



**Heartland** Environmental Associates, Inc.

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**QUARTERLY GROUNDWATER  
MONITORING REPORT**

**Sample Street Business Complex  
3702 West Sample Street  
South Bend, Saint Joseph County, Indiana 46619**

**VRP ID # 6120801**

**4th Quarter 2013  
October 1 – December 31, 2013**

**February 6, 2014**

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*"Your dependable partner for environmental compliance"*

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**Prepared for:**

Urban Enterprise Association of South Bend, Inc.  
227 West Jefferson Boulevard  
South Bend, Indiana 46601

**For the Site:**

Sample Street Business Complex  
3702 West Sample Street  
South Bend, Saint Joseph County, Indiana 46619  
VRP ID # 6120801

Report prepared by:



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John R. Barnhart  
Heartland Environmental Associates, Inc.

2/6/2014  
Date

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Heartland Environmental Associates, Inc.

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## EXECUTIVE SUMMARY

Heartland Environmental Associates, Inc., (Heartland) has prepared this Quarterly Progress Report for the subject facility, known as the Sample Street Business Complex, located at 3702 West Sample Street, South Bend, St. Joseph County, Indiana. The Voluntary Remediation Program Identification (VRP ID) number is #612080.

The facility is being evaluated in accordance with the Indiana Department of Environmental Management (IDEM) Remediation Program on the behalf of the Urban Enterprise Association of South Bend, Inc. (UEA). Heartland has previously submitted a Remediation Work Plan (RWP) for the facility.

Twenty monitoring wells are sampled each quarter commencing in September 2013. Contaminants of Concern include benzene, toluene, ethylbenzene, total xylenes, tetrachloroethylene, trichloroethene, cis 1,2-dichloroethylene, trans 1,2-dichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethylene, vinyl chloride.

Each quarter, sample analysis results are evaluated using the Remediation Closure Guide (RCG) Appendix A Screening Levels.

Groundwater samples for the current quarter were collected on November 25-27, 2013. Samples from all wells were collected using dedicated bailers. Samples were analyzed for Volatile Organic Compounds (VOCs) using U.S. EPA Method 8260.

Monitoring well water levels were measured during the current quarter sampling event and show that shallow groundwater flow is toward the northeast and that deep groundwater flow is to the west.

The current quarterly sampling results show that only one monitoring well, W-10B, exhibited a concentration of trichloroethene that exceeded the RCG Screening Level.

## **1.0 SITE HISTORY**

The Sample Street Business Complex was developed in 1928 as the Bantam Ball Bearing Corporation and was engaged in the manufacture of bearings. In 1935, the facility was acquired by the Torrington Company, who continued the manufacture of bearings. Torrington expanded the facility several times, last expanding in 1967. The site historically operated an approximately 333,000 square foot manufacturing facility on 15 acres of property. The site operated two underground storage tank (UST) areas and five storm water and cooling water ponds located at the south end of the property. The site ceased manufacturing operations in September 1983 and began site closure activities in preparation for sale of the property.

In June 1991, the Torrington Company transferred ownership of the site to the UEA of South Bend, Inc. The UEA currently owns and operates the facility as the Sample Street Business Complex, a small business, multi-tenant, manufacturing, warehousing, and office facility.

The site consists of four parcels with a total acreage of 15.02 acres. Two small parcels are located north of Sample Street and are used as parking lots. The main facility is located on two parcels, 9.0 and 4.25 acres in size, and is south of Sample Street.

The site is currently occupied by one large building with a covered loading dock and a small shed.

No hazardous materials are currently used or stored on-site.

## 2.0 SITE WORK COMPLETED TO DATE

Environmental investigations completed by Canonie Engineers, Harza Environmental, Best Environmental, Capsule Environmental, Law Engineering, and Heartland have documented the presence of chemical impacts to soil and groundwater at the Sample Street Business Complex.

In 1984, in preparation for site closure, the Torrington Company had an environmental assessment conducted at the facility. Preliminary screening showed there were three areas of concern. Further investigations were conducted in the areas of the storm drainage ponds, the former UST areas, and an area of trichloroethane (TCA) impacted soil on the southwest corner of the building.

As part of closure activities, water and sediment samples were collected from the storm water drainage ponds. No evidence of impacts was found at that time. Subsequently, storm water drainage Ponds #2, #3, #4, and #5 were filled in. The #1 Pond was retained to accept roof drainage from the facility building.

According to the IDEM records, five USTs, in two separate areas, were formerly present onsite. According to the UST Notification form filed in 1986, UST#1 had a capacity of 8,000-gallons and contained Stoddard Solvent, UST #2 had a capacity of 8,000-gallons and contained cutting oil, UST #3 had a capacity of 12,000-gallons and contained cutting oil, USTs #4 and #5 had capacities of 20,000-gallons each and contained fuel oil. USTs #1 and #2 were located near the southeast corner of the main building. USTs #3, #4, and #5 were located under an earthen mound near the southwest corner of the main building.

All USTs were removed in 1986. The UST removal notification form states that the date of installation of the five USTs was unknown. Two Stoddard Fluid and cutting oil USTs were located under a concrete pad on the southeast corner of the building. No evidence of impacts was noted during the removal of those USTs. Three cutting oil and heating oil USTs were located under an earthen mound at the southwest corner of the building. Evidence of soil impacts was noted in the soils around a UST under the earthen mound. Impacted soils were excavated and removed from the site. Further soil impacts were found in soils around the cutting oil and heating oil USTs. Approximately 1700 cubic yards of soils were excavated from the area of the product lines and removed from the site.

According to subsequent ESA reports (Best, 1990, 1991 and Capsule, 1991), during UST removal, petroleum impacted soils were found around the fuel oil tanks and along product line piping runs. Impacted soils were excavated and removed. Tank pits were backfilled with clean fill.

According to the ESA reports, no spills or chemical releases, other the UST release, have been documented. It is likely that impacts originating from operation of the storm water drainage ponds or from other sources were accumulative impacts resulting from small releases over the operational life of the facility (1928 through 1983).

In 1994, Capsule Environmental recommended an AS/SVE remediation system to remediate VOC impacts in soil and groundwater at the Torrington Facility. A pilot test was conducted and in January 1995, Capsule prepared a system design and contract bid specification package. Capsule also prepared a Corrective Action Plan (CAP) for the site. Two separate AS/SVE systems were installed in 1995-1996 and began operation in 1996. The systems included 24 vapor extraction vents and 6 air-sparging points. The vents and sparge points were installed in three areas, Area A, Area B, and Area S3.

Area A included the northeast portion of the main building. Nine extraction vents and two air sparge points were installed in Area A.

Area B included the northwest portion of the main building. Four extraction vents and one air sparge point were installed in Area B.

Area S3 included the southwest portion of the main building and the area around monitoring well S-3 on the southwest corner of the building. Eleven extraction vents and three sparge points were installed in Area S3.

The system was designed for unattended operation with automatic controls and an auto dialer system to alert the operators in case of system malfunction. A regular schedule of operations and maintenance was specified to ensure the continuous operation of the system. A regular schedule of air and groundwater sampling was also specified to determine the system efficacy.

The system was in operation from 1996 through 1998. The 1998 annual system effectiveness report indicated that the system was running efficiently with a 90% run time. However, free product petroleum was still present in the groundwater monitoring wells at the loading dock and both TCE and PCE were still present at elevated concentrations throughout the site. No additional documentation was available after 1998 regarding system operation or system closure.

In 2011, Heartland conducted a limited Phase II ESA to evaluate the presence/absence of chemical contaminants at the facility and to evaluate the effectiveness of the remediation system that had been installed in 1995 and operated through 1998.

In 2012, the Urban Enterprise Association of South Bend, Inc. (UEA) applied to enroll the site in the Indiana Voluntary Remediation Program (VRP).

In 2013, A Remediation Work Plan was submitted to the IDEM, additional off-site monitoring wells were installed, and quarterly monitoring of groundwater commenced.

### 3.0 QUARTERLY RESULTS

#### 3.1 Groundwater Elevation and Flow Direction

Static water levels at the subject site were measured November 25-27, 2013. The static water level data were used to calculate groundwater surface elevations based on the measured depth to groundwater from the top of each well casing surveyed to a relative arbitrary site benchmark elevation of 100.00 feet. The static water level data and calculated groundwater elevations are shown in Table 1. Maps showing the potentiometric surface of the groundwater and the groundwater flow direction based on the static water level data are provided in Figures 2 and 3 in Appendix A. Historical groundwater elevation data are tabulated in Appendix B.

<b>Well</b>	<b>Date</b>	<b>Relative Casing Elevation</b>	<b>Well Depth</b>	<b>Depth to Groundwater</b>	<b>Relative Groundwater Elevation</b>
S-3	11/25/2013	710.12	50.10	7.42	702.70
W-1	11/25/2013	713.09	62.90	10.36	702.73
W-100A	11/25/2013	713.62	33.98	10.15	703.47
W-100B	11/25/2013	713.70	50.90	10.22	703.48
W-101A	11/25/2013	714.12	34.64	10.75	703.37
W-101B	11/25/2013	714.09	46.35	10.73	703.36
W-10A	11/25/2013	714.53	62.10	13.09	701.44
W-10B	11/25/2013	714.59	31.31	12.17	702.42
W-12	11/25/2013	712.83	29.26	10.12	702.71
W-13	11/25/2013	713.95	35.48	11.11	702.84
W-14A	11/25/2013	715.50	60.95	12.52	702.98
W-14B	11/25/2013	714.94	44.13	13.08	701.86
W-15A	11/25/2013	714.50	35.30	12.01	702.49
W-15B	11/25/2013	713.84	11.58	Dry	
W-16	11/25/2013	715.30	60.55	12.84	702.46
W-3	11/25/2013	712.59	58.03	9.15	703.44
W-5	11/25/2013	713.32	36.32	10.59	702.73
W-7	11/25/2013	714.02	31.90	10.86	703.16
W-8	11/25/2013	713.71	59.92	11.10	702.61
W-9	11/25/2013	714.71	53.28	11.85	702.86

Monitoring well W-15B could not be measured – no water was present.

Water levels in shallow wells with screen bottom elevations of 682.5 to 703 feet are shown in Figure 2. Groundwater flow in the shallow wells is southwest to northeast. Water levels in deep wells with



screen bottoms of 654 to 682.5 feet are shown in Figure 3. Groundwater flow in the deeper wells is from east to west.

### **3.2 Groundwater Sampling Results**

On November 25-27, 2013, groundwater samples were collected from twenty on-site monitoring wells. All monitoring wells were sampled using low-flow sampling technology. Samples were collected and decanted into clean, new 40-ml VOA vials with HCl preservative, labeled, and placed in a secure cooler (at four degrees Celsius) for transport.

The groundwater samples were submitted to Envision Laboratories, Inc. in Indianapolis, Indiana, via overnight courier, where they were analyzed for VOCs using U.S. EPA Method 8260. The analysis was completed within its standard holding times. The VOC analytical data are summarized in Table 2 and Figure 4, Appendix A. The historic groundwater analytic data are tabulated in Appendix C. The laboratory certificates of analysis and chains of custody are included in Appendix D.

Well covers and compression caps for all monitoring wells were inspected for damage and/or deterioration during the current sampling event. Compression caps were cleaned and checked for fit. No repairs or replacements were necessary at that time.

Table 2. Groundwater Chemistry Quarterly Summary													
Sample Location	Date Sampled	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylene (Total) µg/L	cis-1,2-Dichloroethene µg/L	trans-1,2-Dichloroethene µg/L	Tetrachloroethene µg/L	Trichloroethene µg/L	Vinyl Chloride µg/L	1,1,1-Trichloroethane µg/L	1,1-Dichloroethane µg/L	1,1-Dichloroethene µg/L
<b>RCG Residential Groundwater Ingestion Screening Level</b>		5	1,000	700	10,000	70	100	5	5	2.00	200	24	7
W-5	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-9	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-7	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-8	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
S-3A	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
S-3	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-12	11/26/13	<5	<5	<5	<10	5.75	<5	<5	<5	<2	<5	<5	5.75
W-1	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-3	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-100A	11/26/13	<5	<5	<5	<10	6.25	<5	<5	<5	<2	<5	<5	<5
W-100B	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-101A	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-101B	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-16	11/26/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-15A	11/27/13	<5	<5	<5	<10	8.56	<5	<5	<5	<2	<5	<5	<5
W-14A	11/27/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-14B	11/27/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-10B	11/27/13	<5	<5	<5	<10	7.91	<5	<5	<b>5.18</b>	<2	13.5	<5	<5
W-10A	11/27/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
W-13	11/27/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5
TRIP BLANK	11/25/13	<5	<5	<5	<10	<5	<5	<5	<5	<2	<5	<5	<5

Concentrations exceeding the Residential Ingestion Screening Level are shown in bold

## 4.0 DISCUSSION

Based on water levels measured November 25-27, 2013, Groundwater flow in shallow wells with screen bottom elevations of 682.5 to 703 feet is southwest to northeast. Groundwater flow in deep wells with screen bottoms of 654 to 682.5 feet is from east to west. Water level are shown on Figures 2 and 3, Appendix A. Water levels have increased an average of 0.38 feet since the previous measurement in April 2013.

Low-flow sampling had been performed at the site to reduce the turbidity of groundwater samples and to minimize the volume of purge water. Low-flow data sheets are included in Appendix E.

All monitoring wells samples were analyzed for VOCs and evaluated using the RCG Appendix A Screening Levels.

One monitoring well, W-10B, exhibited a concentration of trichloroethene (TCE) that exceeded the RCG Screening Levels. Monitoring well W-10B is an on-site well, located on the north side of the main building. W-10B has previously exhibited TCE concentrations that exceed the RCG Screening Level.

Monitoring wells that have previously exhibited concentrations of COCs that exceed the RCG Screening Levels include the on-site well W-12, and the off-site wells, W-100, W-101A, and W-101B. However, no concentrations exceeding the RCG Screening Levels were found in these wells in the current quarterly samples.

## 5.0 REFERENCES

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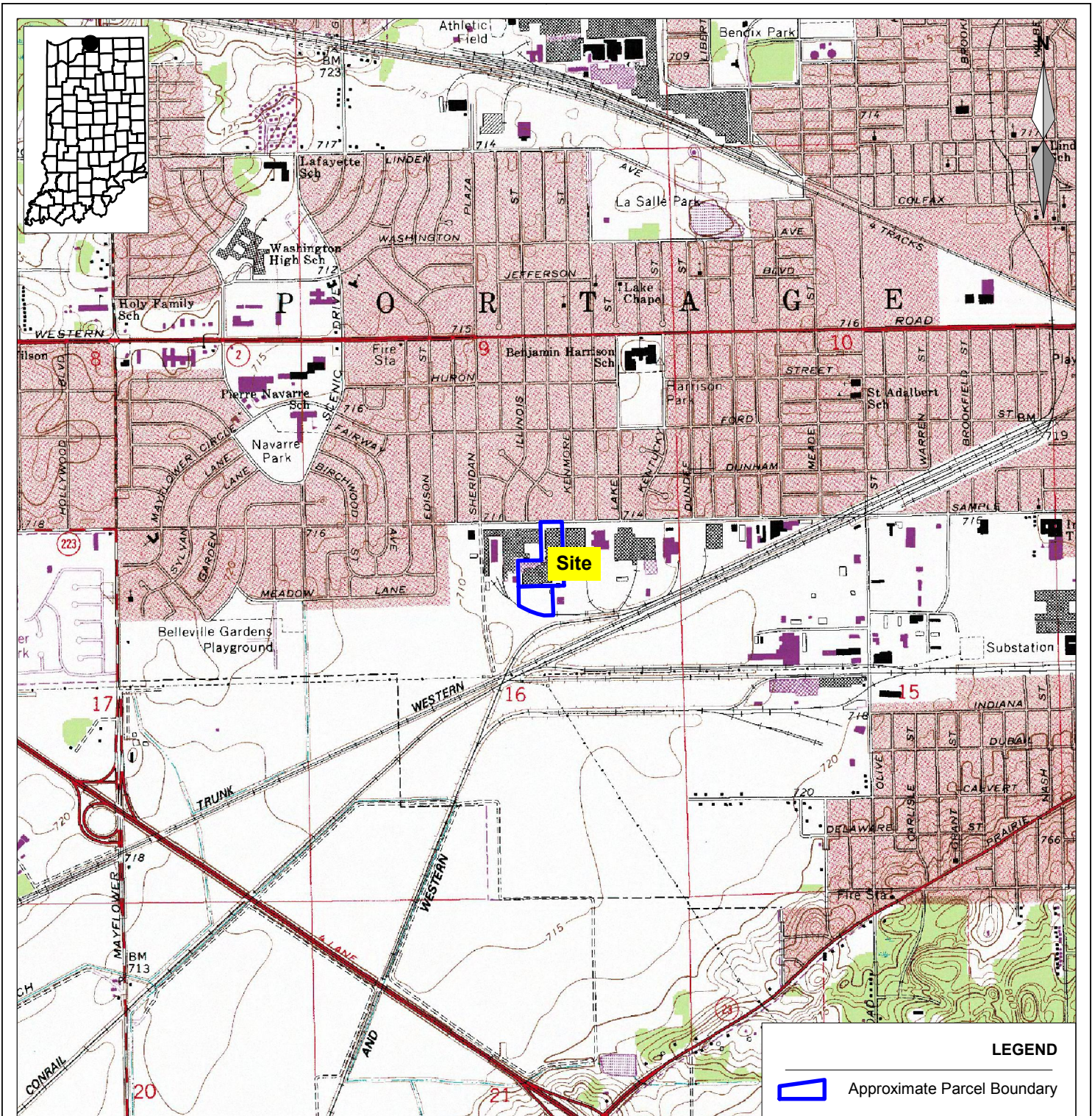
Heartland Environmental Associates, Inc., Remediation Work Plan, Sample Street Business Complex 3702 West Sample Street, South Bend, Saint Joseph County, Indiana 46619, VRP ID # 6120801, August 19, 2013, Heartland Environmental Assoc., Inc., 3410 Mishawaka Avenue, South Bend, IN 46615

## **6.0 LIMITATIONS**

In preparing this report, Heartland Environmental Associates, Inc., has applied generally accepted professional practices and standards and has exercised its professional judgment, skills, and care in a manner consistent with that of other professionals performing similar work under similar conditions. All information, conclusions, and recommendations contained in this report are necessarily governed by site conditions and the scope of the work. However, due to the nature of the work, Heartland Environmental Associates, Inc. does not assume and specifically disclaims any and all responsibility and/or liability for damages of any kind suffered by any individual or entity and is not responsible for the independent conclusions, opinions, or recommendations made by others regarding this report. No warranties, expressed or implied are given or made.

## APPENDIX A

### Figures



Location  
 Saint Joseph County, Portage Township  
 SOUTH BEND WEST Quadrangle  
 Section 16 T 37N R 2E

Parcel boundaries, as shown, are approximate and are not suitable for conveyance or property boundary descriptions. This data should not be used as a substitute for a professional land survey.

Base map: U.S. Geological Survey Digital Raster Graphic



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**Figure 1**  
 Topographic Map  
 Sample Street Business Complex  
 3702 West Sample Street  
 South Bend, Indiana 46619

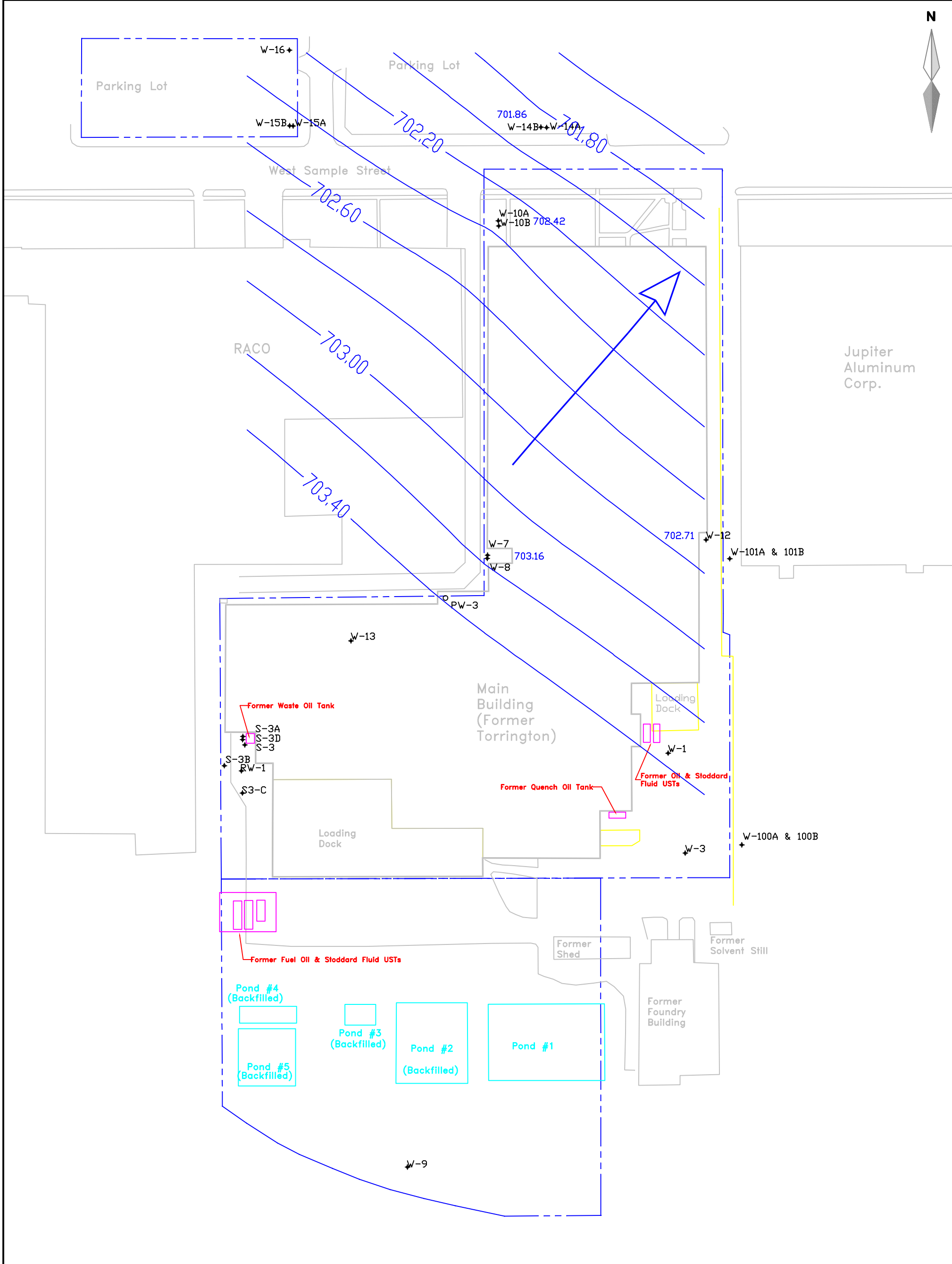
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 Urban Enterprise Assoc.,  
 of South Bend, Inc.

Date:  
 4/5/2013

Drawn by:  
 JRB

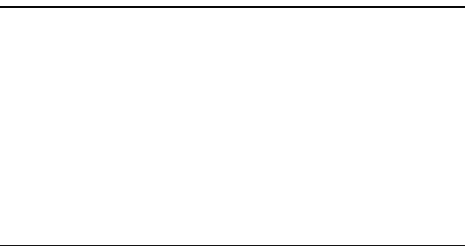
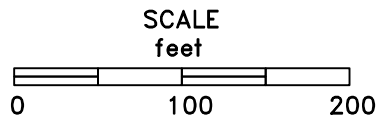
Scale:  
 1 in : 2000.00 ft





Groundwater Surface in wells with screen bottom elevations between elevations of 682.5 to 703 feet.

- LEGEND**
- + Monitoring Well
  - - - Parcel Boundary
  - ▭ Former UST



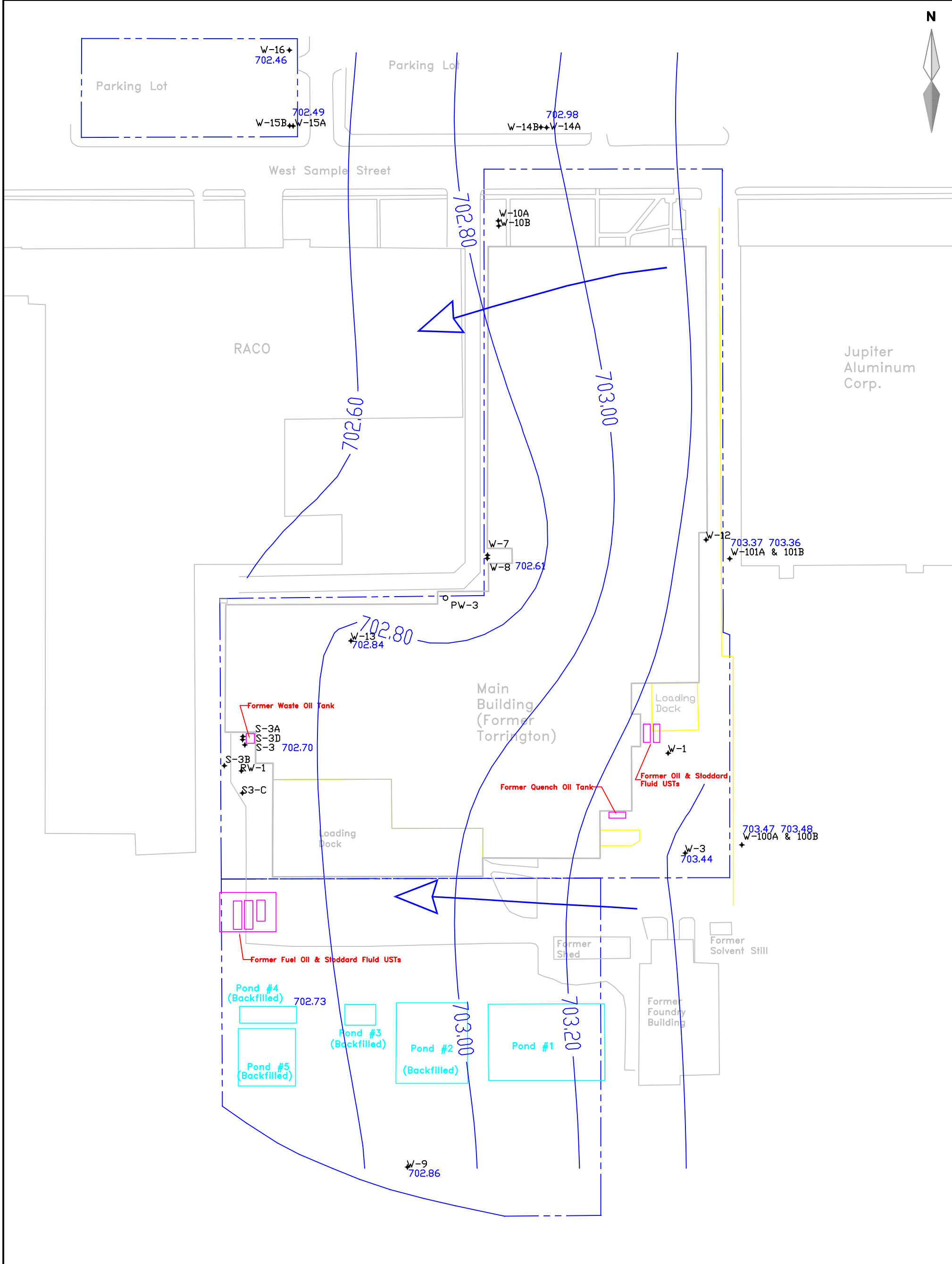
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**Figure 2**  
**Potentiometric Surface**  
**Shallow Wells**  
**Measured 11/25 - 11/27/2013**  
**Sample Street Business Complex**  
**3702 West Sample Street**  
**South Bend, Indiana**

**Client:**  
**Urban Enterprise**  
**Association**  
**of South Bend, Inc.**

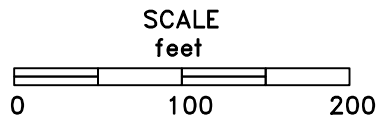
**Date:** 2/6/2014

**Drawn by:** JRB



Groundwater Surface in wells with screen bottom elevations between elevations of 654 to 683 feet.

- LEGEND**
- + Monitoring Well
  - - - Parcel Boundary
  - Former UST



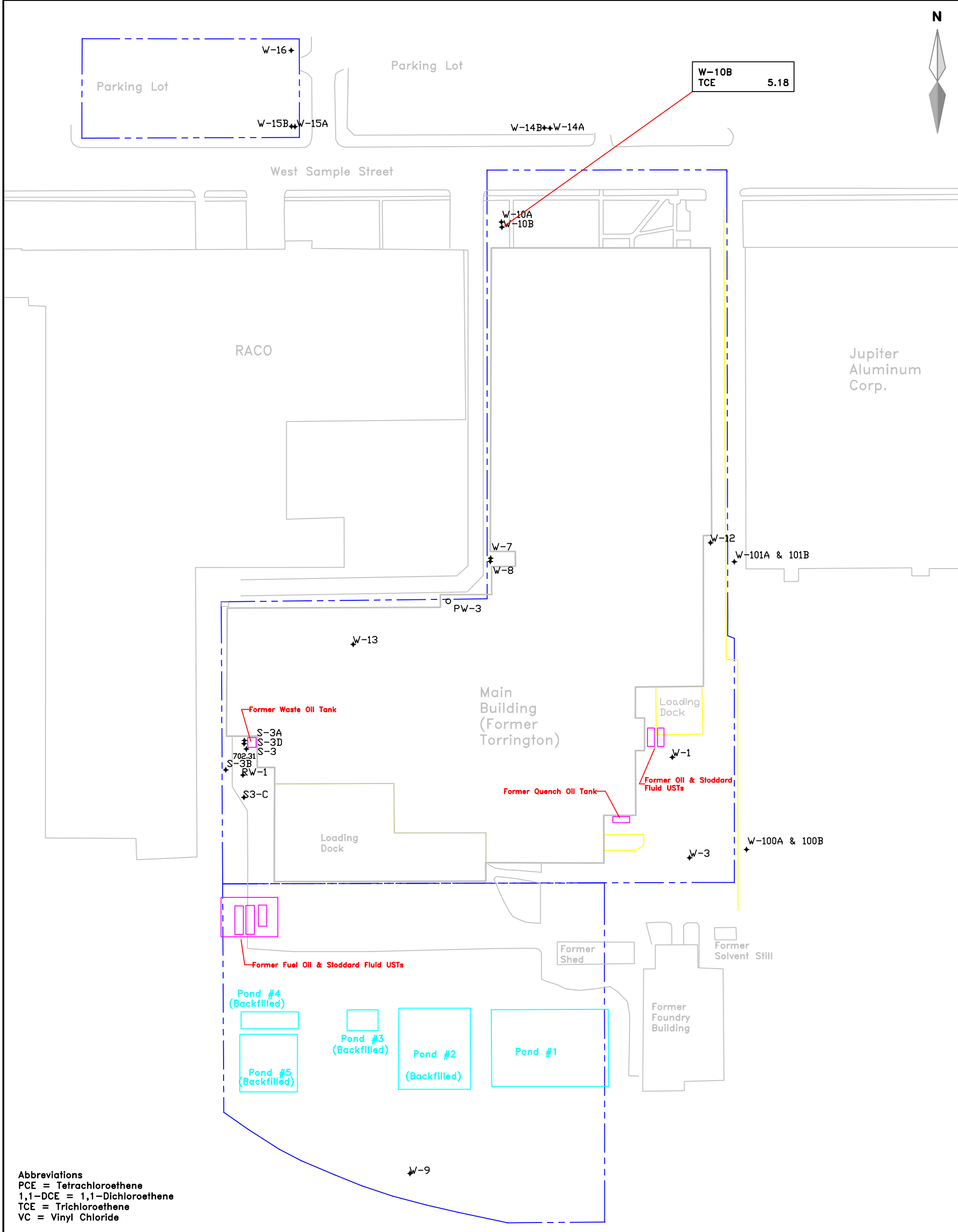
**Heartland Environmental Associates, Inc.**  
3410 Mishawaka Ave.  
South Bend, Indiana 46615

**Figure 3**  
**Potentiometric Surface**  
**Deep Wells**  
Measured 11/25 - 11/27/2013  
Sample Street Business Complex  
3702 West Sample Street  
South Bend, Indiana

Client:  
**Urban Enterprise Association of South Bend, Inc.**

Date: 2/6/2014

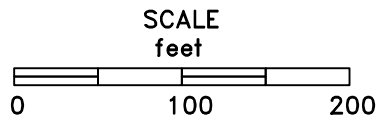
Drawn by: JRB



Abbreviations  
 PCE = Tetrachloroethene  
 1,1-DCE = 1,1-Dichloroethene  
 TCE = Trichloroethene  
 VC = Vinyl Chloride

LEGEND	
+	Monitoring Well
- - - -	Parcel Boundary
□	Former UST

Only monitoring well analytic results with detected concentrations of COCs that exceed the RCG Screening Levels are shown



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**Figure 4**  
**Groundwater Analytical Results**  
 Collected 11/25 - 11/27/2013

**Sample Street Business Complex**  
 3702 West Sample Street  
 South Bend, Indiana

**Client:**  
 Urban Enterprise Association  
 of South Bend, Inc.

**Date:** 2/6/2014

**Drawn by:** JRB

## APPENDIX B

### Historic Groundwater Elevation Data Tables

<b>Historical Water Level Measurements</b>					
<b>Well</b>	<b>Date</b>	<b>Relative Casing Elevation</b>	<b>Well Depth</b>	<b>Depth to Groundwater</b>	<b>Relative Groundwater Elevation</b>
S-3	4/1/2013	710.12	50.10	8.90	701.22
W-1	4/1/2013	713.09	62.90	8.71	704.38
W-100A	4/1/2013	713.62	33.98	8.47	705.15
W-100B	4/1/2013	713.70	50.90	8.54	705.16
W-101A	4/1/2013	714.12	34.64	9.19	704.93
W-101B	4/1/2013	714.09	46.35	9.18	704.91
W-10A	4/1/2013	714.53	62.10	10.78	703.75
W-10B	4/1/2013	714.59	31.31	10.85	703.74
W-12	4/1/2013	712.83	29.26	8.66	704.17
W-13	4/1/2013	713.95	35.48	9.70	704.25
W-14A	4/1/2013	715.50	60.95	11.34	704.16
W-14B	4/1/2013	714.94	44.13	11.88	703.06
W-15A	4/1/2013	714.50	35.30	10.76	703.74
W-15B	4/1/2013	713.84	11.18	10.13	703.71
W-16	4/1/2013	715.30	60.55	11.64	703.66
W-3	4/1/2013	712.59	58.03	7.48	705.11
W-5	4/1/2013	713.32	36.32	8.98	704.34
W-7	4/1/2013	714.02	31.90	9.38	704.64
W-8	4/1/2013	713.71	59.92	9.62	704.09
W-9	4/1/2013	714.71	53.28	10.13	704.58
S-3	9/25/2013	710.12	50.10	7.81	702.31
W-1	9/26/2013	713.09	62.90	10.82	702.27
W-100A	9/26/2013	713.62	33.98	10.64	702.98
W-100B	9/26/2013	713.70	50.90	10.71	702.99
W-101A	9/26/2013	714.12	34.64	11.20	702.92
W-101B	9/26/2013	714.09	46.35	11.19	702.90
W-10A	9/27/2013	714.53	62.10	12.54	701.99
W-10B	9/27/2013	714.59	31.31	12.61	701.98
W-12	9/26/2013	712.83	29.26	10.57	702.26
W-13	9/27/2013	713.95	35.48	11.57	702.38
W-14A	9/26/2013	715.50	60.95	12.94	702.56
W-14B	9/27/2013	714.94	44.13	13.51	701.43
W-15A	9/26/2013	714.50	35.30	12.41	702.09
W-15B	9/26/2013	713.84	11.18	Dry	
W-16	9/26/2013	715.30	60.55	13.25	702.05
W-3	9/26/2013	712.59	58.03	9.61	702.98
W-5	9/25/2013	713.32	36.32	10.97	702.35
W-7	9/25/2013	714.02	31.90	11.24	702.78
W-8	9/25/2013	713.71	59.92	11.47	702.24
W-9	9/25/2013	714.71	53.28	12.25	702.46
S-3	11/25/2013	710.12	50.1	7.42	702.7
W-1	11/25/2013	713.09	62.9	10.36	702.73
W-100A	11/25/2013	713.62	33.98	10.15	703.47
W-100B	11/25/2013	713.7	50.9	10.22	703.48
W-101A	11/25/2013	714.12	34.64	10.75	703.37
W-101B	11/25/2013	714.09	46.35	10.73	703.36
W-10A	11/25/2013	714.53	62.1	13.09	701.44
W-10B	11/25/2013	714.59	31.31	12.17	702.42

<b>Historical Water Level Measurements</b>					
<b>Well</b>	<b>Date</b>	<b>Relative Casing Elevation</b>	<b>Well Depth</b>	<b>Depth to Groundwater</b>	<b>Relative Groundwater Elevation</b>
W-12	11/25/2013	712.83	29.26	10.12	702.71
W-13	11/25/2013	713.95	35.48	11.11	702.84
W-14A	11/25/2013	715.5	60.95	12.52	702.98
W-14B	11/25/2013	714.94	44.13	13.08	701.86
W-15A	11/25/2013	714.5	35.3	12.01	702.49
W-15B	11/25/2013	713.84	11.58	Dry	
W-16	11/25/2013	715.3	60.55	12.84	702.46
W-3	11/25/2013	712.59	58.03	9.15	703.44
W-5	11/25/2013	713.32	36.32	10.59	702.73
W-7	11/25/2013	714.02	31.9	10.86	703.16
W-8	11/25/2013	713.71	59.92	11.1	702.61
W-9	11/25/2013	714.71	53.28	11.85	702.86

## APPENDIX C

### Historic Analytical Data Summary Tables













Historical Summary of Groundwater Chemistry																																		
Sample Location	Date Sampled	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2,4-Trimethylbenzene	1,2-Dibromoethane (EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,4-Dichlorobenzene	2-Butanone (MEK)	Acetone	Benzene	Carbon Tetrachloride	Chloroethane (Ethyl Chloride)	cis-1,2-Dichloroethene	Bromodichloromethane	Ethylbenzene	Isopropylbenzene (Cumene)	Methylene Chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride	Xylene (Total)	Mineral Spirits
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
RCG Residential Groundwater Ingestion		200	0.66	5	24	7	15	0.05	600	5	5	87	75	4900	12,000	5	5	21000	70	80	700	390	5	1.4	780	530	5	1,000	100	5	1,100	2.00	10,000	NA
W-14A	11/27/13	<5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	<5	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<5	<5	<2	<10	NA
W-14B	11/27/13	<5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	<5	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<5	<5	<2	<10	NA
W-10B	11/27/13	13.5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	7.91	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<b>5.18</b>	<5	<2	<10	NA
W-10A	11/27/13	<5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<5	<5	<2	<10	NA	
W-13	11/27/13	<5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<5	<5	<2	<10	NA	
TRIP BLANK	11/25/13	<5	<0.66	<5	<5	<5	<5	<b>&lt;1</b>	<5	<5	<5	<5	<5	<10	<100	<5	<5	<5	<5	<5	<5	<5	<1.4	<5	<5	<5	<5	<5	<5	<5	<2	<10	NA	

Notes:  
 µg/L - micrograms per Liter mg/L - milligrams per Liter  
 ppb - parts per billion, ppm - parts per million  
 VOCs - volatile organic compounds  
 ND - Not Detected, NA - Not Analyzed, BPQL - Below Practical Quantification Limit  
 Concentrations exceeding the Residential Ingestion Screening Level are shown in **bold**  
 Table compiled from summary tables of previous reports. Previous analyses used analytical methods other than 8260 and, therefore, may not have analyzed for all compounds shown in table. Blank cells represent either no analysis available or no value reported in summary

## APPENDIX D

### Laboratory Certificates of Analysis and Chain of Custody



**ENVision Laboratories, Inc.**  
1439 Sadlier Circle West Drive  
Indianapolis, IN 46239  
Tel: 317.351.8632  
Fax: 317.351.8639  
www.envisionlaboratories.com

Mr. Nivas Vijay  
Heartland Environmental  
3410 Mishawaka Ave.  
South Bend, IN 46615

December 11, 2013

ENVision Project Number: 2013-3408  
Client Project Name: UEA Sample Street

Dear Mr. Vijay,

Please find the attached analytical report for the samples received December 3, 2013. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. ENVision Laboratories looks forward to working with you on your next project.

Yours Sincerely,

A handwritten signature in black ink that reads "David Norris".

David Norris

Client Services Manager  
ENVision Laboratories, Inc.

PA DEP Lab Code: 68-04846 NELAP Cert:003





Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120613VW

**Client Sample ID:** W-5  
**Envision Sample Number:** 13-26048  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/25/13 13:00  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	108%		
1,2-Dichloroethane-d4 (surrogate)	102%		
Toluene-d8 (surrogate)	99%		
4-bromofluorobenzene (surrogate)	109%		
Analysis Date/Time:	12-7-13/04:07		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120613VW

**Client Sample ID:** W-9  
**Envision Sample Number:** 13-26049  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/25/13 14:10  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	106%		
1,2-Dichloroethane-d4 (surrogate)	99%		
Toluene-d8 (surrogate)	98%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/04:29		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120613VW

**Client Sample ID:** W-7  
**Envision Sample Number:** 13-26050  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/25/13 15:25  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	106%		
1,2-Dichloroethane-d4 (surrogate)	102%		
Toluene-d8 (surrogate)	97%		
4-bromofluorobenzene (surrogate)	110%		
Analysis Date/Time:	12-7-13/04:51		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120613VW

**Client Sample ID:** W-8  
**Envision Sample Number:** 13-26051  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/25/13 15:55  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	108%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	97%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/05:13		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** S-3A      **Sample Collection Date/Time:** 11/25/13 17:10  
**Envision Sample Number:** 13-26052      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	101%		
1,2-Dichloroethane-d4 (surrogate)	92%		
Toluene-d8 (surrogate)	92%		
4-bromofluorobenzene (surrogate)	102%		
Analysis Date/Time:	12-7-13/09:15		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** S-3  
**Envision Sample Number:** 13-26053  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/26/13 9:15  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	102%		
1,2-Dichloroethane-d4 (surrogate)	94%		
Toluene-d8 (surrogate)	93%		
4-bromofluorobenzene (surrogate)	104%		
Analysis Date/Time:	12-7-13/09:38		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-12      **Sample Collection Date/Time:** 11/26/13 10:20  
**Envision Sample Number:** 13-26054      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	<b>5.75</b>	5	
cis-1,2-Dichloroethene	<b>5.75</b>	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	100%		
1,2-Dichloroethane-d4 (surrogate)	93%		
Toluene-d8 (surrogate)	93%		
4-bromofluorobenzene (surrogate)	104%		
Analysis Date/Time:	12-7-13/10:00		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-1      **Sample Collection Date/Time:** 11/26/13 11:20  
**Envision Sample Number:** 13-26055      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	101%		
1,2-Dichloroethane-d4 (surrogate)	93%		
Toluene-d8 (surrogate)	91%		
4-bromofluorobenzene (surrogate)	104%		
Analysis Date/Time:	12-7-13/10:22		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408

**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-3      **Sample Collection Date/Time:** 11/26/13 13:45  
**Envision Sample Number:** 13-26056      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	101%		
1,2-Dichloroethane-d4 (surrogate)	92%		
Toluene-d8 (surrogate)	92%		
4-bromofluorobenzene (surrogate)	104%		
Analysis Date/Time:	12-7-13/10:45		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-100A      **Sample Collection Date/Time:** 11/26/13 14:35  
**Envision Sample Number:** 13-26057      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	<b>6.25</b>	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	103%		
1,2-Dichloroethane-d4 (surrogate)	97%		
Toluene-d8 (surrogate)	93%		
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	12-7-13/11:07		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-100B      **Sample Collection Date/Time:** 11/26/13 15:15  
**Envision Sample Number:** 13-26058      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	103%		
1,2-Dichloroethane-d4 (surrogate)	96%		
Toluene-d8 (surrogate)	92%		
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	12-7-13/11:30		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-101A      **Sample Collection Date/Time:** 11/26/13 16:05  
**Envision Sample Number:** 13-26059      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	103%		
1,2-Dichloroethane-d4 (surrogate)	97%		
Toluene-d8 (surrogate)	93%		
4-bromofluorobenzene (surrogate)	105%		
Analysis Date/Time:	12-7-13/11:53		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-101B      **Sample Collection Date/Time:** 11/26/13 16:50  
**Envision Sample Number:** 13-26060      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	105%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	94%		
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	12-7-13/12:15		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-16      **Sample Collection Date/Time:** 11/26/13 17:50  
**Envision Sample Number:** 13-26061      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	107%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	95%		
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	12-7-13/12:37		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-15A      **Sample Collection Date/Time:** 11/27/13 9:25  
**Envision Sample Number:** 13-26062      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	<b>8.56</b>	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	106%		
1,2-Dichloroethane-d4 (surrogate)	100%		
Toluene-d8 (surrogate)	96%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/13:00		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-14A      **Sample Collection Date/Time:** 11/27/13 10:30  
**Envision Sample Number:** 13-26063      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	107%		
1,2-Dichloroethane-d4 (surrogate)	100%		
Toluene-d8 (surrogate)	96%		
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	12-7-13/13:22		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-14B  
**Envision Sample Number:** 13-26064  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/27/13 11:15  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	107%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	96%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/13:44		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-10B  
**Envision Sample Number:** 13-26065  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/27/13 12:10  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	<b>7.91</b>	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	<b>13.5</b>	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	<b>5.18</b>	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	109%		
1,2-Dichloroethane-d4 (surrogate)	104%		
Toluene-d8 (surrogate)	99%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/14:07		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-10A  
**Envision Sample Number:** 13-26066  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/27/13 12:45  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	108%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	96%		
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	12-7-13/14:29		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** W-13  
**Envision Sample Number:** 13-26067  
**Sample Matrix:** water  
**Sample Collection Date/Time:** 11/27/13 14:05  
**Sample Received Date/Time:** 12/3/13 10:30

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	



Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	109%		
1,2-Dichloroethane-d4 (surrogate)	103%		
Toluene-d8 (surrogate)	97%		
4-bromofluorobenzene (surrogate)	110%		
Analysis Date/Time:	12-7-13/14:52		
Analyst Initials	tjg		



Analytical Report

**Client Name:** HEARTLAND ENV  
**Project ID:** UEA SAMPLE STREET  
**Client Project Manager:** NIVAS VIJAY  
**ENVision Project Number:** 2013-3408  
**Analytical Method:** EPA 8260  
**Prep Method:** EPA 5030B  
**Analytical Batch:** 120713VW

**Client Sample ID:** TRIP BLANK      **Sample Collection Date/Time:** 11/25/13  
**Envision Sample Number:** 13-26068      **Sample Received Date/Time:** 12/3/13 10:30  
**Sample Matrix:** water

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	





Analytical Report

8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 2.6	2.6	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	108%		
1,2-Dichloroethane-d4 (surrogate)	101%		
Toluene-d8 (surrogate)	95%		
4-bromofluorobenzene (surrogate)	109%		
Analysis Date/Time:	12-7-13/15:14		
Analyst Initials	tjg		



**EPA 8260 Quality Control Data**

ENVision Batch Number: 120613VW

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	



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8260 QC Continued...

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Hexachloro-1,3-butadiene	< 2.6	2.6	
2-Hexanone	< 10	10	
n-Hexane	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (total)	< 10	10	
Dibromofluoromethane (surrogate)	102%		
1,2-Dichloroethane-d4 (surrogate)	93%		
Toluene-d8 (surrogate)	95%		
4-bromofluorobenzene (surrogate)	105%		
Analysis Date/Time:	12-6-13/21:02		
Analyst Initials	tjg		



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**8260 QC Continued...**

<u>Laboratory Control Standard (LCS):</u>	<u>LCS Results (ug/L)</u>	<u>LCS Conc(ug/L)</u>	<u>% Rec</u>	<u>Flag</u>
Vinyl Chloride	45.5	50	91%	
1,1-Dichloroethene	45.6	50	91%	
trans-1,2-Dichloroethene	46.8	50	94%	
Methyl-tert-butyl-ether	52.6	50	105%	
1,1-Dichloroethane	46.5	50	93%	
cis-1,2-Dichloroethene	46.6	50	93%	
Chloroform	46.6	50	93%	
1,1,1-Trichloroethane	46.1	50	92%	
Benzene	47.4	50	95%	
Trichloroethene	46.4	50	93%	
Toluene	46.7	50	93%	
1,1,1,2-Tetrachloroethane	50.0	50	100%	
Chlorobenzene	49.4	50	99%	
Ethylbenzene	47.8	50	96%	
o-Xylene	48.9	50	98%	
n-Propylbenzene	47.8	50	96%	
Dibromofluoromethane (surrogate)	95%			
1,2-Dichloroethane-d4 (surrogate)	94%			
Toluene-d8 (surrogate)	96%			
4-bromofluorobenzene (surrogate)	104%			
Analysis Date/Time:	12-6-13/19:55			
Analyst Initials	tjg			



**EPA 8260 Quality Control Data**

ENVision Batch Number: 120713VW

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Acetone	< 100	100	
Acrolein	< 1	1	
Acrylonitrile	< 0.45	1	1
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 1	1	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 1	1	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 1	1	
Dichlorodifluoromethane	< 5	5	
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
1,3-Dichloropropene	< 4.1	4.1	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	



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8260 QC Continued...

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Hexachloro-1,3-butadiene	< 2.6	2.6	
2-Hexanone	< 10	10	
n-Hexane	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
1-Methylnaphthalene	< 5	5	
2-Methylnaphthalene	< 5	5	
Naphthalene	< 1.4	1.4	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 0.66	1	1
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 1	1	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (total)	< 10	10	
Dibromofluoromethane (surrogate)	103%		
1,2-Dichloroethane-d4 (surrogate)	92%		
Toluene-d8 (surrogate)	97%		
4-bromofluorobenzene (surrogate)	106%		
Analysis Date/Time:	12-7-13/08:52		
Analyst Initials	tjg		



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**8260 QC Continued...**

<u>Laboratory Control Standard (LCS):</u>	<u>LCS Results (ug/L)</u>	<u>LCS Conc(ug/L)</u>	<u>% Rec</u>	<u>Flag</u>
Vinyl Chloride	44.1	50	88%	
1,1-Dichloroethene	48.1	50	96%	
trans-1,2-Dichloroethene	50.0	50	100%	
Methyl-tert-butyl-ether	54.3	50	109%	
1,1-Dichloroethane	49.4	50	99%	
cis-1,2-Dichloroethene	48.0	50	96%	
Chloroform	49.1	50	98%	
1,1,1-Trichloroethane	49.4	50	99%	
Benzene	49.4	50	99%	
Trichloroethene	49.3	50	99%	
Toluene	49.6	50	99%	
1,1,1,2-Tetrachloroethane	49.7	50	99%	
Chlorobenzene	50.5	50	101%	
Ethylbenzene	49.3	50	99%	
o-Xylene	49.4	50	99%	
n-Propylbenzene	48.9	50	98%	
Dibromofluoromethane (surrogate)	96%			
1,2-Dichloroethane-d4 (surrogate)	94%			
Toluene-d8 (surrogate)	99%			
4-bromofluorobenzene (surrogate)	98%			
Analysis Date/Time:	12-7-13/07:45			
Analyst Initials	tjg			



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**Flag Number**

1

**Comments**

Reported value is below the reporting limit, but above the MDL.





# CHAIN OF CUSTODY RECORD

ENVISSION Laboratories, Inc. | 1439 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-8632 | Fax: (317) 351-8639

Client: <u>Heartland Environmental</u>		Invoice Address: <u>Same</u>		Requested Parameters		Sample Integrity:				
Report: <u>3410 Nishouaha Ave</u>		Project Name: <u>UEA</u>		<p style="text-align: center;">VOC 8260</p> <p style="text-align: center;">Please indicate number of containers per preservative below</p>				Cooler Temp: <u>4</u> °C		
Address: <u>South Bend, IN 46615</u>		Sample Street						Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Report To: <u>Nivas Vijay</u>		Lab Contact:						Samples Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Phone: <u>514-360-0961</u>		Sampled by: <u>David Nye</u>		Custody Seal: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ENVISSION provided bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			VOC vials free of head-space: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Fax: <u>514-289-7482</u>		P.O. Number:		Method 5035 collection used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				5035 samples received within 48 hr of collection? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Desired TAT: (Please Circle One) 1-2 days <input type="checkbox"/> 3-6 days <input checked="" type="checkbox"/> Std (7 bus. days)		QA/QC Required: (circle if applicable) Level III <input type="checkbox"/> Level IV <input type="checkbox"/>								
Sample ID	Coll. Date	Coll. Time	Comp (G) Grab (g)	Matrix	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	Other	ENVISSION Sample ID
W-5	11-25-13	13:00	G	W	X					13-26048
W-9		14:10			X					13-26049
W-7		15:25			X					13-26050
W-8		15:55			X					13-26051
S-34		17:10			X					13-26052
S-3	11-26-13	09:15			X					13-26053
W-12		10:20			X					13-26054
W-1		11:20			X					13-26055
W-3		13:45			X					13-26056
W-100A		14:35			X					13-26057
W-100B		15:15			X					13-26058

Comments:

Relinquished by:

*David Nye*

Date

12-2-13

Time

16:30

Received by:

*Radley*  
*Misty Shappert*

Date

12-2-13

Time

16:30

12-3-13 10:30



# CHAIN OF CUSTODY RECORD

ENVISSION Laboratories, Inc. | 1439 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-8632 | Fax: (317) 351-8639

Client: Westland Environmental Invoice Address: Same

Report Address: 3410 N. Skyway, #14, South Bend, IN 46615 Project Name: UEA Sample Street

Report To: N. Vlas Vijay Lab Contact:

Phone: 574-360-0961 Sampled by: David Nye

Fax: 574-289-7480 P.O. Number:

Desired TAT: (Please Circle One) 1-2 days (3-6 days) QA/QC Required: (circle if applicable) Level III Level IV

### REQUESTED PARAMETERS

VOC	
8260	

**Sample Integrity:**

Cooler Temp: 4 °C

(Cooler) Samples on Ice? Yes No

Samples Intact? Yes No

Custody Seal: Yes No

ENVISSION provided bottles: Yes No

VOC vials free of head-space: Yes No N/A

PH checked? Yes No N/A

Method 5035 collection used? Yes No

5035 samples received within 48 hr of Collection? Yes No

Please indicate number of containers per preservative below

Sample ID	Coll. Date	Coll. Time	Comp (g)	Matrix	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	Other	ENVISSION Sample ID
W-101A	11-26-13	16:05	5	W	2					13-260059
W-101B		16:50			2					13-260060
W-16		17:50			2					13-260061
W-15A	11-27-13	09:25			2					13-260062
W-14A		10:30			2					13-260063
W-14B		11:15			2					13-260064
W-10B		12:10			2					13-260065
W-10A		12:45			2					13-260066
W-13		14:05			2					13-260067
15ip Black	11-25-13				2					13-260068

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
<u>David Nye</u>	12-2-13	1630	<u>Paul Ego</u>	12-2-13	1630
<u>Paul Ego</u>			<u>Matt Snodgrass</u>	12-3-13	10:30

APPENDIX E  
Sampling Data Sheets



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sheet 1 of 1

Sample ID: W-5 Boring or Well ID: W-5 Sample Date & Time: 11-25-13 13:00  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sky overcast Ground: Snow Wind: 2-5 mph Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 30°F Humidity: High Low / Moderate / High \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 5 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 10.59 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 36.32 Ft TOC to Grade: 3.6 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / other: per. r-152z-1-c Pump Intake Depth: 35 Ft below TOC  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.31 inch ID x 0.25 inch OD / 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
12:35	8.81	0.395	NA	11.05	NA	6.87	NA	27.2	NA	149	NA	180	10.59
12:41	10.49	0.388		6.84		7.85		25.1		112		174	10.59
12:44	9.94	0.387	0.3	6.50	5.0	7.93	0.08	13.5	50.2	110	2	176	10.59
12:47	10.10	0.387	0	6.12	5.8	7.96	0.03	13.6	8.8	110	0	174	10.59
12:50	9.91	0.387	0	5.98	2.3	7.96	0	12.8	5.9	110	0	172	10.59
12:53	9.70	0.387	0	5.62	6.0	7.97	0.01	12.0	6.3	111	1	164	10.59

COMMENTS: \_\_\_\_\_  
 \*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-9 Boring or Well ID: W-9 Sample Date & Time: 11-25-13 14:10  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Snow Ground: None Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 30°F Humidity: Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 11.85 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 53.28 Ft TOC to Grade: 2.24 Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: per list vic Pump Intake Depth: 50 Ft below TOC  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) No / Yes & No (Metals Not Sampled)  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1350	6.51	0.586	NA	13.09	NA	7.60	NA	5.0	NA	142	NA	180	11.85
1356	8.38	0.807		5.43		7.62		0.6		138		182	11.85
1359	8.50	0.805	0.2	5.3	5.3	7.63	0.01	0.6	0	138	0	184	11.85
1402	8.52	0.804	0.1	4.95	3.7	7.63	0	0.6	0	138	0	180	11.85
1405	8.51	0.805	0.1	4.83	2.4	7.64	0.01	0.6	0	138	0	174	11.85

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-7 Boring or Well ID: W-7 Sample Date & Time: 11-25-13 15:25  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sunny Sky: Overcast Ground: Sandy Wind: 10-15 mph Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 30°F Humidity: High Low / Moderate / High / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 10.86 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 31.9 Ft TOC to Grade: 0.3 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.2 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 30 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled Water Sample Appearance: (circle) Clear / Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1505	9.26	1.01	NA	6.93	NA	7.57	NA	54.3	NA	144	NA	196	10.86
1511	11.59	0.967		4.25		7.55		36.4		146		196	10.86
1514	11.82	0.969	0.3	4.06	5.1	7.55	0	33.1	9.1	145	1	194	10.86
1517	11.93	0.961	0.3	3.91	3.7	7.56	0.01	30.0	9.4	144	1	192	10.86
1520	12.02	0.958	0.3	3.84	1.8	7.56	0	27.2	9.3	143	1	194	10.86

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-8 Boring or Well ID: W-8 Sample Date & Time: 11-25-13 / 15:55  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sunny Sky: overcast Ground: dry light sand Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 30°F Humidity: High / Moderate Precipitation: \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 4 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 11.10 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 59.92 Ft TOC to Grade: 0.8 Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 55 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Color: Gray / Brown / Tan /  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*			
1535	10.69	0.960	NA	10.82	NA	7.81	NA	0.7	134	134	196	11.10
1541	13.48	0.916		6.80		8.17		12.1	131	131	198	11.10
1544	13.36	0.919	0.13	6.66	2.0	8.19	0.02	11.0	131	131	198	11.10
1547	13.69	0.920	0.1	6.72	0.9	8.20	0.01	9.9	132	132	196	11.10
1550	13.38	0.918	0.1	6.66	0.9	8.21	0.01	9.1	132	132	198	11.10

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: S-3A

Boring or Well ID: S-3A

Sample Date & Time: 11-25-13

Client: UEA

Project No.: 5093-12-01:05

Site Location: 3702 West Sample St, South Bend, IN

Laboratory: Envision Laboratories, Indianapolis, IN

Lab No.: S-3A

Boring or Well Location: Sample Street Complex

Project No.: 5093-12-01:05

Client: UEA

Project No.: 5093-12-01:05

Site Location: 3702 West Sample St, South Bend, IN

Laboratory: Envision Laboratories, Indianapolis, IN

Weather: Sky Overcast Ground: Snow

Wind: 10-15 mph

Precipitation: None

Humidity: High

Temperature: 30.0

Relative Humidity: High

Relative Humidity: High

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_

Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_

Screen / Casing Inside Diameter: 4 Inches

Screen Slot Size: \_\_\_\_\_ Ft

Elevation Top of Casing (TOC): \_\_\_\_\_ Ft

Survey Info: \_\_\_\_\_

SWL Depth from TOC (prior to purge): 7.45 Ft

Well / Sampler Depth from TOC: 18.60 Ft

Well Depth from Grade: \_\_\_\_\_ Ft

Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons

Volume of Water Purged: \_\_\_\_\_ Gallons

Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: per list below

Pump Make / Model: Geopump 2

Field Meter Type(s): Horiba U-50

Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD

Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_

Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled

Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid

Color: Gray / Brown / Tan / \_\_\_\_\_

Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft. below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1644	8.03	0.249	NA	3.84	NA	7.51	NA	139	NA	-22	NA	120	7.43
1651	9.33	0.234		1.27		7.24		9.1		-44		122	7.45
1654	9.52	0.232	0.9	1.07	15.7	7.21	0.03	9.5	4.4	-48	4	120	7.45
1657	9.49	0.232	0	0.91	15.0	7.20		8.0		-55	7	122	7.45
1700	9.68	0.232	0	0.82	9.9	7.19	0.01	8.7	8.8	-61	6	132	7.45
1703	9.60	0.232	0	0.74	9.8	7.18	0.01	8.0	8.8	-67	6	140	7.45
1705	9.69	0.233	0.4	0.69	6.8	7.19	0.01	7.3	8.8	-73	6	150	7.45

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: S-3

Boring or Well ID: S-3

Sample Date & Time: 11-26-13

Client: UEA

Project No.: 5093-12-01:05

Site Location: 3702 West Sample St., South Bend, IN

Laboratory: Envision Laboratories, Indianapolis, IN

Sampling Personnel: David Nye

Weather: Sky: overcast

Temp.: 28°C

Humidity: High

Wind: 5-10 mph

Precipitation: None

Moisture: Low

Other: None

Sample Type: (circle) Permanent Monitoring Well

Well / Sampler Material: (circle) PVC

Screen / Casing Inside Diameter: 4 Inches

Elevation Top of Casing (TOC): 7.42 Ft

SWL Depth from TOC (prior to purge): 7.42 Ft

Well / Sampler Depth from TOC: 50.10 Ft

Volume/Foot Casing (d³x0.04079): 1 Gallon

Volume of Water Purged: 1 Gallons

Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump

Pump Make / Model: Geopump 2

Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD

Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No

Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid

Color: Gray / Brown / Tan /

Were Samples Iced after Collection? YES / NO /

Field Meter Type(s): Horiba U-50

Other: Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE

Other: Metals Not Sampled

Other: None

Other: None

TIME	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)	
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*
0850	184	7.42	9.92	NA	0.257	NA	9.57	NA	8.10	NA	24.7	NA	141	NA
0856	182	7.42	11.83		0.238		6.93		8.73		26.8		128	
0859	186	7.42	12.40	4.8	0.234		6.59		8.72	0.01	18.7		127	
0902	184	7.42	12.64	1.9	0.233	0.4	6.45	2.1	8.73	0.01	17.1	8.6	128	3
0905	182	7.42	12.76	0.9	0.233	0	6.33	1.9	8.75	0.02	15.9	7.0	123	1
0908	184	7.42	12.67	0.7	0.233	0	6.31	0.3	8.75	0	14.5	8.8	121	2

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET



Sample ID: W-12      Boring or Well ID: W-12      Sample Date & Time: 11-26-13      10:20  
 Lab No.: \_\_\_\_\_      Boring or Well Location: Sample Street Complex      Client: UEA  
 Sampling Personnel: David Nye      Project No.: 5093-12-01:05  
 Weather: Sky: overcast      Ground: wet      Precipitation: None      Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 30°F      Humidity: High      Moderate / Low / \_\_\_\_\_ %      Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches      Screened / Open Interval: \_\_\_\_\_ Ft      Screen Slot Size: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft      Grade Elevation: \_\_\_\_\_ Ft      Survey Info: \_\_\_\_\_  
 SWL Depth from TOC (prior to purge): 10.12 Ft      SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 29.26 Ft      TOC to Grade: \_\_\_\_\_ Ft      Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons      Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons      Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump      other: per. resist. i.c.      Pump Intake Depth: 28 Ft below TOC      Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2      Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No      Metals Not Sampled      Water Sample Appearance: Clear      Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None      Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_      Pore: \_\_\_\_\_      (Color: Gray / Brown / Tan / )  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	PURGING	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0955		6.77	NA	10.48	NA	7.67	NA	38.7	NA	-43	NA	136	10.12		
1001		13.29		1.56		7.13		48.7		-109		140	10.12		
1004		13.61		1.16		7.14		19.1		-112		138	10.12		
1007		13.66	0.4	1.06	8.6	7.14	0	17.5	8.4	-114	2	140	10.12		
1010		13.74	0.6	0.96	9.4	7.14	0	16.3	6.9	-115	1	140	10.12		
1013		13.81	0.5	0.87	9.4	7.14	0	14.7	9.8	-117	2	148	10.12		

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-1 Boring or Well ID: W-1 Sample Date & Time: 11-26-13 11:20  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Wind: 12-15 mph Precipitation: None Project No.: 5093-12-01:05  
 Weather: Overcast Humidity: High / Low / Moderate / \_\_\_\_\_ % Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 31°F Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 10.36 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 62.9 Ft TOC to Grade: (-0.3) Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gal/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 0.8 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 55 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Color: Gray / Brown / Tan /

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)			DISSOLVED OXYGEN 10% (mg/l)			pH 0.1 units (pH units)			TURBIDITY 10% (NTU)			ORP 10 mv (mv)	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	NA	READING	CHANGE*	NA	READING	CHANGE*	NA	READING	CHANGE*	NA			
1100	9.15	0.53	NA	11.27	NA	7.46	NA	39.3	NA	41	NA	158	10.36			
1106	11.59	0.775		5.94		7.97		9.9		54		156	10.36			
1109	11.84	2.2	0.1	5.60	5.7	7.95	0.02	7.2	8.9	62	8	158	10.36			
1112	11.94	0.8	0	5.48	2.1	7.94	0.01	7.5	4.2	67	5	160	10.36			
1115	11.94	0	0.3	5.35	2.4	7.94	0	6.1	8.0	72	5	154	10.36			

COMMENTS: \_\_\_\_\_  
 \*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.  
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**LOW-FLOW GROUNDWATER SAMPLING DATA SHEET**

Sample ID: W-3 Boring or Well ID: W-3 Sample Date & Time: 11-26-13 13:45  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sky overcast Ground: wet Wind: 0-5 mph Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 32°F Humidity: High Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 5 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 9.15 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 58.03 Ft TOC to Grade: (-1.0) Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d<sup>2</sup>x0.04079): 1.1 Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump other: peristaltic Pump Intake Depth: 55 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch HDPE x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled Water Sample Appearance: (Clear) Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_ (Color: Gray / Brown / Tan / \_\_\_\_\_ )

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)			DISSOLVED OXYGEN 10% (mg/l)			pH 0.1 units (pH units)			TURBIDITY 10% (NTU)			ORP 10 mv (mv)			PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	NA	READING	CHANGE*	NA	READING	CHANGE*	NA	READING	CHANGE*	NA	READING	CHANGE*	NA		
1325	12.54	0.673	NA	7.05	NA	7.22	NA	77.2	NA	144	NA	200	9.15					
1331	12.43	0.668		6.77		7.12	0.10	58.0		158	14	176	9.15					
1334	12.54	0.668	0	6.59	2.7	7.11	0.01	63.3	8.1	158	0	170	9.15					
1337	12.42	0.668	0	6.45	2.1	7.11	0	48.1	9.8	158	0	158	9.15					
1340	12.64	0.667	0.2	6.27	2.8	7.11	0	43.4	9.8	158	0	160	9.15					

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample Date & Time: 11-26-13  
 Client: UEA

Boring or Well ID: W-100 A  
 Boring or Well Location: Sample Street Complex  
 Project No.: 5093-12-01:05  
 Site Location: 3702 West Sample St., South Bend, IN  
 Laboratory: Envision Laboratories, Indianapolis, IN

Sample ID: W-100 A  
 Lab No.: 1435  
 Sampling Personnel: David Nye  
 Weather: Sky: overcast Ground: wet Precipitation: None  
 Temp.: 32°F Humidity: High Moderate / Low / %

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches  
 Screen Slot Size: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft  
 Survey Info: \_\_\_\_\_  
 SWL Depth from TOC (prior to purge): 10.15 Ft  
 Well / Sampler Depth from TOC: 33.98 Ft  
 Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.3 Gallons  
 Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 33 Ft below TOC  
 Pump Make / Model: Geopump 2 Field Meter Type(s): Horiba U-50  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Water Sample Appearance: ( Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1415	7.67	1.20	NA	6.27	NA	7.09	NA	28.7	NA	-79	NA	176	
1421	11.91	1.14		1.37		7.10		15.7		-112		180	
1424	12.52	1.14	0	1.04	2.00	7.10	0	16.3		-115		186	
1427	12.57	1.14	0	0.94	5.00	7.10	0	17.5		-116	1	188	
1430	12.70	1.14	0	0.85	9.6	7.10	0	19.1		-118	2	194	
1433	12.79	1.13	0.9	0.77	9.4	7.11	0.01	20.9	9.4	-119	1	200	

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-100 B Boring or Well ID: W-100 B Sample Date & Time: 11-26-13  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Wind: 3-10 mph Project No.: 5093-12-01:05  
 Weather: Sunny Ground: soil Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 32°F Humidity: High Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 10.22 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 50.9 Ft TOC to Grade: (-0.40) Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gall/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.2 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: Positive Displacement Pump Intake Depth: 49 Ft below TOC  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No Metals Not Sampled  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1450	9.48	1.09	NA	6.53	NA	7.28	NA	7.5	NA	-114	NA	200	
1456	13.53	1.02		1.03		7.36		9.7		-134		198	
1459	13.90	1.02	0	0.84	18.4	7.36		8.1		-135		200	
1502	13.26	1.01	1.0	0.76	9.5	7.35	0.01	7.4	8.6	-136		196	
1505	13.01	1.02	1.0	0.69	9.2	7.35	0	6.8	8.1	-136	0	200	
1508	13.06	1.03	1.0	0.64	7.2	7.35	0	7.3	7.4	-136	0	200	

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.  
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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-101 A      Boring or Well ID: W-101 A      Sample Date & Time: 11-26-13      1605  
 Lab No.: \_\_\_\_\_      Boring or Well Location: Sample Street Complex      Client: UEA  
 Sampling Personnel: David Nye      Project No.: 5093-12-01:05  
 Sky: Overcast      Ground: wet      Wind: S-12 mph      Precipitation: None      Site Location: 3702 West Sample St., South Bend, IN  
 Weather: \_\_\_\_\_      Humidity: High      Moderate / Low / \_\_\_\_\_ %      Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches      Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft      Grade Elevation: \_\_\_\_\_ Ft      Screen Slot Size: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 10.75 Ft      SWL Elevation (prior to purge): \_\_\_\_\_ Ft      Survey Info: \_\_\_\_\_  
 Well / Sampler Depth from TOC: 34.64 Ft      TOC to Grade: (-0.27) Ft      Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons      Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.2 Gallons      Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump      other: p2-15-ster-tic      Pump Intake Depth: 33      Ft below TOC      Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2      Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE      Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No      (Metals Not Sampled)  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None      Were Samples Iced after Collection? YES / NO / \_\_\_\_\_  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_      Pore: \_\_\_\_\_      Size: \_\_\_\_\_

Water Sample Appearance: ( Circle / Slightly Turbid / Moderately Turbid / Very Turbid )  
 (Color: Gray / Brown / Tan / )

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1540	9.53	1.40	NA	10.92	NA	7.20	NA	12.1	NA	-96	NA	200	
1546	13.19	1.29		1.25		7.17		44.5		-109		196	
1549	13.26	1.28		1.01		7.17		0.1		-112		190	
1552	13.21	0.4		0.92		7.17		5.7	6.6	-113		188	
1555	13.36	1.1		0.84		7.18	0.01	5.2	8.8	-114		188	
1558	13.31	0.4		0.76		7.18	0	4.8	7.7	-115		189	

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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**LOW-FLOW GROUNDWATER SAMPLING DATA SHEET**

Sample ID: W-101B Boring or Well ID: W-101B Sample Date & Time: 11-26-13 16:50  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sunny Ground: None Wind: 10-15 mph Precipitation: None Site Location: 3702 West Sample St, South Bend, IN  
 Temp.: 34°F Humidity: High / Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Segment Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches Screened / Open Interval: \_\_\_\_\_ Ft Screen Slot Size: \_\_\_\_\_  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft Survey Info: \_\_\_\_\_  
 SWL Depth from TOC (prior to purge): 10.73 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 46.35 Ft TOC to Grade: 6-0.3 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gall/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.2 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 45 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled Water Sample Appearance: ( Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1625	8.31	NA	1.13	NA	9.11	NA	7.28	NA	15.7	NA	-62	NA		
1631	13.02		1.23		1.43		7.22		12.1		-116			
1634	13.05		1.27		1.08		7.23		9.8		-119			
1637	12.95	0.8	1.29		0.87		7.22		8.4		-121			
1640	12.75	1.5	1.31		0.79	9.2	7.22	0	8.4	0	-122	1		
1643	12.72	0.2	1.32		0.72	8.9	7.22	0	8.8	4.8	-123	1		
1646	12.62	0.7	1.33		0.66	8.3	7.22	0	8.0	9.1	-123	0	186	

COMMENTS: \_\_\_\_\_  
 \*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.  
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**LOW-FLOW GROUNDWATER SAMPLING DATA SHEET**



Sample ID: W-16 Boring or Well ID: W-16 Sample Date & Time: 11-26-13 17:50  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01:05  
 Weather: Overcast Wind: 15-20 mph Precipitation: None Site Location: 3702 West Sample St., South Bend, IN  
 Temp: 32°F Humidity: High / Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 4 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 12.84 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 60.55 Ft TOC to Grade: 3.4 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume of Water Purged: 1.2 Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / peristaltic / Other: \_\_\_\_\_ Pump Intake Depth: 50 Ft below TOC  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / HDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None (Color: Gray / Brown / Tan / )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Size: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1725	6.45	1.51	NA	9.57	NA	7.45	NA	54.0	NA	-22	NA	180	
1731	12.81	1.30		5.99		7.66		23.7		25		182	
1734	13.12	1.30	0	5.69	5.0	7.65	0.01	11.0		44	19	174	
1737	13.12	1.30	0	5.82	2.3	7.63	0.02	9.9	10.0	53	9	176	
1740	13.11	1.30	0	5.72	1.7	7.63	0	9.0	9.1	60	7	180	
1743	13.22	1.30	0	5.50	3.8	7.63	0	8.2	8.9	65	5	178	

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-15A      Boring or Well ID: W-15A      Sample Date & Time: 11-27-13 09:25  
 Lab No.: \_\_\_\_\_      Boring or Well Location: Sample Street Complex      Client: UEA  
 Sampling Personnel: David Nye      Project No.: 5093-12-01:05  
 Weather: Sky: Overcast      Ground: Shrub      Precipitation: Shrub      Site Location: 3702 West Sample St, South Bend, IN  
 Temp.: 2/0F      Humidity: High / Moderate / Low / \_\_\_\_\_ %      Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches      Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft      Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 12.01 Ft      SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 35.30 Ft      TOC to Grade: 2.7 Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons      Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.2 Gallons      Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic      Pump Intake Depth: 33 Ft below TOC      Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2      Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled      Water Sample Appearance: ( Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None      (Color: Gray / Brown / Tan / )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_      Were Samples Used after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft. below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0900	8.68	0.533	NA	12.98	NA	7.89	NA	6.9	NA	10	NA	200	12.01
0906	13.07	1.65		1.53		7.04		8.2		-100		198	12.01
0909	13.24	1.65		1.22	20.3	7.07		2.2		-103		190	12.01
0912	13.25	1.65		1.05		7.07		2.0		-104		186	12.01
0915	13.29	1.65	0.3	0.95		7.07	0	1.9	5.0	-104	0	182	12.01
0918	13.48	1.64	1.4	0.89		7.07	0	2.0		-106		186	12.01
0921	13.82	1.64	2.5	0.79		7.07	0	2.2		-105		182	12.01

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET



Sample ID: W-15B Boring or Well ID: W-15B Sample Date & Time: 10-27-13 0935  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Precipitation: \_\_\_\_\_ Project No.: 5093-12-01-05  
 Weather: \_\_\_\_\_ Sky: \_\_\_\_\_ Humidity: High / Low / \_\_\_\_\_ % Site Location: 3702 West Sample St., South Bend, IN  
 Ground: \_\_\_\_\_ Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): Dry Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 11.58 Ft TOC to Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d<sup>2</sup>x0.04079): \_\_\_\_\_ Gal/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: \_\_\_\_\_ Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: \_\_\_\_\_ Ft below TOC  
 Pump Make / Model: Geopump 2 / other: \_\_\_\_\_ Pump Meter Type(s): Horiba U-50  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Water Sample Appearance: ( Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 (Color: Gray / Brown / Tan / )  
 Were Samples Iced after Collection? YES / NO /

TIME	URGING	SAMPLING	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
				NA		NA		NA		NA		NA		NA		

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-14A Boring or Well ID: W-14A Sample Date & Time: 11-27-13 10:30  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sky: overcast Ground: snow Wind: 0-5 mph Precipitation: SNOW Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 23.0F Humidity: High Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 4 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 12.52 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 60.95 Ft TOC to Grade: 2.5 Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gall/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.3 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / Geopump 2 / Other: peristaltic Pump Intake Depth: 55 Ft below TOC  
 Pump Make / Model: \_\_\_\_\_ Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Infon® EEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_  
 Were Samples Iced after Collection? YES / NO / \_\_\_\_\_

TIME	TEMPERATURE 3% (degrees C)	SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
		READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1005	9.08	1.25	NA	9.76	NA	7.52	NA	42.2	NA	8	NA	200	12.52
1011	13.47	1.13		6.50		7.80		60.7		34		196	12.52
1014	13.81	1.12		6.37		7.80	0	55.1		47	13	198	12.52
1017	13.86	0.4		6.25	1.9	7.81	0.01	50.0	9.1	54	7	200	12.52
1020	13.99	0.9		6.30	0.8	7.81	0	45.2	9.6	60	6	194	12.52
1023	14.11	0.9		6.15	2.4	7.81	0	40.8	9.7	64	4	200	12.52

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-14B Boring or Well ID: W-14B Sample Date & Time: 11-27-13 11/15  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Snow Sky: overcast Ground: snow Wind: 5-10 mph Precipitation: 5.0  
 Temp.: 25°F Humidity: High / Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Remnant Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 13.08 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 44.13 Ft TOC to Grade: 2.9 Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.3 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 43 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP / Teflon® FEP / HDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None (Color: Gray / Brown / Tan / )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1050	8.99	NA	1.16	NA	11.91	NA	7.41	NA	27.1	NA	-95	NA	200	13.08
1056	13.29		1.06		1.27		7.21	0.20	23.0		-105	10	200	13.08
1059	13.34	0.4	1.06	0	1.03	18.9	7.21	0	21.4		-109	8	196	13.08
1102	13.54	1.8	1.07	0	0.89	13.6	7.20		17.3		-110		200	13.08
1105	13.30	1.8	1.07	0	0.82	7.9	7.19	0.01	15.7	9.2	-111	1	198	13.08
1108	13.31	0.1	1.07	0	0.76	7.3	7.19	0	14.2	9.6	-112	1	194	13.08
1111	13.28	0.2	1.08	0.9	0.73	3.9	7.18	0.01	12.9	9.2	-113	1	200	13.08

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: w-10 B Boring or Well ID: w-10 B Sample Date & Time: 11-27-13 12:10

Lab No.: \_\_\_\_\_ Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01:05  
 Weather: Sky: Overcast Ground: Snow Precipitation: Snow Site Location: 3702 West Sample St., South Bend, IN  
 Temp: 25 Humidity: High Moderate / Low / \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) RVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: \_\_\_\_\_ Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 12.17 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 31.31 Ft TOC to Grade: 2.5 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gal/Ft Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 2.1 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / Cather peristaltic Pump Intake Depth: 30 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter: (circle) 0.19 inch ID x 0.44 inch OD / 0.31 inch ID x 0.25 inch OD / 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled Water Sample Appearance: Clear Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None (Color: Gray / Brown / Tan / )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1145	13.04	NA	4.21	NA	7.22	NA	34.6	NA	-19	NA	200	12.17		
1151	14.52		1.04		7.09		58.3		39		194	12.17		
1154	14.53		0.792		7.12		51.1		47		200	12.17		
1157	14.50		0.788		7.15		12.6		37		210	12.17		
1200	14.60	0.1	0.786	0.3	7.12	0.03	11.4	9.5	28	9	200	12.17		
1203	14.59	0.1	0.784	0.3	7.07	0.05	10.3	9.6	18	10	210	12.17		
1206	14.57	0.1	0.782	0.3	7.11	0.04	9.3	9.7	12	6	200	12.17		

COMMENTS:

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.



# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-10 A Boring or Well ID: W-10 A Sample Date & Time: 11-27-13 12:45  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Project No.: 5093-12-01-05  
 Weather: Sky: overcast Ground: Snow Site Location: 3702 West Sample St., South Bend, IN  
 Temp.: 25.8 F Humidity: High Precipitation: \_\_\_\_\_ % Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 13.09 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 62.1 Ft TOC to Grade: 2.3 Ft Well Depth from Grade: \_\_\_\_\_ Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.5 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes

Pump Type: (circle) Bladder Pump / other: peristaltic Pump Intake Depth: 55 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / LDPE / Other: \_\_\_\_\_  
 Tubing Diameter (circle) 0.19 inch ID x 0.44 inch OD / 0.31 inch ID x 0.25 inch OD / other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		ORP 10 mv (mv)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
12:25	11.55	NA	1.06	NA	13.96	NA	7.67	NA	2.5	NA	35	NA	200	13.09
12:31	14.15		1.02		5.44		7.82		5.1		54		210	13.09
12:34	14.00	1.1	1.02	0	5.10	6.3	7.76	0.06	4.7	1.8	63	9	200	13.09
12:37	13.68	2.3	1.02	0	4.91	3.7	7.72	0.04	4.3	8.5	70	7	200	13.09
12:40	13.55	1.0	1.03	1.0	4.76	3.1	7.70	0.02	3.9	9.3	75	5	210	13.09

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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# LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sample ID: W-13 Boring or Well ID: W-13 Sample Date & Time: 11-27-13 14:05  
 Lab No.: \_\_\_\_\_ Boring or Well Location: Sample Street Complex Client: UEA  
 Sampling Personnel: David Nye Wind: \_\_\_\_\_ Precipitation: None Project No.: 5093-12-01-05  
 Sky: clear Humidity: 60% High / Moderate / Low / \_\_\_\_\_ % inside Site Location: 3702 West Sample St., South Bend, IN  
 Weather: \_\_\_\_\_ Laboratory: Envision Laboratories, Indianapolis, IN

Sample Type: (circle) Permanent Monitoring Well / Temporary Monitoring Well / Geoprobe® SP16 Sampler / Other: \_\_\_\_\_  
 Well / Sampler Material: (circle) PVC / Stainless / Galvanized / Other: \_\_\_\_\_  
 Screen / Casing Inside Diameter: 2 Inches Screened / Open Interval: \_\_\_\_\_ Ft  
 Elevation Top of Casing (TOC): \_\_\_\_\_ Ft Grade Elevation: \_\_\_\_\_ Ft  
 SWL Depth from TOC (prior to purge): 11.11 Ft SWL Elevation (prior to purge): \_\_\_\_\_ Ft  
 Well / Sampler Depth from TOC: 35.48 Ft TOC to Grade: (-0.28) Ft  
 Volume/Foot Casing (d²x0.04079): \_\_\_\_\_ Gallons Volume of Water Column: \_\_\_\_\_ Gallons  
 Volume of Water Purged: 1.8 Gallons Well Volume Purged: (circle) 1 2 3 4 5 6 7 8 9 10 well volumes  
 Pump Type: (circle) Bladder Pump / other: per-st-l-c Pump Intake Depth: 33 Ft below TOC Field Meter Type(s): Horiba U-50  
 Pump Make / Model: Geopump 2 Tubing Type (circle): Teflon® FEP (inner)-HDPE (outer) / Teflon® FEP / HDPE / Other: \_\_\_\_\_  
 Tubing Diameter (circle) 0.19 inch ID x 0.44 inch OD / 0.19 inch ID x 0.25 inch OD / 0.31 inch ID x 0.44 inch OD / Other: 0.125 inch ID x 0.25 inch OD  
 Were Metals Filtered Prior to Preservation?: (circle) Yes / No / Yes & No / Metals Not Sampled Water Sample Appearance: Clear / Slightly Turbid / Moderately Turbid / Very Turbid /  
 Filtration Method: ( Gravity / Vacuum / Pressure ) None (Color: Gray / Brown / Tan / )  
 Filter: ( Cartridge / Paper ) Type: \_\_\_\_\_ Size: \_\_\_\_\_ Pore: \_\_\_\_\_ Were Samples Iced after Collection? YES / NO /

TIME	TEMPERATURE 3% (degrees C)		SPECIFIC CONDUCTIVITY 3% (mS/cm)		DISSOLVED OXYGEN 10% (mg/l)		pH 0.1 units (pH units)		TURBIDITY 10% (NTU)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1340	6.03	NA	0.911	NA	3.96	NA	7.57	NA	1816	NA	180	11.11
1346	15.34		0.816		1.17		7.19		380		190	11.11
1349	15.39	0.3	0.841	3.1	0.94	19.7	7.24		22.8		190	11.11
1352	15.37		0.882	4.9	0.79	16.0	7.27		10.7		200	11.11
1355	15.32	0.3	0.892	1.1	0.72	8.9	7.29	0.02	9.7	9.3	210	11.11
1358	15.29	0.2	0.895	0.3	0.67	6.9	7.30	0.01	8.8	9.3	200	11.11
1401	15.17	0.8	0.903	0.9	0.63	6.0	7.30	0	8.0	9.1	210	11.11

COMMENTS: \_\_\_\_\_

\*Indicator parameters have stabilized when 3 consecutive readings are within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

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