)	17.6		17.0	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: Sunny, 60°F

SAMPLE APPEARANCE: NO, very light brown, slightly turbid

2" DIA. CASING CONTAINS .163 Gal./Ft. 0.6 gal in 3 casings

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

1" = 0.0408 gal/Ft

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

SAMPLER SIGNATURE: [signature] DATE: 9-26-13

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME: WDM O&M | GAI PROJECT NO.: 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1203	ELAPSED HRS.	0:10
CASING VOL.(Gal.)	0.14	GAL. PURGED (Gal.)	0.5		
PURGING DEVICE (SEE BELOW)	E	PURGING DEVICE MATERIAL	Poly	DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1213	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	E	DEDICATED (Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	9.13
DEPTH TO WATER (REF. PT.)	5.59	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	1.0

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	10.09		9.47	
SPEC. COND.(uS)	2.22		1347	
TEMPERATURE (C)	18.2		18.2	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: Sunny, 60°F

SAMPLE APPEARANCE: AG, slightly brown, very slightly turbid. Very small globs of sheen in bucket.

2" DIA. CASING CONTAINS .163 Gal./Ft. | 0.4 gal in 3 casings

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

1" ≈ 0.0408 gal/Ft

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

SAMPLER SIGNATURE: [signature] DATE: 9-26-13

Golder Associates

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME: UDM O&M | GAI PROJECT NO.: 093-89168

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

PURGING INFORMATION (IF APPLICABLE)

PURGE DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1227	ELAPSED HRS.	0.10
CASING VOL.(Gal.)	0.19	GAL. PURGED (Gal.)	0.6		
PURGING DEVICE (SEE BELOW)	E	PURGING DEVICE MATERIAL	Poly	DEDICATED (Y/N)	

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1232	MATRIX	W
SAMPLING DEVICE (SEE BELOW)	E	DEDICATED (Y/N)		FILTERED (Y/N)	
SAMPLING DEVICE MATERIAL	Poly	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	TOR	LAND ELEVATION (FT./MSL)	
REF. PT. ELEV.(FT. MSL)		WELL DEPTH (FT.)	10.25
DEPTH TO WATER (REF. PT.)	~~5.57~~	STICKUP (FT.)	
GW. ELEV.(FT. MSL.)		WELL DIAMETER (INCHES)	1.0

FIELD MEASURMENTS (FOUR REPLICATES)

	Initial Purge	Final Purge	Initial Sample	Final Sample
pH (STD)	8.83		7.38	
SPEC. COND.(uS)	2.11		2.23	
TEMPERATURE (C)	17.7		17.8	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS: Sunny, 60°F

SAMPLE APPEARANCE: AQ, very light brown, slightly turbid, no odor

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

4" DIA. CASING CONTAINS .652 Gal./Ft. 0.57 gal in 3 casings

1" = 0.0408 gal/Ft

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

SAMPLER SIGNATURE: [signature] DATE: 9-26-13

Golder Associates

SAMPLE COLLECTION INFORMATION FORM

GAI PROJECT NAME VDM O&M GAI PROJECT NO. 093-89168

SAMPLE ID. Vault Effluent 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 (Y/N)~~

SAMPLE COLLECTION INFORMATION

SAMPLING DATE (yy/mm/dd)	09/26/13	TIME (24 HR CLOCK)	1250 MATRIX W
SAMPLING DEVICE (SEE BELOW)	F-bottles	DEDICATED (Y/N)	FILTERED (Y/N)
SAMPLING DEVICE MATERIAL	glass	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)			7.29	
SPEC. COND.(uS)			2.07	
TEMPERATURE (C)			17.1	
OTHER (SPECIFY)				

COMMENTS/CALCULATIONS

WEATHER CONDITIONS Sunny, 60°F

SAMPLE APPEARANCE AQ, clear, colorless

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

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

SAMPLER SIGNATURE [signature] DATE 9-26-13

Adirondack Environmental Services Inc.
314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

CHAIN OF CUSTODY RECORD

AES Work Order #

Experience is the solution

A full service analytical research laboratory offering solutions to environmental concerns

Client Name:	Address:		
Gahler Associates Inc	2430 N. Forest Ave Suite 100 Getzville NY 14068		
Send Report To:	**Project Name (Location)**	**Samplers: (Names)**	
Patrick Martin	VanDeMark	A. Lange	J. Hardy
Client Phone No:	**Client Email:**	**PO Number:**	**Samplers: (Signature)**
716-204-5880		C93-89168	

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m. P=p.m.	Sample Type: Matrix	Comp	Grab	Number of Cont's	Analysis Required
	Vault effl. ent	6-13-13	0943 A/P	W		X	1	8270C SVOC
	Vault effl. ent		0945 A/P	W		X	2	8260B VOC
	MW-2D		1059 A/P	W		X	1	8270C SVOC
	MW-2D		1059 A/P	W		X	2	8260B VOC
	MW-3D		1152 A/P	W		X	1	8270C SVOC
	MW-3D		1152 A/P	W		X	2	8260B VOC
	PZ-2		1314 A/P	W		X	1	8270C SVOC
	PZ-2		1314 A/P	W		X	2	8260B VOC
	PZ-3		1514 A/P	W		X	1	8270C SVOC
	PZ-3		1514 A/P	W		X	2	8260B VOC
	PZ-4		1635 A/P	W		X	1	8270C SVOC
	PZ-4		1635 A/P	W		X	2	8260B VOC
	PZ-4 MS/MSD		1635 A/P	W		X	1	8270C SVOC
	PZ-4 MS/MSD		1635 A/P	W		X	2	8260B VOC

Shipment Arrived Via:
FedEx UPS Client (AES) Other:_____

CC Report To / Special Instructions/Remarks:

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☒ Normal
☐ 2 Day ☐ 5 Day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
5:45 pm		6/13/13 5:45
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or Chilled	Y ☐ N ☐	Y N	Y N
Notes:		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack Environmental Services, Inc.

Adirondack Environmental Services Inc.
Experience is the solution

314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

CHAIN OF CUSTODY RECORD

AES Work Order #

A full service analytical research laboratory offering solutions to environmental concerns

Client Name:	Address:	
Gelder Associates Inc	2430 N. Forest Rd. Suite 102 Getzville, NY 14068	
Send Report To:	**Project Name (Location)**	**Samplers: (Names)**
Patrick Martin	VanDe Mark	A. Large, J. Hardy
Client Phone No:	**Client Email:**	**PO Number:**
716-204-5850		093-89168

Samplers: (Signature)

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m., P=p.m.		Sample Type: Matrix	Comp	Grab	Number of Cont's	Analysis Required
	Duplicate	6-13-13	1152	A P	W		X	1	8270C SVOC
	Duplicate	↓	1152	A P	W		X	2	8260B VOC
	Trip Blank	↓	–	A P	W		X	1	8260B VOC
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					

Shipment Arrived Via:
FedEx UPS Client (AES) Other:_____

CC Report To / Special Instructions/Remarks:

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☒ Normal
☐ 2 Day ☐ 5 Day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
5:45pm		6/13/13 5:45pm
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or Chilled	Y ☐ N ☐	Y N	Y N
Notes:		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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314 North Pearl Street
Albany, New York 12207
518-434-4546/434-0891 FAX

CHAIN OF CUSTODY RECORD

AES Work Order #

A full service analytical research laboratory offering solutions to environmental concerns

Client Name: Golder Associates	Address: 2430 N. Forest Rd., Suite 100		
Send Report To: Pat Martin	Project Name (Location): Van De Mark		Samplers: (Names) Ann Lange
Client Phone No: 7[illegible]-[illegible]4-5[illegible]0	Client Email: ptmartin@golder.com	PO Number: 0[illegible]-89168	Samplers: (Signature) [signature]

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m. P=p.m.		Sample Type Matrix	Comp	Grab	Number of Cont's	Analysis Required
	MW-3D	9-26-13	0945	(A) P	W		X	1	8270C
	MW-3D		0945	(A) P			x	2	8260B
	MW-7D		1[illegible]	(A) P				1	8270C
	MW-7D		1050	(A) P				2	8260B
	PZ-2		1147	(A) P				1	8270C
	PZ-2		1147	(A) P				2	8260B
	PZ-3		[illegible]	A (P)				1	8270C
	PZ-3		[illegible]	A (P)				2	8260B
	PZ-4		1237	A (P)				1	8270C
	PZ-4		1237	A (P)				2	8260B
	Vault Effluent		1250	A (P)				1	8270C
	Vault Effluent		1250	A (P)				2	8260B
	Trip Blank		—	A P				1	8260B
				A P					

Shipment Arrived Via:
FedEx UPS Client AES Other:________

CC Report To / Special Instructions/Remarks:

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☐ Normal
☐ 2 Day ☐ 5 Day

Relinquished by: (Signature) [signature]	Received by: (Signature) [signature]	Date/Time 9/27/13 09:20
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time

TEMPERATURE	AES Bottles	PROPERLY PRESERVED	RECEIVED WITHIN HOLDING TIMES
Ambient or Chilled	Y ☐ N ☐	Y N	Y N
Notes:		Notes:	Notes:

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

Adirondack Environmental Services, Inc.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

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