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June 3, 2020

Ms. Carrie Stoltz
WDNR
107 Sutliff Avenue
Rhinelander, WI 54501

SUBJECT: Perry's Corners – 2020 Progress Report
N6097 STH 73, Hannibal, WI
WDNR BRRTS# 03-61-168823
PECFA ID # 54433-9753-97

Dear Ms. Stoltz:

Cedar Corporation has completed an additional four (4) rounds of groundwater sampling at the Perry's Corners site at N6097 STH 73 in Hannibal, WI. This letter serves as the second of two (2) progress reports completed for work at the site within the Scope of the current Bid Deferment approved August 5, 2019. An additional sample was also collected from both the Webster and Olson private wells to confirm results from the October 2019 sampling round, as approved by WDNR November 26, 2019.

ATTACHMENTS

Table 1 – Groundwater Elevations/Hydrograph
Table 2 – Groundwater Analytical Table

Figure 1 – Site Location Map
Figure 2 – Groundwater Flow Map (Monitoring Wells)
Figure 3 – Groundwater Flow Map (Mid-Depth Piezometers)
Figure 4 – Groundwater Flow Map (Deep Piezometers)
Figure 5 – Benzene Isoconcentration Map (Monitoring Wells)
Figure 6 – Benzene Isoconcentration Map (Mid-Depth Piezometers)

Appendix A – Standard Operating Procedures
Appendix B – Laboratory Analytical Procedures

PROCEEDINGS

Procedures:

Cedar Corporation's standard procedures were followed throughout the project and are presented in Appendix A. No work was completed without prior authorization of either the WDNR project manager (Carrie Stoltz) or Ruth Ann Olson - Responsible Party.

SETTING

The Perry's Corners site is a former gas station site located at the southwest corner of CTH M and STH 73 in Hannibal, Taylor County, WI. The area surrounding the site is rural with scattered residential and agricultural land use. To the west of the property are wetlands associated with the Fisher River located southwest of the site. Agricultural land use is predominant to the east, with open fields and wetlands to the north and a residential area to the west. The property has been used as a residence since the closure of the gas station; This residence was first occupied by Ruth Ann Olson and now by Glen Webster.

PREVIOUS WORK

Remedial Actions

In 1998 the underground fuel storage tanks and dispensing system associated with the former gas station were removed from the north side of the property where the mobile home exists today. The former dispenser island was located on the east side of the property along STH 73. There have been three (3) remedial excavations on the Perry's Corners site. In 1998, soils in the vicinity of the former underground fuel storage tanks were excavated in conjunction with the removal of the underground fuel storage tanks and dispensing system. Approximately 1750 tons of impacted soils were also excavated in July 2010 and disposed of at Seven Mile Creek Landfill in Eau Claire, WI. This excavation removed soils from the north central and east central portions of the property in the vicinity of the former fuel storage tank and dispenser island. In August 2018, another excavation removed approximately 700 tons from the northern and eastern edge of the property, as well as around the former gas station structure. In areas on the north edge of the property where a fiber optic cable is buried approximately two (2) ft. below ground surface (bgs), soils were removed above the cable and a six (6) ft. wide fabric boundary was placed over the cable prior to backfilling. For more information regarding the remedial excavations, see the previously submitted "Post-Excavation Report for Perry's Corner Site" (*Cedar Corp, 2018*).

Groundwater Monitoring

Groundwater monitoring at the Perry's Corner site began in May 2007 with the installation of eight (8) monitoring wells. Another four (4) wells were installed later that year. A total of 11 monitoring wells and 9 (nine) piezometers have been installed at the site over the course of the project. The status of these wells is described below:

Water Table Observation

MW-1	MW-7
MW-2 (destroyed)	MW-9
MW-3 (destroyed)	MW-10
MW-4	MW-11
MW-5 (abandoned)	MW-13
MW-6	

Mid-Depth Piezometers

MW-2P	MW-8P
MW-4P	MW-12P
MW-6P	

Deep Piezometers

MW-3D	MW-12D
MW-6D	MW-13

During groundwater sampling events at the site, free product was removed from the wells when encountered (primarily in MW-2, MW-4, and MW-5). No free product has been observed in any wells on-site since August 2016 (MW-2). Groundwater elevations were also recorded for each well during each sampling event (see groundwater elevations and a hydrograph in Table 1). Private residential water supply wells in the vicinity of the site have also continued to be sampled throughout the course of this project.

DISCUSSION

Groundwater Flow

Groundwater depth in the vicinity of the site is relatively shallow (10 ft. bgs or less), as evidenced by the wetlands bordering the source property to the west, and other wetlands in the area. Historic groundwater flow in the vicinity of the site is to the south/southwest. Groundwater flow maps based on groundwater elevations collected on May 19, 2020 are presented as Figures 2-4. Figure 2 shows shallow groundwater flow generated using depths to water in monitoring wells across the site. Figure 3 depicts groundwater flow using depths to water in the mid-depth piezometers and Figure 4 shows deep groundwater flow. Both shallow and deep groundwater flow maps continue to show a southerly groundwater flow. Historically groundwater flow has been reported as flowing south/southwesterly in the mid-depth piezometers as well. However, data from the May 19, 2020 round shows groundwater flow as being to the west in mid-depth piezometers. It is possible that the PVC casings of monitoring wells, which have been on-site for nearly 15 years, have shifted, resulting in changed elevations which are impacting the creation of accurate groundwater flow maps.

Groundwater Quality

Monitoring Wells

During the last several rounds of groundwater monitoring, the following trends have been observed in monitoring wells throughout the site:

Decreasing	**Stable**	**No NR 140 Exceedances**
MW-1	MW-2P	MW-3D
MW-4	MW-4P	MW-6D
MW-8P	MW-6	MW-7
	MW-6P	MW-9
	MW-12P	MW-10
		MW-11
		MW-12D
		MW-13
		MW-13D

Based on the results of the last four (4) rounds of groundwater monitoring at the Perry's Corner site, the following observations have been made:

- Over the last several rounds of groundwater monitoring, it was reported that the majority of the monitoring wells and piezometers sampled throughout the site have no exceedances of NR 140 groundwater standards. (See analytical results summarized in the attached Table1. Analytical Reports for the most recent two (2) rounds of sampling are provided in Appendix B.)
- Groundwater contamination trends in shallow monitoring wells are generally stable or decreasing, with most wells exceeding an NR 140 PAL, but not exceeding an ES.
- Impacted groundwater concentration trends in mid-depth piezometers are generally stable or decreasing, with most wells exceeding an NR 140 ES. Wells historically exhibiting an increasing trend (MW-2P and MW-12P) are now showing more stable concentrations and in general, PVOC concentrations have been largely decreasing since sampling of these wells began.
- Groundwater sampled in the deep piezometers continues to remain unimpacted above any NR 140 standards.
- There are no detections of PVOCs in either MW-9 or MW-10, indicating that the impacted groundwater plume has not extended beyond the source property right-of-way to the north or east. Down gradient wells MW-13 and MW-13D located to the south on the Witkowski property also remain unimpacted.

Private Wells

Both the Olson private well (utilized by Glen Webster) on the source property and the Webster private well (utilized by the Witkowski residence) have continued to be sampled during each round of monitoring. The October 2019 analytical results showed a concentration of benzene (0.94 ug/L) above the NR 140 PAL in a sample collected from the Webster well at the Witkowski residence. A confirmation sample was collected in November 2019 which showed a similar concentration (1.1 ug/L), again exceeding the NR 140 PAL, as well as the March 2020 round (1.7 ug/L). However, there were no detection of benzene or any other PVOCs from the sample collected during the May 2020 sampling round. The Olson well has also continued to be sampled and has remained unimpacted.

CONCLUSIONS

The results of this investigation continue to show that groundwater at the Perry's Corner site is impacted above NR 140 PALs and ESs in source areas. However, it is apparent that shallow groundwater contamination appears to be attenuating, or at least stabilizing. More recent sampling of groundwater at the site indicates that PVOC concentrations, which appeared to be increasing in mid-depth piezometers in 2019, may have been exaggerated by rising groundwater levels in recent years, and now appear to be more stable. The lack of contamination in the deep piezometers throughout the site indicate that deeper groundwater beneath the site has not been impacted. It also appears the horizontal extent of the plume has been largely defined, especially north and east of the source property with no detections of any PVOC compounds in MW-9 and MW-10.

RECOMMENDATIONS

As all accessible impacted soils on the property have been removed as part of three (3) historic impacted soil excavations, no other remedial actions to reduce groundwater contamination at the site

are proposed at this time. Downgradient monitoring wells and the on-site Olson well remain unimpacted and no additional receptors are likely to become impacted. Cedar Corporation recommends submitting this site for closure and abandoning the aging wells on-site. If case closure is not approved for this site at this time, Cedar Corporation recommends using remaining PECFA funds to abandon the more deteriorated monitoring wells at the site, leaving a few sentinel wells to remain on-site. Please feel free to contact me at 715-235-9081 or anna.beckman@cedarcorp.com should you have any questions or comments regarding the information provided herein.

Sincerely,

CEDAR CORPORATION

Anna Beckman

Anna Beckman
Staff Geologist

TABLES

Table 1: Groundwater Elevations
Perry's Corner
Hannibal, WI

NOTE : ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL (MSL)

WELL	MW-1	MW-2	MW-2P	MW-3	MW-3D	MW-4	MW-4P	MW-5	MW-6	MW-6P	MW-6D	MW-7	MW-8P	MW-9	MW-10	MW-11	MW-12P	MW-12D	MW-13	MW-13D	N. Sump	S. Sump
UNIQUE WELL ID	OX191	OX192	VW800	OX193	OX189	OX194	VW801	OX195	OX178	VW802	OX188	OX179	OX180	OX191	OX192	OX193	OX194	OX190	VW809	VW808	-	-
CASING ELEV.	1270.61	1271.61	1271.54	1272.25	1272.03	1271.93	1271.72	1270.42	1271.39	1271.28	1271.43	1272.33	1273.14	1271.30	1272.25	1270.63	1270.32	1270.68	1269.62	1269.29	-	-
GROUND ELEV.	1271.06	1272.00	1272.00	1272.82	1272.79	1272.46	1272.46	1270.94	1272.01	1272.01	1272.03	1269.93	1270.79	1271.38	1272.30	1269.16	1268.96	1268.43	1266.74	1266.73	-	-
SCREEN TOP ELEV.	1260.61	1263.61	1241.54	1262.75	1188.93	1262.93	1241.72	1261.42	1262.39	1241.28	1206.28	1264.33	1243.14	1266.30	1264.25	1265.63	1240.32	1221.13	1262.97	1200.88	-	-
SCREEN BOTTOM ELEV.	1250.61	1253.61	1236.54	1252.75	1183.93	1252.93	1236.72	1251.42	1252.39	1236.28	1201.28	1254.33	1238.14	1256.30	1254.25	1255.63	1235.32	1216.13	1252.97	1195.88	-	-
DATE																						
05/31/2007	1261.30	1261.06		1261.31		1261.27		1265.83	1261.25			1261.32	1261.26									
06/12/2007	1260.95	1260.69		1261.01		1260.95		1265.43	1260.92			1260.90	1260.89									
08/15/2007	1259.36	1259.24		1259.48		1259.18		1263.97	1259.29			1259.27	1259.29									
10/23/2007	1260.71	1261.23		1261.19		1261.04		1264.74	1261.27			1261.28	1261.23	1261.06	1261.25	1261.91	1261.44					
11/15/2007	1261.00	1260.99		1261.07		1260.73		1262.80	1261.08			1260.97	1260.96	1261.14	1261.22	1260.89	1260.80					
1/9/2008	1260.62	1260.65		1260.70		1260.37		1263.41				1260.70	1260.70	1260.84	1260.84	1260.52	1260.50					
3/25/2009	1260.10	1260.07	1260.23	1260.21		1259.80	1260.13	1263.53		1260.15			1260.29				1260.25					
6/1/2009	1261.05	1261.19	1261.12	1261.25		1261.00	1261.14	1266.57	1260.99	1261.15		1261.24	1261.19	1261.37	1261.32	1261.34	1261.16					
4/15/2010	1261.73	1261.73	1261.81	1261.89	1261.72	1261.45	1261.87	1265.82	1261.35	1261.86	1256.32	1261.99	1261.92	1262.09	1261.88	1262.32	1261.96	1261.79	1261.24	1261.02		
7/13/2010	1261.76	1262.93	1263.03	1262.28	1260.03	1262.48	1263.07		1262.36	1262.90	1254.98	1263.13	1263.06	1263.34	1263.24	1263.67	1263.05	1262.90	1262.30	1261.65		
10/6/2010	1265.09	1265.40	1265.21	1265.73	1261.92	1265.18	1265.28		1264.86	1263.66	1251.72	1265.12	1265.15	1265.56	1265.60	1264.98	1264.70	1264.74	1263.25	1262.54	1266.90	1266.32
6/3/2011	1265.34	1266.20	1265.62	1266.13	1262.09	1265.71	1265.70					1265.44	1265.49	1266.01	1265.89	1265.25	1264.97	1265.03	1263.39	1262.43	1267.68	1267.05
10/4/2011	1263.28	1263.00	1263.43	1263.85	1262.93	1263.32	1263.45		1262.99	1263.34	1250.08	1263.36	1263.33	1263.70	1263.60	1263.44	1263.01	1263.03	1261.71	1261.11	1266.66	1264.33
4/24/2012	1263.74	1263.98	1263.82	1264.18	1263.54	1263.86	1263.85		1263.46	1263.84	1255.90	1263.91	1263.86	1264.25	1264.01	1264.24	1263.68	1263.56	1262.73	1261.94	1266.51	1264.47
5/16/2013	1262.26	1262.69	1262.34	1263.06	1262.20	1262.46	1262.45		1262.13	1262.48	1249.73	1262.48	1262.42	1262.65	1262.49	1262.81	1262.29	1262.16	1261.51	1260.80	1266.48	1264.87
10/14/2013	1261.80	1260.69	1261.68	1262.35	1261.61	1261.94	1261.99		1261.91	1261.89	1252.36	1261.88	1261.83	1262.02	1261.94	1262.43	1261.60	1261.53	1260.65	1260.14	1264.35	1263.00
6/23/2015	1264.48	1264.84	1264.42	1265.10	1264.20	1264.72	1264.67		1264.49	1264.56	1251.47	1264.57	1264.56	1264.85	1264.76	1264.88	1264.18	1264.19	1262.85	1262.39	1268.17	1266.63
11/19/2015	1264.33	1264.16	1264.30	1264.69	1264.26	1264.46	1264.52		1264.49	1264.41	1254.06	1264.48	1264.42	1264.65	1264.67	1265.03	1264.16	1264.13	1263.05	1262.65	1267.80	1265.32
4/7/2016	1265.64	1265.81	1265.62	1266.18	1265.32	1265.86	1265.84		1265.70	1265.71	1253.06	1264.68	1265.72	1266.15	1266.08	1265.86	1265.10	1265.23	1263.97	1263.30	1268.32	1267.37
8/25/2016	1264.47	1264.38	1264.42	1265.23	1264.23	1264.65	1264.64		1264.54	1264.55	1255.33	1264.46	1264.55	1264.85	1264.85	1265.12	1264.21	1264.20	1262.83	1262.34	1267.72	1266.21
11/30/2018	1263.33		1263.26		1263.82	1263.53	1263.56		1263.42	1262.42		1263.49	1263.77	1263.44	1263.70	1263.71	1263.15	1263.15	1262.16	1260.09	1260.09	
4/9/2019	1262.11		1262.39		1262.75	1262.83	1262.90		1263.28	1262.27		1262.90	1262.80		1262.75	1264.02	1262.73	1262.50	1261.91	1261.79		
7/3/2019	1263.71	Destroyed	1264.64	Destroyed	1264.78	1264.83	1263.88		1261.83	1264.13	1251.83	1264.45	1263.66	1264.25	1265.60	1265.00	1263.12	1264.63	1263.49	1262.90		
10/23/2019	1264.71		1265.53		1262.14	1265.44	1265.80		1263.34	1263.80	1252.19	1265.59	1265.58	1265.68	1266.14	1267.40	1265.32	1264.56	1263.58	1262.77		
3/24/2020	1264.51		1265.59		1262.25	1265.53	1265.82					1265.31	1264.89	1266.85	1266.15	1267.48	1265.32	1263.51	1264.09	1262.99		
5/19/2020	1263.66		1264.80		1264.54	1264.86	1265.13		1264.29	1264.25	1252.25	1264.50	1264.12	1266.79	1264.63	1264.93	1263.69	1262.57	1262.62	1262.60		

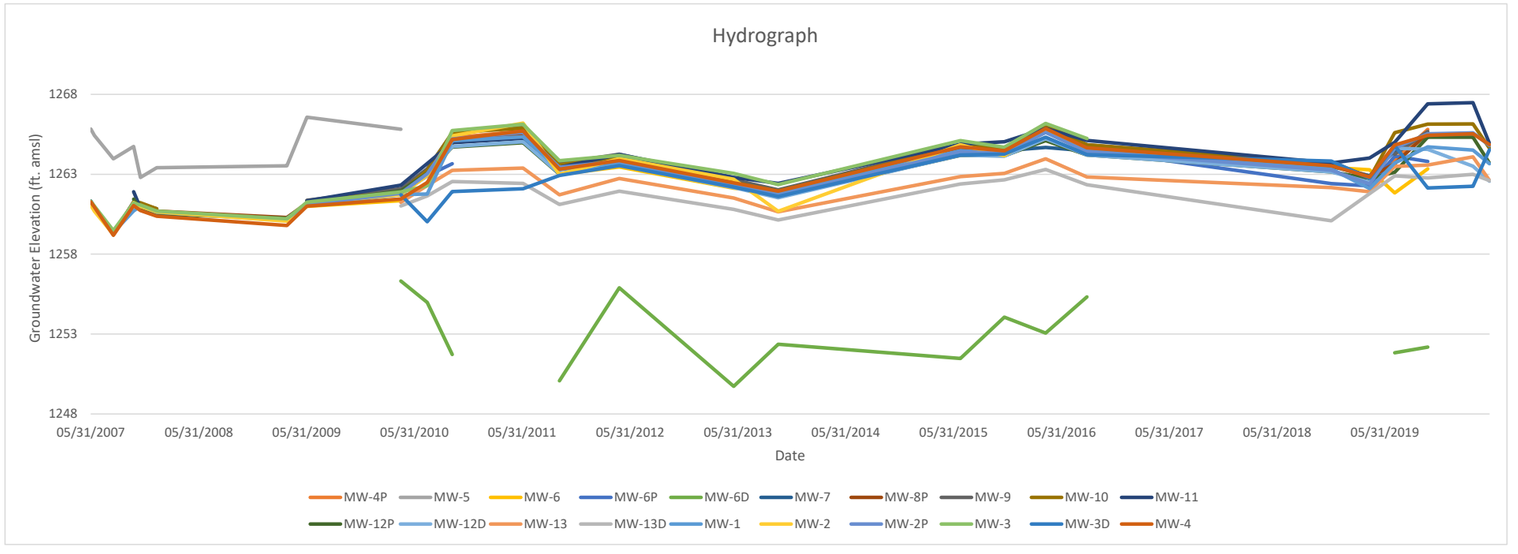


Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-1	05/31/07	**11000**	**2,200**	<80	**460**	**1,500**	**1,170**	*4,100*
	08/15/07	**5800**	**1,500**	<23	**340**	**3,900**	**1,660**	*6,300*
	10/23/07	**8000**	**1,700**	<0.23	**390**	**1,300**	**1,530**	*4,900*
	1/9/2008	**8000**	**1,500**	<5	**270**	*770*	**1,160**	*4,000*
	3/25/2009	**5900**	**1,900**	<23	**340**	*550*	**1,250**	*2,900*
	6/1/2009	**2200**	**790**	<0.50	**130**	*900*	**550**	*1,400*
	4/15/2010	**7000**	**1,900**	<23	**360**	*640*	**1,390**	*3,200*
	7/13/2010	**3900**	**1,300**	<23	**250**	*330*	**740**	*1,700*
	10/6/2010	**1600**	*620*	<4.6	**140**	120	*249*	*510*
	6/3/2011	**27**	43	<0.23	9	4	12	29
	10/4/2011	**41**	120	<0.23	24	7.4	15.5	30
	4/24/2012	**29.6**	**88.6**	*27.4*	*16.8*	41.2	34.4	100
	5/16/2013	**200**	*330*	**130**	*86*	*280*	*168*	*520*
	10/14/2013	**15**	41	*13*	*31*	6.8	60	36
	6/23/2015	**56**	*220*	*15*	*52*	14	*197*	270
	11/19/2015	*4.1*	17	*20*	*16*	2.4	3.9	18
	4/7/2016	**13**	98	*22*	*35*	160	67.8	300
	8/25/2016	*3.8*	19	7.1	*13*	1.8	15.3	26
	11/30/2018	**20**	*220*	**72**	*72*	*180*	*230*	*470*
	4/9/2019	**74**	*520*	**160**	**130**	*240*	*295*	*1300*
	7/3/2019	**39**	*280*	*33*	**76**	18	*120*	380
	10/23/2019	*0.53*	1.2	<0.39	1.1	<0.15	2.39	1.6
	3/24/2020	*3.3*	95	<0.39	*15*	10	60.4	220
	5/19/2020	*4.9*	200	<0.39	*51*	15	181	290
MW-2	05/31/07							
	08/15/07	**21000**	**3,700**	<23	**1,200**	**41,000**	**6,400**	**20,000**
	10/23/07	**13000**	**3,500**	<92	**1,100**	**38,000**	**5,200**	**21,000**
	1/9/2008	**12000**	**2,400**	<9.2	**710**	**22,000**	**4,400**	**17,000**
	3/25/2009	**10000**	**2,000**	<92	**910**	**28,000**	**4,100**	**21,000**
	6/1/2009	**26000**	**1,900**	<2.0	**440**	**40,000**	**2,540**	**15,000**
	4/15/2010	FREE PRODUCT						
	7/14/2010	FREE PRODUCT						
	10/6/2010	FREE PRODUCT						
	6/3/2011	**17000**	**2,600**	<23	**910**	*41,000*	**4,460**	*17,000*
	10/4/2011	FREE PRODUCT						
	4/24/2012	FREE PRODUCT						
	5/16/2013	FREE PRODUCT						
	10/14/2013	**17,000**	**2,700**	**75**	**1,900**	**39,000**	**11,500**	**26,000**
	6/23/2015	**19,000**	**3,800**	**290**	**1,600**	**43,000**	**6,600**	**26,000**
	11/19/2015	**16,000**	**4,600**	**980**	**3,300**	**92,000**	**9,300**	**31,000**
	4/7/2016	**16000**	**3400**	**630**	**1700**	**35000**	**5400**	**24000**
	8/25/2016	**15000**	**3400**	**970**	**2400**	**35000**	**6000**	**25000**
	11/30/2018	Well Destroyed						
MW-2P	3/25/2009	**70**	5.8	<0.50	0.84	39	7.1	31
	6/1/2009	**570**	71	<0.50	9.6	160	85	460
	4/15/2010	**400**	6	<1.8	<4	<2	6	9.4
	7/14/2010	**1800**	160	<1.2	26	41	105	150
	10/6/2010	**1100**	49	<4.6	*20*	14	37	53
	6/3/2011	**2500**	*140*	<0.23	*23*	55	68	130
	10/4/2011	**620**	**25**	<2.3	6	54	15.9	52
	4/24/2012	**2180**	**164**	**175**	*32.8*	66.4	88.3	151
	5/16/2013	**3800**	19	**210**	*56*	61	*111*	200
	10/14/2013	**1400**	58	*14*	*12*	33	45	63
	6/23/2015	**2800**	96	*16*	*33*	86	65.9	120
	11/19/2015	**33**	3.3	1.3	<2.4	2.4	2.77	4.1
	4/7/2016	**390**	17	*16*	<24	27	12	31
	8/25/2016	**1500**	*180*	**98**	*61*	*220*	*108*	260
	11/30/2018	*0.85*	<0.37	0.40 J	<2.4	0.41 J	0.48 J	<0.58
	4/9/2019	**5700**	*310*	**300**	*91*	*180*	*251*	*460*
	7/3/2019	**16,000**	**1300**	**850**	**280**	*570*	**710**	*1600*
	10/23/2019	**13,000**	**910**	<7.9	**170**	*430*	*420*	*990*
	3/24/2020	**16,000**	**1000**	<7.9	**220**	*670*	**564**	*1200*
	5/19/2020	**9,900**	**810**	<2.0	**160**	*510*	*467*	*920*

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-3	05/31/07	**110**	4.40	<0.50	<0.25	0.61	0.49	2.50
	08/15/07	**100**	3.80	<0.23	<0.5	0.79	1.14	3.20
	10/23/07	**64**	2.10	<0.23	<0.5	1.10	<0.44	2.20
	1/9/2008	**190**	6	<0.23	<0.5	1	0.24	5.5
	3/25/2009	**220**	8.4	<1.2	<2.5	<1.2	<2.15	6.8
	6/1/2009	**230**	16	<0.50	1.7	2.6	22.3	6.3
	4/15/2010	**310**	36	<0.92	<2	3.1	<1.76	8.3
	7/14/2010	**330**	66	<0.92	<2.0	6.8	<1.76	8.9
	10/6/2010	**420**	*160*	<1.2	**130**	*540*	**560**	*2,300*
	6/3/2011	**200**	*330*	<0.23	*69*	*300*	*434*	*1,200*
	10/4/2011	**130**	*570*	<2.3	*67*	67	**540**	*950*
	4/24/2012	**161**	*475*	**94.5**	**115**	26.5	*264*	*655*
	5/16/2013	**110**	*370*	**110**	**190**	13	**610**	*1,700*
	10/14/2013	**180**	*360*	**67**	*61*	7.1	**480**	350
	6/23/2015	**28**	120	*32*	*20*	4.7	63	88
	11/19/2015	**60**	62	*98*	*94*	13	*396*	310
	4/7/2016	**19**	84	*48*	*48*	6.5	23.8	70
	8/25/2016	*4.9*	35	*16*	*17*	2.7	38.8	49
	11/30/2018	Well Destroyed						
MW-3D	4/15/2010	<0.25	<0.25	<0.25	<0.25	0.49	<0.25	<0.25
	7/14/2010	<0.25	<0.22	<0.23	<0.50	0.83	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	1.7	<0.44	<0.39
	6/3/2011	0.43	0.41	4.7	3.7	1.60	1.06	2
	10/4/2011	0.26	<0.22	1.7	<0.50	1.7	<0.44	<0.39
	4/24/2012	0.44	0.49	0.37	<2.5	0.51	0.72	0.36
	5/16/2013	*0.7*	<0.37	0.86	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	0.87	<2.4	<0.33	<0.67	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-4	05/31/07	**5000**	**2,100**	<40	**580**	86	**760**	*1,700*
	08/15/07	**4300**	**3,700**	<23	**1,800**	*340*	**10,100**	*7,500*
	10/23/07	**4700**	**1,800**	<9.2	**790**	*330*	**2,680**	*3,900*
	1/9/2008	**4400**	**1,500**	<9.2	**650**	*250*	**1910**	*3200*
	3/25/2009	**2000**	**910**	<9.2	**490**	*240*	**1430**	*2300*
	6/1/2009	**3200**	**1400**	<25	**440**	*240*	**1590**	*3200*
	4/15/2010	**FREE PRODUCT**						
	7/14/2010	**FREE PRODUCT**						
	10/6/2010	**FREE PRODUCT**						
	6/3/2011	**2500**	**880**	<0.23	**450**	*340*	**1,680**	*3,100*
	10/4/2011	**FREE PRODUCT**						
	4/24/2012	**3340**	**1,580**	**200**	**840**	*393*	**2,422**	*4,210*
	5/16/2013	**FREE PRODUCT**						
	10/14/2013	**4200**	**710**	*38*	**550**	**920**	**2100**	**2700**
	6/23/2015	**6300**	**1300**	*46*	**570**	**1700**	**2150**	**3900**
	11/19/2015	**3300**	*540*	**72**	**1000**	*710*	**1520**	**2100**
	4/7/2016	**2900**	490	**98**	**1100**	*530*	**1380**	**2100**
	8/25/2016	**4500**	**770**	**74**	**970**	**890**	**1460**	**2400**
	11/30/2018	**5000**	*580*	**80**	**670**	*490*	**1130**	*1700*
	4/9/2019	**4600**	**1000**	**130**	**1400**	*700*	**2500**	**2800**
	7/3/2019	**290**	**800**	**91**	**830**	*320*	**1520**	**2100**
	10/23/2019	**1100**	*510*	<3.9	**660**	110	**4700**	**1700**
	3/24/2020	**600**	*380*	<0.79	**130**	61	**1460**	**840**
	5/19/2020	**370**	*480*	<0.79	**280**	49	**710**	*780*

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-4P	3/25/2009	**180**	110	0.77	*26*	9.3	4.7	8.5
	6/1/2009	**980**	*560*	<0.50	*93*	35	13.9	29
	4/15/2010	**290**	*34*	<0.92	*6.5*	9.4	<1.76	4.1
	7/14/2010	**470**	*120*	<0.92	*17*	15	<1.76	5
	10/6/2010	**300**	*150*	<0.92	*38*	8.9	<1.76	3.2
	6/3/2011	**190**	86	<0.23	*19*	3.50	0.35	2.40
	10/4/2011	**780**	*260*	<0.46	*69*	25	7.4	44
	4/24/2012	**737**	*223*	**100**	*38.5*	16	3.1	24.7
	5/16/2013	**1600**	*210*	**130**	*41*	21	6.8	23
	10/14/2013	**920**	*350*	*21*	*59*	28	14.3	53
	6/23/2015	**1700**	*460*	*13*	*47*	41	11	81
	11/19/2015	**140**	63	*16*	*20*	17	9.3	17
	4/7/2016	**32**	11	2.3	4.9	3.2	0.86	4.2
	8/25/2016	**360**	*280*	**81**	*98*	30	73	230
	11/30/2018	**800**	**1400**	*34*	**150**	43	*123*	210
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	**620**	**1400**	*59*	**200**	41	83	230
	10/23/2019	**750**	**1200**	<0.39	**190 B**	63	58.4	190
	3/24/2020	**200**	*380*	<0.39	*63*	10	16.6	68
	5/19/2020	**340**	**1100**	<0.79	**170**	24	68	170
MW-5	05/31/07	**13000**	**2,700**	<100	**590**	**35,000**	**2,630**	**17,000**
	08/15/07	**12000**	**2,600**	<46	**670**	**31,000**	**2,360**	**15,000**
	10/23/07	**10000**	**2,700**	<92	**630**	**31,000**	**2,420**	**16,000**
	1/9/2008	**13000**	**2500**	<400	**740**	**35000**	**2150**	**15,000**
	6/1/2009	**11000**	**3000**	<2.0	**700**	**38000**	**2500**	**18,000**
	4/15/2010	**9700**	**2800**	<46	**800**	**34000**	**3960**	**20,000**
	7/12/2010	Not Sampled-Abandoned.						
MW-6	05/31/07	<0.20	<0.50	<0.50	1.20	0.25	0.27	0.53
	08/15/07	0.45	0.29	<0.23	2.20	0.13	<0.44	0.44
	10/23/07	*1*	<0.22	<0.23	2.20	<0.11	0.19	0.45
	1/9/2008							
	6/1/2009	NS	NS	NS	NS	NS	NS	NS
	4/15/2010	*3.2*	0.26	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	*2.3*	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	*2.4*	0.27	<0.23	<0.50	<0.25	<0.44	<0.39
	6/3/2011							
	10/4/2011	*3.3*	3.1	<0.23	6.2	<0.25	<0.44	0.54
	4/24/2012	<0.25	5.73	0.33	*11*	<0.25	<0.50	0.88
	5/16/2013	**26**	2.4	<0.24	*44*	<0.33	1.9	<0.58
	10/14/2013	*3.7*	5.5	1.2	*44*	<0.33	5.4	<0.58
	6/23/2015	**11**	5.4	<0.24	*20*	<0.33	<0.60	<0.58
	11/19/2015	*3*	6.7	0.42	*91*	<0.33	5.9	<0.58
	4/7/2016	*2.3*	3.9	<0.24	*74*	<0.33	2	<0.58
	8/25/2016	*2.1*	4.2	<0.24	*62*	<0.33	4.4	<0.58
	11/30/2018	**6.1**	9.6	1.7 J	*48*	<1.7	<1.5	<1.9
	4/9/2019	0.41 J	<0.37	1	<2.4	<0.33	<0.30	3.2
	7/3/2019	*1.5*	1.0	0.72	<2.4	<0.33	<0.30	<0.58
	10/23/2019	*1.8*	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	Not Sampled; under parked car						
	5/19/2020	*4.6*	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-6P	3/25/2009	**820**	1.4	5.6	2.2	2.6	2.6	18
	6/1/2009	**7.9**	<0.50	11	<0.25	<0.50	<0.40	<0.50
	4/15/2010	**330**	<0.88	13	*<2*	<1	<1.76	<1.6
	7/13/2010	**57**	<0.22	8.3	<0.50	<0.25	<0.44	<0.39
	10/6/2010	*3.9*	<0.22	7.3	<0.50	<0.25	<0.44	<0.39
	6/3/2011							
	10/4/2011	**100**	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	4/24/2012	**1060**	<0.50	*36.8*	<2.5	1.9	<0.50	<0.25
	5/16/2013	**40**	<0.37	0.36	<2.4	<0.33	<0.60	<0.58
	10/14/2013	**73**	<0.37	2.8	<2.4	<0.33	0.6	<0.58
	6/23/2015	**6**	<0.37	0.98	<2.4	<0.33	<0.60	<0.58
	11/19/2015	**5.4**	<0.37	0.35	<2.4	<0.33	<0.60	<0.58
	4/7/2016	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	8/25/2016	*2.5*	<0.37	0.7	<2.4	<0.33	<0.60	<0.58
	11/30/2018	*<0.36*	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	*3.5*	6.5	0.51	*63*	<0.33	4	<0.58
	7/3/2019	**5.3**	13	0.52	*70*	<0.33	2.6	<0.58
	10/23/2019	<0.15	<0.18	0.79 J	<0.34	<0.15	<0.36	<0.22
	3/24/2020	Not Sampled; under parked car						

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-6P	5/19/2020	*4.3*	3.5	<0.39	<0.34	<0.15	0.51 J	<0.22
MW-6D	4/15/2010	**26**	<0.22	0.57	0.57	<0.25	1.1	<0.39
	7/13/2010	**9.7**	<0.22	0.55	<0.50	0.57	<0.44	<0.39
	10/6/2010	**8.6**	<0.22	0.52	<0.50	0.56	<0.44	<0.39
	6/3/2011							
	10/4/2011	**11**	<0.22	1.3	<0.50	0.54	<0.44	<0.39
	4/24/2012	*2.52*	0.29	0.69	<2.5	<0.25	0.32	0.26
	5/16/2013	<0.36	<0.37	0.81	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	2.1	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	Not Sampled; under parked car						
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	0.87	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	0.79 J	<0.34	<0.15	<0.36	<0.22
	3/24/2020	Not Sampled; under parked car						
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-7	5/31/2007	0.28	<0.50	<0.50	<0.25	<0.20	<0.40	<0.50
	8/15/2007	0.54	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	10/23/2007	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	1/9/2008	0.48	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	6/1/2009	NS	NS	NS	NS	NS	NS	NS
	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	6/3/2011	*0.69*	<0.22	0.63	1.2	<0.25	<0.44	<0.39
	10/4/2011	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	2.4	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	0.17 J	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-8P	05/31/07	**3600**	*160*	*22.00*	2.80	27	6.40	15
	08/15/07	**3500**	<8.8	*29.00*	<20	9.20	<17.6	<16
	10/23/07	**5000**	*480*	<9.2	*61*	62	31.00	34
	1/9/2008	**3900**	5.7	*26*	1	11	1.66	5.8
	3/25/2009	**3400**	<18	*26*	*98*	<20	<35	<1.9
	6/1/2009	**5900**	*170*	<20	*24*	51	13.2	<20
	4/15/2010	**6400**	*350*	<23	*53*	63	<44	54
	7/13/2010	**5700**	*430*	<0.92	*16*	69	14.2	57
	10/6/2010	**4200**	63	<0.23	*13*	52	10.9	45
	6/3/2011	**890**	3.70	6.40	0.72	*3.10*	0.29	*2*
	10/4/2011	**1400**	11	11	4.9	6	<3.5	8.8
	4/24/2012	**4700**	9.25	**289**	*3.89*	14.3	0.67	4.4
	5/16/2013	**5200**	77	**120**	3.1	15	0.96	5.8
	10/14/2013	**4600**	8.7	**260**	<2.4	15	<0.60	3.4
	6/23/2015	**5200**	*530*	**68**	*20*	14	46	170
	11/19/2015	**620**	*380*	**510**	6.4	14	7.5	34
	4/7/2016	**2600**	120	<0.24	<2.4	7.2	<0.60	8
	8/25/2016	**2500**	*140*	<0.24	<2.4	7.9	<0.60	5.8
	11/30/2018	**13**	<0.37	1.8	<2.4	<0.33	<0.30	<0.58
	4/9/2019	**140**	120	**66**	6	2.2	0.31 J	4.3
	7/3/2019	**92**	90	*28*	5.5	1.2	<0.30	2.9
	10/23/2019	**300**	*190*	<0.39	<0.34	2.3	<0.36	2.8
	3/24/2020	**170**	96	<0.39	0.36 J	1.8	<0.36	2.3
	5/16/2020	**64**	27	<0.39	<0.34	0.71	<0.36	1.4

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-9	10/23/07	<0.20	<0.50	<0.50	<0.25	<0.20	<0.40	<0.50
	1/9/2008	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	6/1/2009	NS	NS	NS	NS	NS	NS	NS
	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	6/3/2011	0.28	<0.22	1.7	<0.50	<0.25	<0.44	<0.39
	10/4/2011	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	0.53	<2.4	<0.33	0.4	<0.58
	10/14/2013	<0.36	<0.37	0.61	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	Not Sampled-Frozen						
	7/3/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-10	10/23/07	<0.20	<0.50	<0.50	<0.25	<0.20	<0.40	<0.50
	1/9/2008	0.41	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	6/1/2009	NS	NS	NS	NS	NS	NS	NS
	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	6/3/2011	<0.25	<0.22	1.3	<0.50	<0.11	<0.44	<0.39
	10/4/2011	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	1.7	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	0.6	<0.58
	7/3/2019	<0.36	<0.37	1.3	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-11	10/23/07	<0.20	<0.50	<0.50	<0.25	<0.20	<0.40	<0.50
	1/9/2008	<0.25	<0.22	<0.23	<0.50	<0.11	<0.44	<0.39
	6/1/2009	NS	NS	NS	NS	NS	NS	NS
	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	6/3/2011	<0.25	<0.22	1.4	<0.50	<0.11	<0.44	<0.39
	10/4/2011	<0.25	<0.22	0.99	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	0.49	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.33	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	0.44 J	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-12P	10/23/07	**1800**	<2.0	*22*	<1.0	6.60	<0.80	4.70
	1/9/2008	**1500**	<0.22	*22*	<0.50	4.2	0.85	4.7
	3/25/2009	**820**	<2.2	10	<5.0	<0.25	<4.4	<3.9
	6/1/2009	**660**	<0.50	7.2	<0.25	0.94	16.1	1.4
	4/15/2010	**1000**	<4.4	<4.6	<10	7.2	<8.8	<7.8
	7/13/2010	**960**	<2.2	<2.3	<5.0	<.25	<0.44	<0.39
	10/6/2010	**940**	19	<0.23	<0.50	5.9	3.3	8.5
	6/3/2011	**460**	38	<0.92	3	5.4	<0.44	5
	10/4/2011	**390**	51	<0.92	9.5	4.2	<1.76	4.9
	4/24/2012	<0.25	26.8	*36.1*	<2.5	<0.25	1.13	1.2
	5/16/2013	**23**	<0.37	11	<2.4	0.48	<0.60	<0.58
	10/14/2013	**17**	1.1	15	<2.4	0.69	0.43	0.79
	6/23/2015	**110**	0.58	*33*	<2.4	0.41	<0.60	1.2
	11/19/2015	**210**	1.2	**65**	4.1	1.1	0.45	2
	4/7/2016	**320**	0.91	**63**	<2.4	0.81	<0.60	<0.58
	8/25/2016	**360**	0.57	**64**	<2.4	0.94	<0.60	0.99
	11/30/2018	**11**	<0.37	7.4	<2.4	<0.33	<0.30	<0.58
	4/9/2019	**8.3**	<0.37	*23*	<2.4	<0.33	<0.30	<0.58
	7/3/2019	**31**	1.1	*23*	<2.4	0.81	0.5	2.4
	10/23/2019	**180**	1.8	*12*	<0.34	0.85	1.61 J	1.4
	3/24/2020	**12**	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	**22**	0.38 J	<0.39	<0.34	0.21 J	<0.36	<0.22
MW-12D	4/15/2010	*3.5*	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	**27**	<0.22	0.79	<0.50	<0.25	<0.44	<0.39
	10/6/2010	0.36	<0.22	0.64	<0.50	<0.25	<0.44	<0.39
	6/3/2011	<0.25	<0.22	2.2	<0.50	<0.25	<0.44	<0.39
	10/4/2011	<0.25	<0.22	2.7	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	0.48	<2.5	<0.25	<0.50	<0.25
	5/16/2013	*1.3*	<0.37	0.26	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	2	<2.4	<0.33	<0.60	<0.58
	6/23/2015	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	11/19/2015	<0.36	<0.37	<0.24	<2.4	<0.33	0.53	1.2
	4/7/2016	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	8/25/2016	<0.36	<0.37	0.29	<2.4	<0.33	<0.60	<0.58
	11/30/2018	<0.36	<0.37	0.49 J	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	0.34 J	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	0.65	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	0.86 J	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
MW-13	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	6/3/2011	<0.25	<0.22	3.4	<0.50	<0.25	<0.44	<0.39
	10/4/2011	<0.25	<0.22	1	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	3.4	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	0.61	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	0.86 J	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/16/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
MW-13D	4/15/2010	0.69	<0.22	2.2	<0.50	<0.25	<0.44	<0.39
	7/13/2010	*2.7*	<0.22	2.1	<0.50	0.26	<0.44	<0.39
	10/6/2010	0.83	<0.22	1.9	<0.50	0.29	<0.44	<0.39
	6/3/2011	0.36	<0.22	2.2	<0.50	<0.25	1.2	<0.39
	10/4/2011	*0.97*	<0.22	3.6	<0.50	0.29	<0.44	<0.39
	4/24/2012	<0.25	<0.25	1.65	<2.5	0.27	<0.50	<0.25
	5/16/2013	<0.36	<0.37	0.82	<2.4	<0.33	<0.60	<0.58
	10/14/2013	<0.36	<0.37	3.2	<2.4	<0.33	<0.60	<0.58
	6/23/2015	Not Sampled						
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	<0.36	<0.37	0.57	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	0.43 J	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	1.2	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	0.71 J	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
N. Sump	10/6/2010	Not Sampled						
	6/3/2011	Not Sampled						
	10/4/2011	Not Sampled						
	4/24/2012	Not Sampled						
	5/16/2013	Not Sampled						
	10/14/2013	Not Sampled						
	6/23/2015	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	Not Sampled						
	4/9/2019	Not Sampled						
	7/3/2019	Not Sampled						
	10/23/2019	Not Sampled						
S. Sump	10/6/2010	Not Sampled						
	6/3/2011	Not Sampled						
	10/4/2011	Not Sampled						
	4/24/2012	Not Sampled						
	5/16/2013	Not Sampled						
	10/14/2013	Not Sampled						
	6/23/2015	**60**	18	<0.24	<2.4	1.3	6.8	50
	11/19/2015	Not Sampled						
	4/7/2016	Not Sampled						
	8/25/2016	Not Sampled						
	11/30/2018	Not Sampled						
	4/9/2019	Not Sampled						
	7/3/2019	Not Sampled						
	10/23/2019	Not Sampled						
Olson's Well	3/25/2009	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	6/1/2009	<0.20	<0.50	<0.50	<0.25	<0.50	<0.40	<0.50
	4/15/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	7/13/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/6/2010	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	10/4/2011	<0.25	<0.22	<0.23	<0.50	<0.25	<0.44	<0.39
	4/24/2012	<0.25	<0.25	<0.25	<2.5	<0.25	<0.50	<0.25
	5/16/2013	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	6/23/2015	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	4/7/2016	<0.36	<0.37	<0.24	<2.4	<0.33	<0.60	<0.58
	11/30/2018	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	4/9/2019	<0.36	<0.37	<0.24	<2.4	<0.33	<0.30	<0.58
	7/3/2019	<0.36	<0.37	0.25 J	<2.4	<0.33	<0.30	<0.58
	10/23/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	11/20/2019	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22

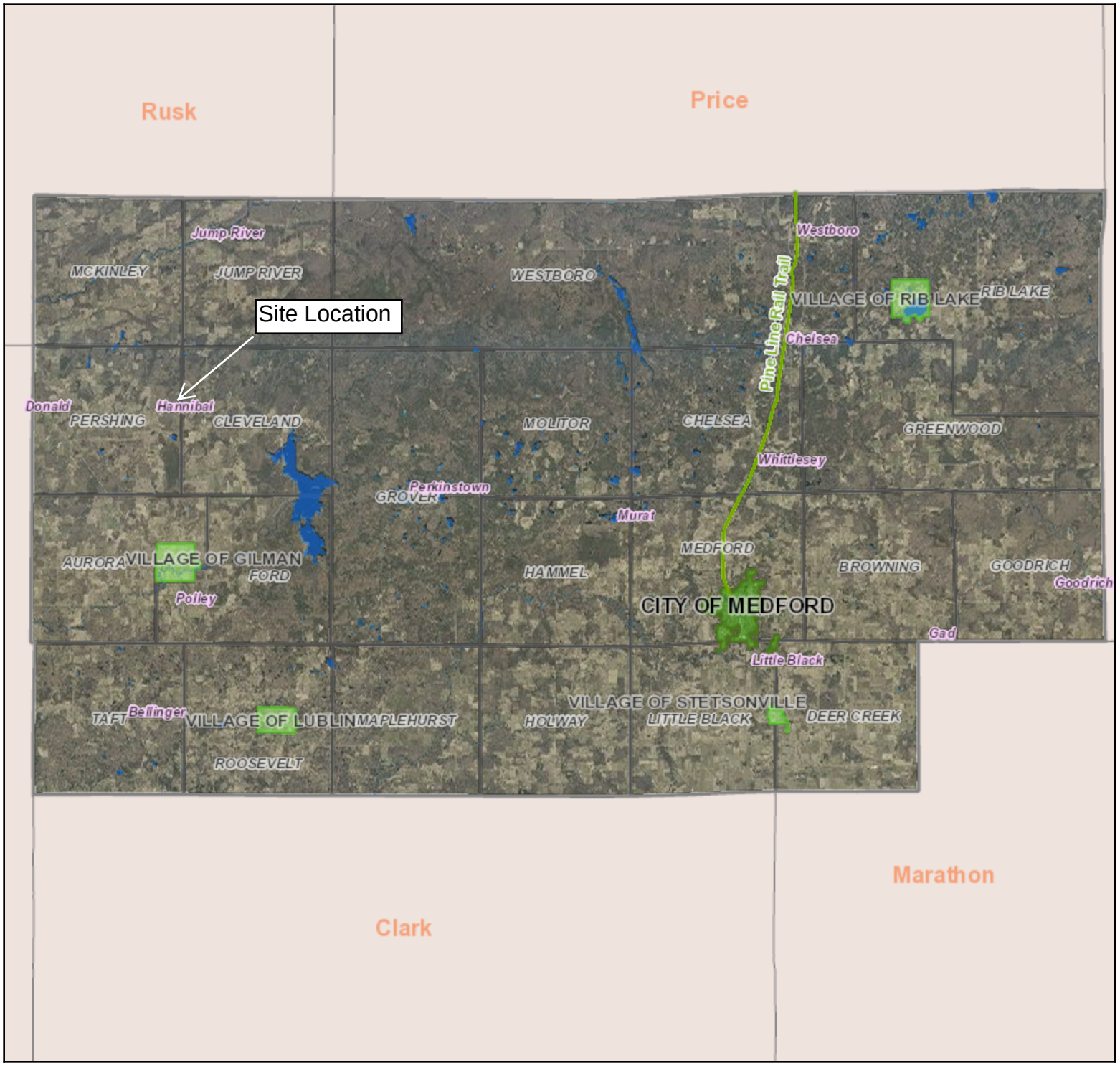
Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

Results reported in ug/L		Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total TMB	Xylenes
Wis Adm. Code NR140, Table 1 PAL		*0.5*	*140*	*12*	*10*	*160*	*96*	*400*
Wis Adm. Code NR140, Table 1 ES		**5**	**700**	**60**	**100**	**800**	**480**	**2000**
Monitoring Well	**Sample Date**							
Webster Well	6/1/2016	<0.15	<0.18	<0.39	<0.34	<0.15	<0.61	<0.22
	10/31/2016	<0.15	<0.18	<0.39	<0.34	<0.15	<0.61	<0.22
	4/9/2019	<0.36	<0.37	4.9	<2.4	<0.33	<0.30	<0.58
	10/23/2019	*0.94*	<0.18	1	<0.34	<0.15	<0.36	<0.22
	11/20/2019	*1.1*	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
	3/24/2020	*1.7*	<0.18	1.1	<0.34	<0.15	<0.36	<0.22
	5/19/2020	<0.15	<0.18	<0.39	<0.34	<0.15	<0.36	<0.22
Witkowski's Well	3/25/2009	**65**	<0.22	1.9	<0.50	<0.25	<0.44	<0.39
	6/1/2009	**69**	<0.50	1.6	<0.25	<0.50	<0.40	<0.50
	4/15/2010	**77**	<0.22	2.2	<0.50	<0.25	<0.44	<0.39
	7/13/2010	**19**	<0.22	2.0	<0.50	<0.25	<0.44	<0.39
	10/6/2010	**60**	<0.22	2.0	<0.50	<0.25	<0.44	<0.39
	10/4/2011	**61**	<0.22	5	<0.50	<0.25	<0.44	<0.39
	4/24/2012	**55.5**	<0.25	2.45	<2.5	<0.25	<0.50	<0.25
	5/16/2013	**72**	<0.37	2.7	<2.4	<0.33	<0.60	<0.58
	6/23/2015	**23**	<0.37	3.4	<2.4	<0.33	<0.60	<0.58
	4/7/2016	**18**	<0.37	2.7	<2.4	<0.33	<0.60	<0.58
	Abandoned 11/2017							

ug/L = micrograms per liter = ppb = parts per billion
J = reported value was between the limit of detection and the limit of quantitation
B = Compound was found in the blank and the sample
Italic Numbers indicate a concentration above PAL outlined in NR 140.10
Bold Numbers indicate a concentration above ES outlined in NR 140.10

FIGURES

Figure 1: Site Location



Legend

- Lakes and Rivers
- Cities
- Townships
- Villages
- Unincorporated Villages
- County Boundary
- Other Counties

N

0 2 4 6mi

DISCLAIMER: This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

Perry's Corner

Author: Hannibal, WI

Date Printed: 11/19/19 1:15 PM

Sources: Taylor County GIS

TAYLOR COUNTY

e shown in ft. amsl.

n of groundwater in MW-1 is considered an outlier and was not used for generating groundwater flow on this map

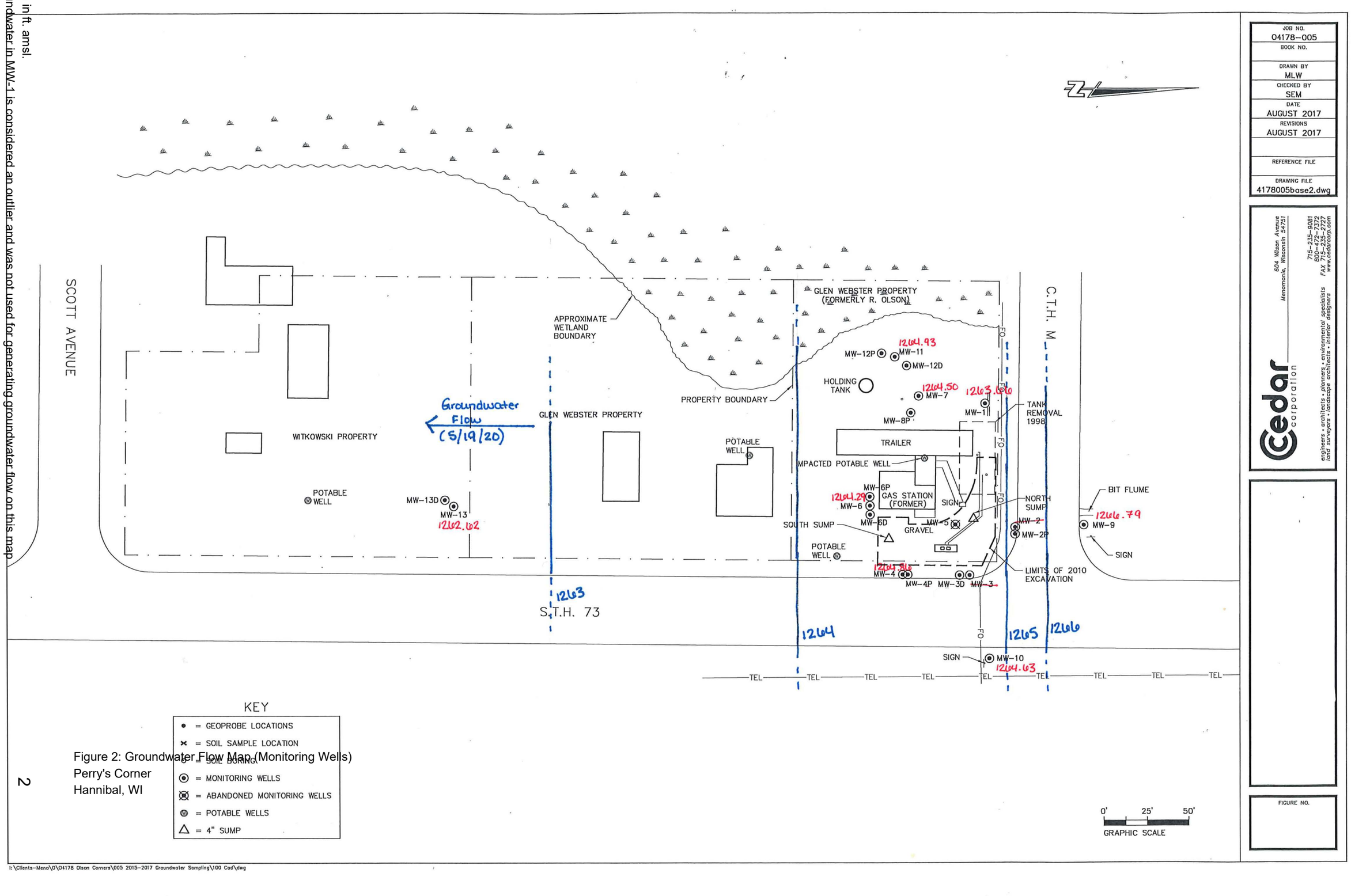


Figure 2: Groundwater Flow Map (Monitoring Wells)
Perry's Corner
Hannibal, WI

2

I:\Clients-Meno\O\04178 Olson Corners\005 2015-2017 Groundwater Sampling\100 Cad\dwg

JOB NO.
04178-005
BOOK NO.
DRAWN BY
MLW
CHECKED BY
SEM
DATE
AUGUST 2017
REVISIONS
AUGUST 2017
REFERENCE FILE
DRAWING FILE
4178005base2.dwg

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800-472-7372
FAX 715-235-2727
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FIGURE NO.

All elevations are shown in ft. amsl.

Groundwater flow on 5/19/20 is shown to flow east to west. However, groundwater flow generated for previous events has been shown to flow southerly.

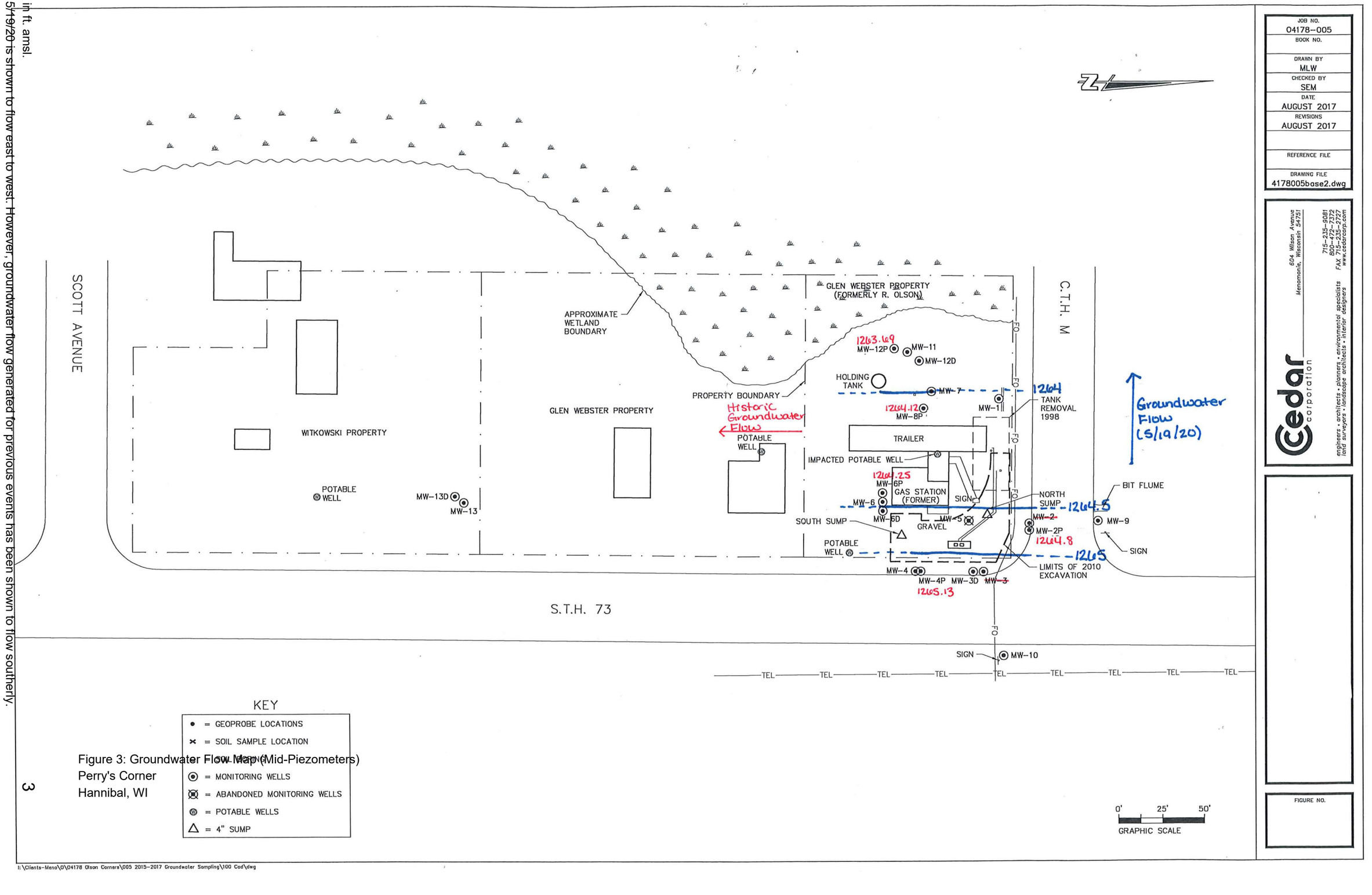

Figure 3: Groundwater Flow Map (Mid-Piezometers)
Perry's Corner
Hannibal, WI

I:\Clients-Mena\0\04178 Olson Corners\005 2015-2017 Groundwater Sampling\100 Cad\dwg

JOB NO. 04178-005
BOOK NO.
DRAWN BY MLW
CHECKED BY SEM
DATE AUGUST 2017
REVISIONS AUGUST 2017
REFERENCE FILE
DRAWING FILE 4178005base2.dwg

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FIGURE NO.

Note: Elevations are shown in ft. amsl.
Elevation of groundwater in MW-13D was not used for generating groundwater flow on this map as it pertains to the source property.

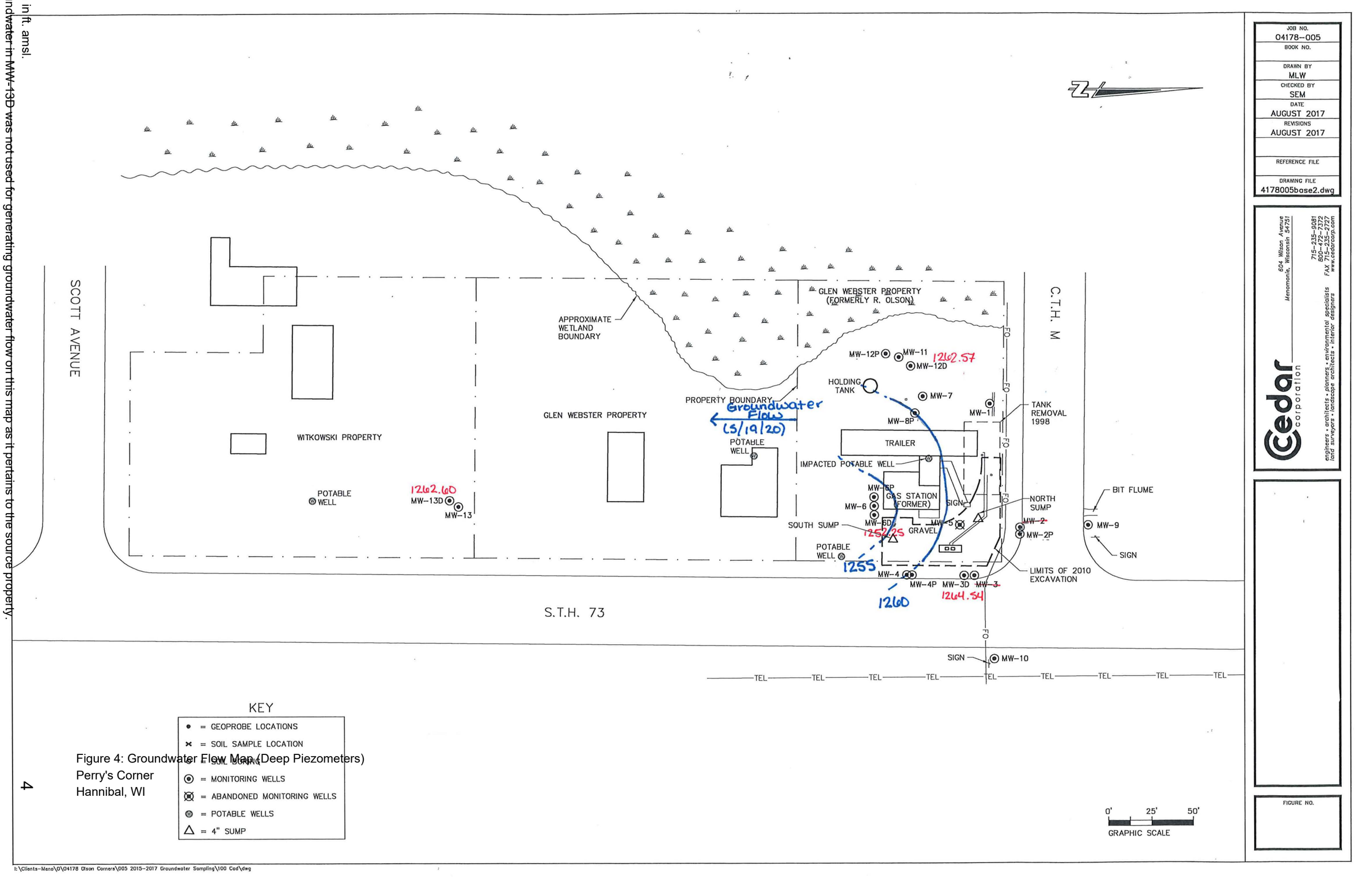

Figure 4: Groundwater Flow Map (Deep Piezometers)
Perry's Corner
Hannibal, WI

I:\Clients-Mena\01\04178 Olson Corners\005 2015-2017 Groundwater Sampling\100 Cad\dwg

JOB NO. 04178--005
BOOK NO.
DRAWN BY MLW
CHECKED BY SEM
DATE AUGUST 2017
REVISIONS AUGUST 2017
REFERENCE FILE
DRAWING FILE 4178005base2.dwg

Cedar corporation
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land surveyors • landscape architects • interior designers
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Menomonie, Wisconsin 54751
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800-472-7372
FAX 715-235-2727
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FIGURE NO.

Concentrations are shown in ug/L from the 5/19/20 sampling event.

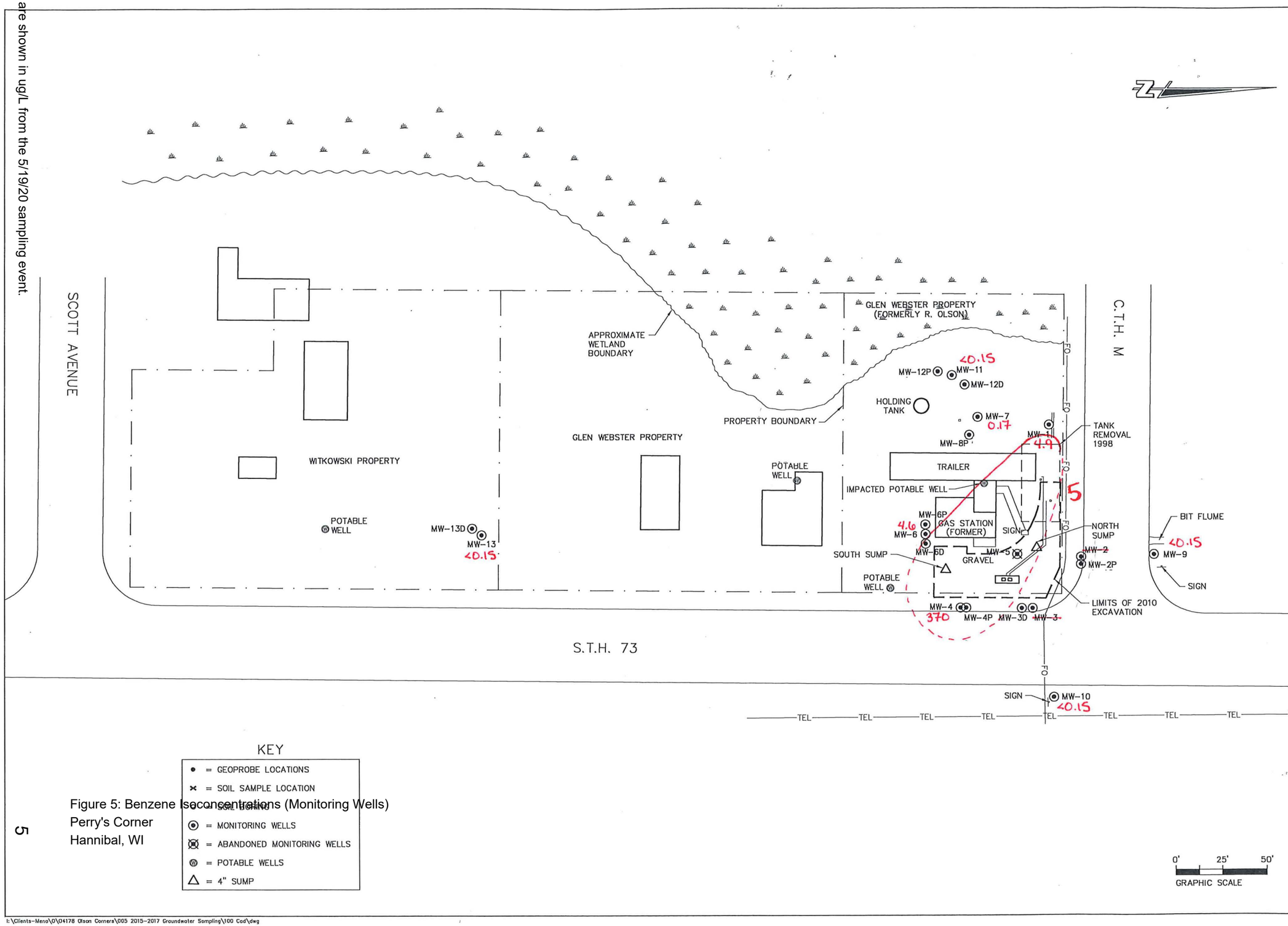

Figure 5: Benzene Isoconcentrations (Monitoring Wells)
Perry's Corner
Hannibal, WI

5

I:\Clients-Mena\O\04178 Olson Corners\005 2015-2017 Groundwater Sampling\100 Cad\dwg

JOB NO. 04178-005
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FIGURE NO.

Concentrations are shown in ug/L from the 5/19/20 sampling event.

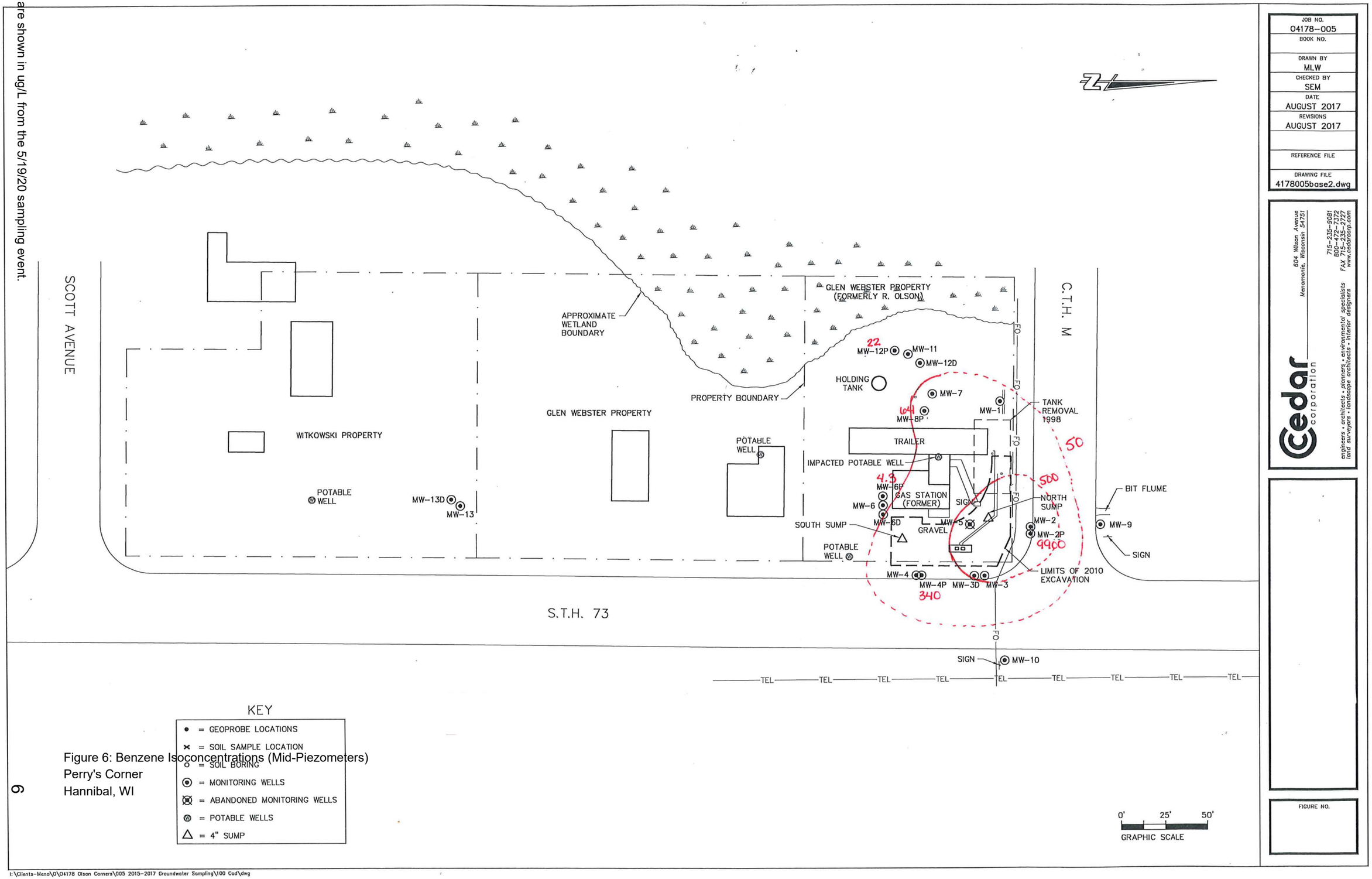

Figure 6: Benzene Isoconcentrations (Mid-Piezometers)
Perry's Corner
Hannibal, WI

6

I:\Clients-Meno\0\04178 Olson Corners\005 2015-2017 Groundwater Sampling\100 Cad\dwg

JOB NO. 04178-005
BOOK NO.
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FIGURE NO.

APPENDIX A – Standard Operating Procedures

Standard Operating Procedure

Preparation of Soil and Groundwater Samples to be Laboratory Analyzed

Purpose

To describe the procedures necessary for preparing and shipping soil and groundwater samples to be laboratory analyzed.

Soils

When a soil sample is to be laboratory analyzed, a sample is taken and sealed in a laboratory provided glass jar having a Teflon lined septum. Sampling analytical guidance is provided from "Modified GRO Method for Determining Gasoline Range Organics", Wis. DNR publication, PUBL-SW-140, September 1995. For modified GRO, VOC, and PVOC analyses, a minimum of 25 grams and up to a maximum of 70 grams of samples are preserved in methanol in a 120 ml capacity sample containers. Alternatively, a laboratory provided soil syringe is used to collect a standard volume of soil for placement into a 40 ml vial pre-filled at the laboratory with 10 ml of methanol. For DRO analysis, a minimum of 25 grams and up to a maximum of 70 grams of sample are collected in 120 ml capacity sample containers. Additional soil samples are collected in four ounce sample jars to determine dry weights for GRO, DRO, and VOC analyses. All cyanide, metals, and PAH samples are collected in four ounce jars with Teflon lined septums. The pertinent sample data is recorded on the label and on the chain-of-custody document and is then transported to an analytical laboratory with the completed chain-of-custody document. The sample is transported in a cooler at a maintained temperature of 4°C.

Groundwater

Monitoring wells being sampled after development must be purged. According to the Wisconsin Department of Natural Resources Groundwater Sampling Field Manual (PUBL-DG-038-96), the monitoring well to be sampled must have four well volumes purged by use of a pump or bailer and transferred to a laboratory acquired bottle by a bottom emptying device. Nitrile disposable gloves are worn throughout the purging and collection procession. Sampling analytical guidance is provided from Table C-3, Appendix C, Interim Guidance on Natural Attenuation for Petroleum Releases, Wis. DNR publication, Pub-RR-614, January 2014. GRO samples are collected in 40 ml glass vials, DRO and PAH samples in one liter amber glass containers, and VOC and PVOC samples in three 40 ml glass vials. All vials and containers have Teflon lined septums. All DRO, GRO, VOC, and PVOC samples are preserved with HCI as the method requires. Samples collected for metals are field filtered per EP A requirements and collected in HNO3, preserved containers. Samples collected for cyanide are filtered and preserved with NaOH. All other parameters are collected in containers provided by the analytical laboratory appropriate for the parameter being analyzed. The samples are preserved on ice at or below a temperature of 4°C throughout handling and shipment to the laboratory.

Sample Preservation during Shipping

Samples to be laboratory analyzed are placed in a cooler with ice to preserve the sample temperature at or just below 4°C. Samples are shipped in an insulated sealed cooler with ice and vermiculite to maintain the 4°C temperature. When opened in the laboratory, the sample custodian notes sample conditions and temperature or notes "on ice" on the chain-of-custody record to verify sample preservation. In the laboratory, samples are stored in a refrigerated location.

Laboratory Procedures

For this project, the samples were sent to a Wisconsin Department of Natural Resources certified laboratory, Test America, Inc., University Park, IL (Certification Number 999580010). Analytical procedures follow the guidelines and methods identified in Wis. Adm. Code NRl49 and/or the EPA Methods Manual (EPA SW-846), which fully describes the procedures for each method. These procedures include specific quality control criteria as associated with the particular method. The requirements include instrument calibration and quality control samples and require daily laboratory performance tests as well as demonstrations of instrument precision and accuracy.

Standard Operating Procedure

Mini RAE 2000 Photoionization Detector

Purpose

The MiniRAE 2000 will be used to measure total organics. The following describes the start-up, calibration, shutdown and recharge procedures for the Mini RAE 2000.

Policy

Calibration documentation will include instrument identification, initial and final settings, date, time, concentration and type of calibration gas, and name of person who calibrated the instrument.

Safety

Safety considerations are described in detail in the manual. the operator should not look at the ultraviolet light source from closer than 6 inches with unprotected eyes and should observe only briefly. The operator should also use caution to prevent electrical shock when handling the analyzer outside its case.

Procedure

The photoionization detector (PID) is used to measure concentrations of volatile compounds in the air space being evaluated. The PID measures the total concentrations of all volatile compounds present and determines the concentration as equivalent to isobutylene. The PID is more sensitive than a FID, but less accurate. PIDs are best suited for measuring concentrations of "light" hydrocarbons spills such as gasoline. The higher the millivolt lamp intensity; the more sensitive the instrument.

A. GENERAL CARE AND MAINTENANCE

1. PID should be stored in protective case.
2. Keep instrument in temperature above freezing if possible. Exposure to excessive heat may result in erroneous readings.
3. Keep battery charged. Check battery status with Batt Key. Low Batt will be displayed when battery is low. Norm is 13 volts.
4. Dust/water filter should be replaced if necessary. Filters ordered from miniRAE.
5. Do not immerse probe tip in liquid.
6. Instrument is sent to factory each year for routine O&M and calibration. Instrument sent to:

MiniRAE 2000

B. CALIBRATION

1. Calibrate as shown in users manual (located in lab).
2. Calibrate at the beginning of each field day use, or as required.
3. Calibration is to 100 ppm isobutylene.
4. Use gas sample bag for calibration.
5. Zero gas is ambient air -DO NOT USE THE ISOBUTYLENE FOR ZERO GAS.
6. Follow the prompts on display of PID.

Calibration gases may be purchased from:
Field Environmental Instruments, Inc. (FEI)
Joe Kearney
6410 Oxford Street
St Louis Park, MN 55426
952-922-0023
866-580-5512
FAX: 952-922-9092

C. FIELD USE

1. Accuracy when calibrated to isobutylene:

   " 10% for 0 to 100 ppm
   " 15% for 100 to 1,000 ppm
   " 20% for 1,000 to 2,000 ppm

   Readings over 2000 ppm are questionable.

2. PID instruments are affected by CO_2 and humidity and tend to have a non-linear response above 200 to 300 pm. (PIDs read moisture. Wet samples are not always dirty.)

3. High humidity may require you to recalibrate more than once during a job. If instrument does not zero - recalibrate.

4. Use a FID if samples are wet, methane is present, or at petroleum spills of “heavy” hydrocarbons (fuel oil, etc.).

5. PIDs do not measure methane accurately.

D. RECORD KEEPING

1. Record calibration, operator, date, time, site, and instrument status in record book and site field book for each day of use.

2. Check known gas once during first half of day and at end of day. Record readings in site field book.

Standard Operating Procedure

Field Screening Soils for Volatile Organic Compounds

Purpose

To describe the field screening methods used for soils.

Applicability

This procedure applies to soils suspected of containing volatile organic compounds (VOCs).

Discussion

The field screening techniques for soils containing VOCs are as follows: (1) visual examination; (2) oil sheen; (3) odor; and (4) headspace organic vapor screening. The results of these four screening procedures will be used to determine the gross level of contamination of the soil sample.

Field Screening

Soil samples recovered at various depths and locations during the environmental investigation are logged and field screened using a photo-ionization detector with a l0.6 eV lamp or a Flame Ionization Detector (FID). Field screening is completed using the “Headspace Method” wherein sufficient sample is placed in a clean, one quart Ziploc bag. The bag is tightly sealed, agitated to break up the soil, and slightly warmed to encourage the release of any volatile organic compounds in the sample. After waiting 5 to 15 minutes (dependent on original soil temperature), the bag is partially opened and the sampling probe of the instrument is introduced into the “headspace” and an analysis of the vapor in the jar is completed. Samples collected in cold temperatures or when soils are cold should be warmed for 15 minutes using a vehicle heater.

Standard Operating Procedure

Laboratory Analytical Sample Documentation on a Chain-of-Custody

Purpose

This section describes procedures to identify samples and document handling of the sample by chain-of-custody. The purpose of these procedures it to ensure that the integrity of the samples is maintained during collection, transportation, storage and analysis.

Sample Identification

Sample identification documents are carefully prepared so that sample identification and chain-of-custody is maintained and sample disposition controlled.

Sample identification documents include:

- field notebooks
- sample labels
- chain-of-custody (DNR Form 4400-151) or equivalent

Each sample is labeled, physically preserved, and sealed immediately after collection. To minimize handling of sample containers, labels are completed immediately prior to sample collection. The sample label is completed using waterproof ink and is firmly affixed to the sample containers. The sample label provides the following information:

- location
- sample number
- date and time of collection
- analysis required
- name of sampler

A chain-of-custody record is fully completed in duplicate by the sampler immediately following sample collection.

Shipping Transfer of Custody

The coolers in which the samples are packed are accompanied by the chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them sign, date, and note the time of transfer on the chain-of-custody record.

Laboratory Custody Procedures

A designated sample custodian accepts custody of the shipped samples and verifies that the sample identification number matches that on the chain-of-custody record. This individual also records the temperature of the received samples on the chain-of-custody records. Any discrepancies are immediately noted to the sampler. A copy of the completed chain-of-custody record is retained by the laboratory until analyses are completed. The record is returned to the project file with the analytical results.

Standard Operating Procedure

Soil Sample Collection

A variety of samplers (split-barrel, split barrel with liners, backhoe, hand auger or shovel) may be used to retrieve soil from sampling locations. Depending on the analysis to be conducted on the soil sample, the soil sample will either be sealed within the sampler (e.g., collecting volatile samples) or the soil sample will be transferred to laboratory-supplied containers. The equipment required to transfer the soil from the sampler to the laboratory-supplied sample containers includes: stainless steel spoons or scoops and the appropriate personal protective equipment necessary for collection and handling of soil samples as described in the Project Health and Safety Plan.

All soil sampling equipment will be carefully cleaned before and during soil sampling. All sampling tools including split-barrels, stainless steel spoons and scoops will be cleaned before use and between samples in the following manner:

1. Clean with tap water and TSP, using a brush if necessary to remove particulate matter and films;
2. rinse three times with tap water; and
3. rinse three times with deionized water.

To prevent sample cross-contamination, the sampler will discard the outer pair of sample gloves and put on a new pair between each sample event. At the desired sample location, a soil sample is immediately collected from the sampling unit with clean equipment and placed in a one quarter glass jar for field screening. If desired, a split sample is collected and placed in a laboratory specimen jar with a Teflon lined septum for laboratory analysis. Personal protective equipment including latex
disposable gloves, safety glasses, boots, hard hats, and organic vapor masks are used as necessary as protection from potential contaminants.

Hand Auger Soil Borings

Soil samples were recovered from soil borings completed with a stainless steel auger. The auger consists of a 12 inch long, 3-1/2 inch diameter enclosed sampling device. It is connected to 4-1/2 foot long rods equipped with screw threads such that additional sections can be added to increase the depth of sampling. The auger sections are marked to identify the depth of the sample. The auger is decontaminated prior to each sampling event.

Hollow Stem Auger Soil Borings

Hollow stem auger sampling techniques were completed using 4-1/4 inch HSA (hollow stem augers) at locations as determined by the existing conditions and at the direction of the field supervisor. Soil samples were recovered using standard split spoon sampling methods. In this method, a 2 inch diameter, 24 inch sample spoon is attached to an AW rod. When the auger has reached the desired depth, the spoon is lowered into the auger until it reaches the top of the sampling interval. Using a 140 pound hammer dropped 30 inches, the spoon is driven into the formation. A sample catcher in the tip holds the sample in the spoon. During the driving of the spoon, the number of hammer blows is noted for each six inches of advancement. These values are recorded on the driller's logs.

The sample spoon is retrieved from the boring and opened. A field geological log is completed and the soils are sampled for field screening, laboratory analysis, and/or sieve analysis. Prior to reuse, the sampling equipment is decontaminated.

Sonic Sampling Techniques

Sonic Sampling techniques are completed with tooling designed to recover 10 feet or greater core samples from the subsurface. The tooling can vary in diameter, but is typically 4 inches in diameter for most sampling events. Core samples are recovered from the subsurface by vibrating and rotating the core sampler into the subsurface to the desired depth. The core is then retrieved and placed in 10 foot long plastic bags for logging and sampling. At depth below 20 feet, an outer casing is used to advance the boring to the desired depth. This technique allows core samples to be collected in bedrock as well as unconsolidated materials.

Hydraulically Advanced Sampling Techniques

Hydraulically advanced sampling techniques, such as Geoprobe®, typically use a one inch outer diameter steel probe with a large bore soil core sampler. The probe rods and the sampling unit are driven to the desired sampling depth by a carrier vehicle mounted sampling unit. The probe rods and sampler are hydraulically advanced using the static weight of the carrier vehicle to assist in penetrating the formation or a combination of vehicle weight and hydraulic hammer percussion. Typical sample lengths are 24 inches.

While driving the soil core sampler to the desired depth, a pin stops the end point and piston from sliding into the collection tube. At the desired sampling depth, the pin is removed and the probe rods advanced some 24 inches. The piston and end point are forced into the collection chamber by the sample being collected. Sample collection chambers are typically lined with removable acetate sleeves. The sampling device is brought to the surface and the sample, contained in the acetate sleeve, retrieved from the carrier assembly.

Upon retrieval, the sample is immediately opened, logged, sampled for laboratory analysis (if required) and placed in a clean jar for Headspace Analysis. After each sampling event, the probe rods and soil core sampling equipment are decontaminated. A new acetate liner is placed in the sampling chamber for the next sampling event.

Standard Operating Procedures

Decontamination of Monitoring Well Sampling Equipment

Purpose

All sampling-related equipment including pumps, meters, and materials coming into contact with actual sampling equipment or with sampling personnel will be decontaminated as described below. Disposable bailers, protective gear, and filtration devices will be discarded after one use. Non-disposable bailers are used once and are then decontaminated as described below.

Responsibilities

The field technicians are responsible for decontamination in the field at each individual sampling point. Decontamination will be performed before sampling and after working at each sampling point. All equipment will be handled in a manner that minimizes cross-contamination between points. After cleaning, the equipment will be visibly inspected to detect any residues or other substances that may exist after normal cleaning. If inspection reveals that decontamination was insufficient, the decontamination procedures will be repeated.

Procedures for Monitoring Well Equipment

Equipment will be decontaminated in the following manner:

1. Equipment that does not contact sample water or the inside of the well:

    a. Rinse with clean control water.
    b. Inspect for remaining particles or surface film and repeat cleaning and rinse procedures if necessary.

2. Equipment that contacts sample water or the inside of the well:

    a. Clean (inside and outside where possible) with an Alconox/clean water solution applied with a scrub brush made of inert materials.
    b. Rinse with clean water.
    c. Inspect for remaining particles or surface film and repeat cleaning and rinse procedures if necessary.
    d. Shake off remaining water and allow to air dry.

The internal surfaces of pumps and tubing that cannot be adequately cleaned by the above methods alone will be cleaned by circulating decontamination fluids through them. The fluids will be circulated through this equipment in the order shown above. Special care will be exercised to ensure that the “rinse” fluids will be circulated in sufficient quantities to completely flush out contaminants and detergents.

When transporting or storing equipment after cleaning, the equipment will be protected in a manner that minimizes the potential for contamination.

Standard Operating Procedure

Measuring Static Water Level and Total Well Depth

Purpose

Describe the instruments and techniques for measuring static water level and total well depth.

References

Wisconsin Department of Natural Resources Groundwater Sampling Procedures Field Manual (PUBL-DG-038 96)

Discussion

Types of water level measurement devices:

Electric Water Level Indicator. This instrument consists of a spool of wire or steel tape graduated in hundredths with a probe attached to the end. When the probe comes in contact with the water, the circuit is complete and the light and/or buzzer on the instrument signals the contact. The instrument's power source is AA or 9-vole batteries.

Popper. A popper consists of a hollow weight, usually a deep socket with an eye bolt attached. This is secured to the end of a measuring tape. When the socket strikes the water surface, a “popping” sound is made. The accurate reading can be made by lifting and lowering the socket in short strokes, reading the tape at contact. Poppers have a correction factor because of the way they are made. Always check the unit's correction factor and record the corrected water level. Poppers are ineffective in wells where the water level is within the well screen.

Note: The “popping” sound cannot be heard if made in the well screen.

Tape and Chalk. This consists of a steel measuring tape and chalk or water indicating paste. To determine the water level, the first two to three feet of the metal tape are coated with chalk or paste. Lower the tape into the well to the approximate groundwater depth and retrieved. Subtract the water contact area from the total length for the depth to groundwater .

Standard Operating Procedure

Measuring LNAPL/DNAPL Levels in Wells

LNAPL/DNAPL(free product) level measurements are made in reference to an established point on the well casing. Measurements are made from the high side of the riser pipe or well casing unless otherwise specified. All level measurements are made and recorded to the nearest 0.01 foot.

Measuring LNAPL/DNAPL elevations can be accomplished using an interface probe or the rope method. An measuring devices will be cleaned between wells with tap water and tri-sodium phosphate (TSP) and rinsed with tap water.

Interface probe

An interface probe consists of a flat measuring tape cable, a probe attached to the end, and an indicator. After grounding the instrument, the probe is slowly lowered into the well casing. The indicator signals when the probe contacts LNAPL. The probe depth is recorded. The probe is then lowered further into the well until the water / LNAPL interface is encountered. This interface is also recorded. If DNAPL is present, the probe is lowered further into the well until the probe contacts the water / DNAPL interface. The depth of DNAPL is recorded and the total depth of the well is also recorded.

Rope Method

The rope method will be used if an interface probe is not compatible with the LNAPL/DNAPL. A rope with a weight attached is lowered into the LNAPL/DNAPL. The LNAPL/DNAPL will stain the rope and the DNAPL elevation can be measured. The procedures are as follows:

a. Attach a weight to the end of a nylon rope.

b. Lower the rope to the expected depth of the LNAPL/DNAPL and mark the rope against the high side of the well casing.

c. Remove the rope from the well and measure the length of rope from the mark to the highest point of the LNAPL/DNAPL.

d. Remove the weight and discard the stained section of rope.

Standard Operating Procedure

Calculation of Purge Volumes for Groundwater Sampling Wells

Purpose

The purpose of this procedure is to describe the methods used in calculating and measuring purge volumes.

Applicability

The procedure applies to the amount of water that is purged out of a well before sampling can occur.

Definition

Purge volume is a specific amount of water taken out of a well before sampling.

Reference

Wisconsin Department of Natural Resources Groundwater Sampling Procedures Field Manual (PUBL-DG-038-96)

Procedure

Calculating and Measuring Purge Volumes

1. Calculate the volume of standing water in the well (using the following equation):

   Note: Please see Table 1 for volume calculations for standard well casing and borehole diameters.

   a. $V = (pi)*(r^2)*(h)$
   V = Volume in cubic feet of standing water
   = 3.14
   r = Radius of the well casing or hole (in feet)
   h = Height of the column of water in the well (in feet)
   (h = water level - total well depth)

2. Convert the volume of standing water in the well from cubic feet to gallons using the following equation:

   a. WV = (V)*(7.48 gallons per cubic foot)
   WV = Well volume in gallons

3. Determine the amount of water to be purged (using this equation):

   a. VP = (WV)(NWV)
   VP = Volume of water pumped
   WV = Well volume in gallons
   NWV = Number of well volumes that monitoring plan requires to be purged

Documentation

The technicians will document flow rate, well volume, time pumped/bailed, volume removed, water level, and total well depth on the field log data sheet.

Table 1
Water Volume in Well Casing or Borehole

Diameter of Casing or Hole (In)	Gallons per Foot of Depth	Cubic Feet per Foot Depth	Liters per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.507	0.507×10^{-3}
1 1/2	0.092	0.0123	1.140	1.140×10^{-3}
2	0.163	0.0218	2.027	2.027×10^{-3}
2 1/2	0.255	0.0341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.560	4.560×10^{-3}
3 1/2	0.500	0.0668	6.206	6.206×10^{-3}
4	0.653	0.0873	8.106	8.106×10^{-3}
4 1/2	0.826	0.1104	10.26	10.26×10^{-3}
5	1.020	0.1364	12.67	12.67×10^{-3}
5 1/2	1.234	0.1650	15.33	15.33×10^{-3}
6	1.469	0.1963	18.24	18.24×10^{-3}
7	2.000	0.2673	24.83	24.83×10^{-3}
8	2.611	0.3491	32.43	32.43×10^{-3}
9	3.305	0.4418	41.04	41.04×10^{-3}
10	4.080	0.5454	50.66	50.66×10^{-3}
11	4.937	0.6600	61.30	61.30×10^{-3}
12	5.875	0.7854	72.96	72.96×10^{-3}
14	8.000	1.069	99.30	99.3×10^{-3}
16	10.44	1.396	129.70	129.7×10^{-3}
18	13.22	1.767	164.15	164.2×10^{-3}
20	16.32	2.182	202.66	202.7×10^{-3}
22	19.75	2.640	245.21	245.3×10^{-3}
24	23.50	3.142	291.83	291.9×10^{-3}
26	27.58	3.687	342.49	342.6×10^{-3}
28	32.00	4.276	397.21	397.3×10^{-3}
30	36.72	4.909	455.98	456.1×10^{-3}
32	41.78	5.585	518.80	519.0×10^{-3}
34	47.16	6.305	585.68	585.8×10^{-3}
36	52.88	6.069	656.61	656.8×10^{-3}

1 gallon = 3.785 liters
1 meter = 3.281 feet
1 gallon water weight 8.33 lbs. = 3.785 kilograms
1 liter water weight 1 kilogram = 2.205 lbs.
1 gallon per foot of depth = 12.419 liters per foot of depth
1 gallon per meter of depth = 12.419×10^{-3} cubic meters per meter of

APPENDIX B – Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-179872-1
Client Project/Site: Olson Corners

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
4/6/2020 8:33:31 AM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

Table of Contents

Job ID: 500-179872-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-179872-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2020 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

Receipt Exceptions
Received 1 VOA vial for sample 1 with headspace.

GC/MS VOA
Method 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-2P (500-179872-2) and MW-4 (500-179872-4). Elevated reporting limits (RLs) are provided.

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

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-1 — Lab Sample ID: 500-179872-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.3		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	95		0.50	0.18	ug/L	1		8260B	Total/NA
Naphthalene	15		1.0	0.34	ug/L	1		8260B	Total/NA
Toluene	10		0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	55		1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	5.4		1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	220		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-179872-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1000		10	3.7	ug/L	20		8260B	Total/NA
Naphthalene	220		20	6.7	ug/L	20		8260B	Total/NA
Toluene	670		10	3.0	ug/L	20		8260B	Total/NA
1,2,4-Trimethylbenzene	480		20	7.2	ug/L	20		8260B	Total/NA
1,3,5-Trimethylbenzene	84		20	5.1	ug/L	20		8260B	Total/NA
Xylenes, Total	1200		20	4.4	ug/L	20		8260B	Total/NA
Benzene - DL	16000		100	29	ug/L	200		8260B	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-179872-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-179872-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	380		1.0	0.37	ug/L	2		8260B	Total/NA
Naphthalene	130		2.0	0.67	ug/L	2		8260B	Total/NA
Toluene	61		1.0	0.30	ug/L	2		8260B	Total/NA
Benzene - DL	600		10	2.9	ug/L	20		8260B	Total/NA
1,2,4-Trimethylbenzene - DL	620		20	7.2	ug/L	20		8260B	Total/NA
1,3,5-Trimethylbenzene - DL	840		20	5.1	ug/L	20		8260B	Total/NA
Xylenes, Total - DL	840		20	4.4	ug/L	20		8260B	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-179872-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	63		1.0	0.34	ug/L	1		8260B	Total/NA
Toluene	10		0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	15		1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	1.6		1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	68		1.0	0.22	ug/L	1		8260B	Total/NA
Benzene - DL	200		5.0	1.5	ug/L	10		8260B	Total/NA
Ethylbenzene - DL	380		5.0	1.8	ug/L	10		8260B	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 500-179872-6

No Detections.

Client Sample ID: MW-8P — Lab Sample ID: 500-179872-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	170		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	96		0.50	0.18	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-8P (Continued) — Lab Sample ID: 500-179872-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.36	J	1.0	0.34	ug/L	1		8260B	Total/NA
Toluene	1.8		0.50	0.15	ug/L	1		8260B	Total/NA
Xylenes, Total	2.3		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 500-179872-8

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 500-179872-9

No Detections.

Client Sample ID: MW-11 — Lab Sample ID: 500-179872-10

No Detections.

Client Sample ID: MW-12P — Lab Sample ID: 500-179872-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	12		0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 500-179872-12

No Detections.

Client Sample ID: MW-13 — Lab Sample ID: 500-179872-13

No Detections.

Client Sample ID: MW-13D — Lab Sample ID: 500-179872-14

No Detections.

Client Sample ID: Webster — Lab Sample ID: 500-179872-15

No Detections.

Client Sample ID: Witkowski — Lab Sample ID: 500-179872-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.7		0.50	0.15	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	1.1		1.0	0.39	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI

Protocol References:

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

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-179872-1	MW-1	Ground Water	03/24/20 11:00	03/26/20 09:10	
500-179872-2	MW-2P	Ground Water	03/24/20 10:00	03/26/20 09:10	
500-179872-3	MW-3D	Ground Water	03/24/20 10:15	03/26/20 09:10	
500-179872-4	MW-4	Ground Water	03/24/20 10:30	03/26/20 09:10	
500-179872-5	MW-4P	Ground Water	03/24/20 10:35	03/26/20 09:10	
500-179872-6	MW-7	Ground Water	03/24/20 11:40	03/26/20 09:10	
500-179872-7	MW-8P	Ground Water	03/24/20 11:30	03/26/20 09:10	
500-179872-8	MW-9	Ground Water	03/24/20 09:45	03/26/20 09:10	
500-179872-9	MW-10	Ground Water	03/24/20 09:30	03/26/20 09:10	
500-179872-10	MW-11	Ground Water	03/24/20 12:00	03/26/20 09:10	
500-179872-11	MW-12P	Ground Water	03/24/20 12:10	03/26/20 09:10	
500-179872-12	MW-12D	Ground Water	03/24/20 11:50	03/26/20 09:10	
500-179872-13	MW-13	Ground Water	03/24/20 12:30	03/26/20 09:10	
500-179872-14	MW-13D	Ground Water	03/24/20 12:40	03/26/20 09:10	
500-179872-15	Webster	Drinking Water	03/24/20 09:15	03/26/20 09:10	
500-179872-16	Witkowski	Drinking Water	03/24/20 12:45	03/26/20 09:10	

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-1
Date Collected: 03/24/20 11:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-1
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.3**		0.50	0.15	ug/L			04/03/20 13:27	1
Ethylbenzene	**95**		0.50	0.18	ug/L			04/03/20 13:27	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/03/20 13:27	1
Naphthalene	**15**		1.0	0.34	ug/L			04/03/20 13:27	1
Toluene	**10**		0.50	0.15	ug/L			04/03/20 13:27	1
1,2,4-Trimethylbenzene	**55**		1.0	0.36	ug/L			04/03/20 13:27	1
1,3,5-Trimethylbenzene	**5.4**		1.0	0.25	ug/L			04/03/20 13:27	1
Xylenes, Total	**220**		1.0	0.22	ug/L			04/03/20 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/03/20 13:27*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 120*		*04/03/20 13:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*04/03/20 13:27*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/03/20 13:27*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-2P

Date Collected: 03/24/20 10:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-2

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**1000**		10	3.7	ug/L			04/01/20 11:59	20
Methyl tert-butyl ether	<7.9		20	7.9	ug/L			04/01/20 11:59	20
Naphthalene	**220**		20	6.7	ug/L			04/01/20 11:59	20
Toluene	**670**		10	3.0	ug/L			04/01/20 11:59	20
1,2,4-Trimethylbenzene	**480**		20	7.2	ug/L			04/01/20 11:59	20
1,3,5-Trimethylbenzene	**84**		20	5.1	ug/L			04/01/20 11:59	20
Xylenes, Total	**1200**		20	4.4	ug/L			04/01/20 11:59	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*04/01/20 11:59*	*20*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*04/01/20 11:59*	*20*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*04/01/20 11:59*	*20*
Toluene-d8 (Surr)	*95*		*75 - 120*		*04/01/20 11:59*	*20*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**16000**		100	29	ug/L			04/01/20 12:27	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*04/01/20 12:27*	*200*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*04/01/20 12:27*	*200*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*04/01/20 12:27*	*200*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 12:27*	*200*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-3D
Date Collected: 03/24/20 10:15
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-3
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 12:54	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 12:54	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 12:54	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 12:54	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 12:54	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 12:54	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 12:54	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/01/20 12:54*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*04/01/20 12:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*04/01/20 12:54*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 12:54*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-4

Date Collected: 03/24/20 10:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-4

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**380**		1.0	0.37	ug/L			04/01/20 13:21	2
Methyl tert-butyl ether	<0.79		2.0	0.79	ug/L			04/01/20 13:21	2
Naphthalene	**130**		2.0	0.67	ug/L			04/01/20 13:21	2
Toluene	**61**		1.0	0.30	ug/L			04/01/20 13:21	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*72 - 124*		*04/01/20 13:21*	*2*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*04/01/20 13:21*	*2*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*04/01/20 13:21*	*2*
Toluene-d8 (Surr)	*97*		*75 - 120*		*04/01/20 13:21*	*2*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**600**		10	2.9	ug/L			04/01/20 13:48	20
1,2,4-Trimethylbenzene	**620**		20	7.2	ug/L			04/01/20 13:48	20
1,3,5-Trimethylbenzene	**840**		20	5.1	ug/L			04/01/20 13:48	20
Xylenes, Total	**840**		20	4.4	ug/L			04/01/20 13:48	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 13:48*	*20*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*04/01/20 13:48*	*20*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*04/01/20 13:48*	*20*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 13:48*	*20*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-4P

Date Collected: 03/24/20 10:35
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-5

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 14:15	1
Naphthalene	**63**		1.0	0.34	ug/L			04/01/20 14:15	1
Toluene	**10**		0.50	0.15	ug/L			04/01/20 14:15	1
1,2,4-Trimethylbenzene	**15**		1.0	0.36	ug/L			04/01/20 14:15	1
1,3,5-Trimethylbenzene	**1.6**		1.0	0.25	ug/L			04/01/20 14:15	1
Xylenes, Total	**68**		1.0	0.22	ug/L			04/01/20 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 14:15*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 120*		*04/01/20 14:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*04/01/20 14:15*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*04/01/20 14:15*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**200**		5.0	1.5	ug/L			04/01/20 14:42	10
Ethylbenzene	**380**		5.0	1.8	ug/L			04/01/20 14:42	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*04/01/20 14:42*	*10*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*04/01/20 14:42*	*10*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*04/01/20 14:42*	*10*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 14:42*	*10*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-7
Date Collected: 03/24/20 11:40
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-6
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 15:10	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 15:10	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 15:10	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 15:10	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 15:10	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 15:10	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 15:10	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*04/01/20 15:10*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*04/01/20 15:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*04/01/20 15:10*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 15:10*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-8P

Date Collected: 03/24/20 11:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-7

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**170**		0.50	0.15	ug/L			04/01/20 15:37	1
Ethylbenzene	**96**		0.50	0.18	ug/L			04/01/20 15:37	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 15:37	1
Naphthalene	**0.36**	**J**	1.0	0.34	ug/L			04/01/20 15:37	1
Toluene	**1.8**		0.50	0.15	ug/L			04/01/20 15:37	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 15:37	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 15:37	1
Xylenes, Total	**2.3**		1.0	0.22	ug/L			04/01/20 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 15:37*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*04/01/20 15:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*04/01/20 15:37*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*04/01/20 15:37*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-9

Date Collected: 03/24/20 09:45
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-8

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 16:04	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 16:04	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 16:04	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 16:04	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 16:04	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 16:04	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 16:04	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*		*04/01/20 16:04*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 120*		*04/01/20 16:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*04/01/20 16:04*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 16:04*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-10
Date Collected: 03/24/20 09:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-9
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 16:32	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 16:32	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 16:32	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 16:32	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 16:32	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 16:32	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 16:32	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*72 - 124*		*04/01/20 16:32*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*04/01/20 16:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*04/01/20 16:32*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 16:32*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-11
Date Collected: 03/24/20 12:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-10
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 16:59	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 16:59	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 16:59	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 16:59	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 16:59	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 16:59	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 16:59	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/01/20 16:59*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*04/01/20 16:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*04/01/20 16:59*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 16:59*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-12P

Date Collected: 03/24/20 12:10
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-11

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**12**		0.50	0.15	ug/L			04/01/20 17:27	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 17:27	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 17:27	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 17:27	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 17:27	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 17:27	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 17:27	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 17:27*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 120*		*04/01/20 17:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*04/01/20 17:27*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 17:27*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-12D

Date Collected: 03/24/20 11:50
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-12

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 17:54	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 17:54	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 17:54	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 17:54	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 17:54	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 17:54	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 17:54	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 17:54*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*04/01/20 17:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*04/01/20 17:54*	*1*
Toluene-d8 (Surr)	*92*		*75 - 120*		*04/01/20 17:54*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-13
Date Collected: 03/24/20 12:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-13
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 18:21	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 18:21	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 18:21	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 18:21	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 18:21	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 18:21	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 18:21	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*72 - 124*		*04/01/20 18:21*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*04/01/20 18:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*04/01/20 18:21*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 18:21*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-13D
Date Collected: 03/24/20 12:40
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-14
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 18:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 18:48	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 18:48	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 18:48	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 18:48	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 18:48	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 18:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 18:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/01/20 18:48*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 120*		*04/01/20 18:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*04/01/20 18:48*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 18:48*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: Webster

Date Collected: 03/24/20 09:15
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-15

Matrix: Drinking Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 19:15	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 19:15	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 19:15	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 19:15	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 19:15	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 19:15	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 19:15	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/01/20 19:15*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 120*		*04/01/20 19:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*04/01/20 19:15*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 19:15*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: Witkowski
Date Collected: 03/24/20 12:45
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-16
Matrix: Drinking Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.7**		0.50	0.15	ug/L			04/01/20 19:42	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 19:42	1
Methyl tert-butyl ether	**1.1**		1.0	0.39	ug/L			04/01/20 19:42	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 19:42	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 19:42	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 19:42	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 19:42	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*04/01/20 19:42*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*04/01/20 19:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*04/01/20 19:42*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*04/01/20 19:42*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

QC Association Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

GC/MS VOA

Analysis Batch: 536266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-179872-2	MW-2P	Total/NA	Ground Water	8260B	
500-179872-2 - DL	MW-2P	Total/NA	Ground Water	8260B	
500-179872-3	MW-3D	Total/NA	Ground Water	8260B	
500-179872-4	MW-4	Total/NA	Ground Water	8260B	
500-179872-4 - DL	MW-4	Total/NA	Ground Water	8260B	
500-179872-5	MW-4P	Total/NA	Ground Water	8260B	
500-179872-5 - DL	MW-4P	Total/NA	Ground Water	8260B	
500-179872-6	MW-7	Total/NA	Ground Water	8260B	
500-179872-7	MW-8P	Total/NA	Ground Water	8260B	
500-179872-8	MW-9	Total/NA	Ground Water	8260B	
500-179872-9	MW-10	Total/NA	Ground Water	8260B	
500-179872-10	MW-11	Total/NA	Ground Water	8260B	
500-179872-11	MW-12P	Total/NA	Ground Water	8260B	
500-179872-12	MW-12D	Total/NA	Ground Water	8260B	
500-179872-13	MW-13	Total/NA	Ground Water	8260B	
500-179872-14	MW-13D	Total/NA	Ground Water	8260B	
500-179872-15	Webster	Total/NA	Drinking Water	8260B	
500-179872-16	Witkowski	Total/NA	Drinking Water	8260B	
MB 500-536266/7	Method Blank	Total/NA	Water	8260B	
LCS 500-536266/5	Lab Control Sample	Total/NA	Water	8260B	
500-179872-16 MS	Witkowski	Total/NA	Drinking Water	8260B	
500-179872-16 MSD	Witkowski	Total/NA	Drinking Water	8260B	

Analysis Batch: 536604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-179872-1	MW-1	Total/NA	Ground Water	8260B	
MB 500-536604/6	Method Blank	Total/NA	Water	8260B	
LCS 500-536604/4	Lab Control Sample	Total/NA	Water	8260B	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Drinking Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(72-124)	(75-120)	(75-126)	(75-120)
500-179872-15	Webster	88	104	104	93
500-179872-16	Witkowski	89	102	104	93
500-179872-16 MS	Witkowski	89	100	100	96
500-179872-16 MSD	Witkowski	91	100	101	96

Surrogate Legend

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

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Ground Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(72-124)	(75-120)	(75-126)	(75-120)
500-179872-1	MW-1	88	94	102	94
500-179872-2	MW-2P	87	99	100	95
500-179872-2 - DL	MW-2P	87	100	102	93
500-179872-3	MW-3D	88	100	102	94
500-179872-4	MW-4	79	99	99	97
500-179872-4 - DL	MW-4	89	98	99	93
500-179872-5	MW-4P	89	95	92	96
500-179872-5 - DL	MW-4P	87	99	99	94
500-179872-6	MW-7	87	99	99	94
500-179872-7	MW-8P	89	100	100	95
500-179872-8	MW-9	87	101	101	93
500-179872-9	MW-10	86	102	102	93
500-179872-10	MW-11	88	102	103	93
500-179872-11	MW-12P	89	101	101	94
500-179872-12	MW-12D	89	102	103	92
500-179872-13	MW-13	90	100	103	94
500-179872-14	MW-13D	88	103	104	93

Surrogate Legend

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

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(72-124)	(75-120)	(75-126)	(75-120)
LCS 500-536266/5	Lab Control Sample	89	97	100	94
LCS 500-536604/4	Lab Control Sample	89	98	105	92
MB 500-536266/7	Method Blank	88	99	102	94
MB 500-536604/6	Method Blank	92	97	108	93

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Surrogate Legend

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

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-536266/7
Matrix: Water
Analysis Batch: 536266

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/01/20 10:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/01/20 10:53	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/01/20 10:53	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/01/20 10:53	1
Toluene	<0.15		0.50	0.15	ug/L			04/01/20 10:53	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/01/20 10:53	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/01/20 10:53	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/01/20 10:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*04/01/20 10:53*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*04/01/20 10:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*04/01/20 10:53*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*04/01/20 10:53*	*1*

Lab Sample ID: LCS 500-536266/5
Matrix: Water
Analysis Batch: 536266

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.1		ug/L		98	70 - 120
Ethylbenzene	50.0	47.0		ug/L		94	70 - 123
Methyl tert-butyl ether	50.0	49.4		ug/L		99	55 - 123
Naphthalene	50.0	58.3		ug/L		117	53 - 144
Toluene	50.0	48.3		ug/L		97	70 - 125
1,2,4-Trimethylbenzene	50.0	49.7		ug/L		99	70 - 123
1,3,5-Trimethylbenzene	50.0	50.8		ug/L		102	70 - 123
Xylenes, Total	100	91.3		ug/L		91	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*
Dibromofluoromethane (Surr)	*97*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*
Toluene-d8 (Surr)	*94*		*75 - 120*

Lab Sample ID: 500-179872-16 MS
Matrix: Drinking Water
Analysis Batch: 536266

Client Sample ID: Witkowski
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.7		50.0	54.6		ug/L		106	70 - 120
Ethylbenzene	<0.18		50.0	50.7		ug/L		101	70 - 123
Methyl tert-butyl ether	1.1		50.0	53.5		ug/L		105	55 - 123
Naphthalene	<0.34		50.0	58.3		ug/L		117	53 - 144
Toluene	<0.15		50.0	52.2		ug/L		104	70 - 125
1,2,4-Trimethylbenzene	<0.36		50.0	53.0		ug/L		106	70 - 123
1,3,5-Trimethylbenzene	<0.25		50.0	54.2		ug/L		108	70 - 123
Xylenes, Total	<0.22		100	97.9		ug/L		98	70 - 125

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

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		72 - 124
Dibromofluoromethane (Surr)	100		75 - 120
1,2-Dichloroethane-d4 (Surr)	100		75 - 126
Toluene-d8 (Surr)	96		75 - 120

Lab Sample ID: 500-179872-16 MSD
Matrix: Drinking Water
Analysis Batch: 536266

Client Sample ID: Witkowski
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.7		50.0	50.8		ug/L		98	70 - 120	7	20
Ethylbenzene	<0.18		50.0	47.1		ug/L		94	70 - 123	7	20
Methyl tert-butyl ether	1.1		50.0	50.9		ug/L		100	55 - 123	5	20
Naphthalene	<0.34		50.0	58.2		ug/L		116	53 - 144	0	20
Toluene	<0.15		50.0	48.6		ug/L		97	70 - 125	7	20
1,2,4-Trimethylbenzene	<0.36		50.0	49.9		ug/L		100	70 - 123	6	20
1,3,5-Trimethylbenzene	<0.25		50.0	50.9		ug/L		102	70 - 123	6	20
Xylenes, Total	<0.22		100	91.3		ug/L		91	70 - 125	7	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		72 - 124
Dibromofluoromethane (Surr)	100		75 - 120
1,2-Dichloroethane-d4 (Surr)	101		75 - 126
Toluene-d8 (Surr)	96		75 - 120

Lab Sample ID: MB 500-536604/6
Matrix: Water
Analysis Batch: 536604

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			04/03/20 12:33	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			04/03/20 12:33	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			04/03/20 12:33	1
Naphthalene	<0.34		1.0	0.34	ug/L			04/03/20 12:33	1
Toluene	<0.15		0.50	0.15	ug/L			04/03/20 12:33	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			04/03/20 12:33	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			04/03/20 12:33	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			04/03/20 12:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		72 - 124		04/03/20 12:33	1
Dibromofluoromethane (Surr)	97		75 - 120		04/03/20 12:33	1
1,2-Dichloroethane-d4 (Surr)	108		75 - 126		04/03/20 12:33	1
Toluene-d8 (Surr)	93		75 - 120		04/03/20 12:33	1

Lab Sample ID: LCS 500-536604/4
Matrix: Water
Analysis Batch: 536604

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			50.0	47.3		ug/L		95	70 - 120		

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

Lab Sample ID: LCS 500-536604/4
Matrix: Water
Analysis Batch: 536604

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	50.0	49.3		ug/L		99	70 - 123
Methyl tert-butyl ether	50.0	50.2		ug/L		100	55 - 123
Naphthalene	50.0	41.1		ug/L		82	53 - 144
Toluene	50.0	45.0		ug/L		90	70 - 125
1,2,4-Trimethylbenzene	50.0	45.7		ug/L		91	70 - 123
1,3,5-Trimethylbenzene	50.0	45.9		ug/L		92	70 - 123
Xylenes, Total	100	97.9		ug/L		98	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*
Dibromofluoromethane (Surr)	*98*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 126*
Toluene-d8 (Surr)	*92*		*75 - 120*

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-1
Date Collected: 03/24/20 11:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536604	04/03/20 13:27	JDD	TAL CHI

Client Sample ID: MW-2P
Date Collected: 03/24/20 10:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	536266	04/01/20 11:59	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	200	536266	04/01/20 12:27	JDD	TAL CHI

Client Sample ID: MW-3D
Date Collected: 03/24/20 10:15
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 12:54	JDD	TAL CHI

Client Sample ID: MW-4
Date Collected: 03/24/20 10:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	536266	04/01/20 13:21	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	20	536266	04/01/20 13:48	JDD	TAL CHI

Client Sample ID: MW-4P
Date Collected: 03/24/20 10:35
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 14:15	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	10	536266	04/01/20 14:42	JDD	TAL CHI

Client Sample ID: MW-7
Date Collected: 03/24/20 11:40
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 15:10	JDD	TAL CHI

Client Sample ID: MW-8P
Date Collected: 03/24/20 11:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 15:37	JDD	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: MW-9
Date Collected: 03/24/20 09:45
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 16:04	JDD	TAL CHI

Client Sample ID: MW-10
Date Collected: 03/24/20 09:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 16:32	JDD	TAL CHI

Client Sample ID: MW-11
Date Collected: 03/24/20 12:00
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 16:59	JDD	TAL CHI

Client Sample ID: MW-12P
Date Collected: 03/24/20 12:10
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-11
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 17:27	JDD	TAL CHI

Client Sample ID: MW-12D
Date Collected: 03/24/20 11:50
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-12
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 17:54	JDD	TAL CHI

Client Sample ID: MW-13
Date Collected: 03/24/20 12:30
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-13
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 18:21	JDD	TAL CHI

Client Sample ID: MW-13D
Date Collected: 03/24/20 12:40
Date Received: 03/26/20 09:10

Lab Sample ID: 500-179872-14
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 18:48	JDD	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Client Sample ID: Webster

Lab Sample ID: 500-179872-15

Date Collected: 03/24/20 09:15

Matrix: Drinking Water

Date Received: 03/26/20 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 19:15	JDD	TAL CHI

Client Sample ID: Witkowski

Lab Sample ID: 500-179872-16

Date Collected: 03/24/20 12:45

Matrix: Drinking Water

Date Received: 03/26/20 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	536266	04/01/20 19:42	JDD	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-179872-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-20

Chain of Custody Record

301290

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Address: _____

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

TAL-8210

Client Contact	Project Manager: Mitch Evenson	Site Contact: Anna Beckman	Date: 3/24/20	COC No:
Company Name: Cedar Corporation	Tel/Email:	Lab Contact: Sandie F.	Carrier: FedEx	1 of 2 COCs
Address: 604 Wilson Avenue	**Analysis Turnaround Time**			Sampler: AMB
City/State/Zip: Menomonie, WI 54751	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
Phone: 715-235-9081	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Olson Corners	☐ 1 week			Job / SDG No.: 500-179872
Site:	☐ 2 days			
P O #	☐ 1 day			

500-179872 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PVOC's + Naphthalene	Sample Specific Notes:
1	MW-1	3/24	1100	G	GW	3			X	
2	MW-2P		1000							
3	MW-3D		1015							
4	MW-4		1030							
5	MW-4P		1035							
6	MW-7		1140							
7	MW-8P		1130							
8	MW-9		0945							
9	MW-10		0930							
10	MW-11		1200							
11	MW-12P		1210							
12	MW-12D	↓	1150	↓	↓	↓			↓	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

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

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

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

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
PECFA Pricing

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.9 Corr'd:_____ Therm ID No.:_____

Relinquished by: Anna Beckman	Company: Cedar Corp	Date/Time: 3/25/20 0700	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: Chin Scott	Company: TA-GH	Date/Time: 3/26/20 0910

Chain of Custody Record

381339 eurofins | Environment Testing TestAmerica

Address: _____

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

TAL-8210

Client Contact	Project Manager: Mitch Evenson	Site Contact: Anna Beckman	Date: 3/24/20	COC No:
Company Name: Cedar Corp	Tel/Email:	Lab Contact: Sandie F.	Carrier: FedEx	1 of 2 COCs
Address: 604 Wilson Ave	Analysis Turnaround Time			Sampler: AMB
City/State/Zip: Menomonie, WI 54751	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 715-235-9081	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Olson Corners	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			500-179872

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PVOC's + Naphthalene	Sample Specific Notes:
13	MW-13	3/24	1230	G	GW	3			X	
14	MW-130		1240		↓	3				
15	Webster		0915		DW	2				
16	Witkowski	↓	1245	↓	↓	3			↓	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

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

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

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

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

PECFA Pricing.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Anna Beckman	Cedar Corp	3/25/20 0700			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by in Laboratory by:	Company:	Date/Time:
			Ellen Scott	TA-CHT	3/26/20 0910

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-179872-1

Login Number: 179872
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-182370-1
Client Project/Site: Olson Corners

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
6/1/2020 6:33:39 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

Table of Contents

Job ID: 500-182370-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-182370-1

Comments
No additional comments.

Receipt
The samples were received on 5/21/2020 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

Receipt Exceptions
Received 1 VOA vial for sample 15 with headspace.

GC/MS VOA
Method 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-1 (500-182370-1), MW-2P (500-182370-2), MW-4 (500-182370-4) and MW-4P (500-182370-5). Elevated reporting limits (RLs) are provided.

Method 8260B: The MS/ MSD (matrix spike and matrix spike duplicate) in batch 544947 were analyzed 12 and 38 minutes outside the method specified 12 hour tune time. (500-182370-A-16 MS) and (500-182370-A-16 MSD)

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

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-1 — Lab Sample ID: 500-182370-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.9		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	200		0.50	0.18	ug/L	1		8260B	Total/NA
Naphthalene	51		1.0	0.34	ug/L	1		8260B	Total/NA
Toluene	15		0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	160		1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	21		1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total - DL	290		10	2.2	ug/L	10		8260B	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-182370-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	810		2.5	0.92	ug/L	5		8260B	Total/NA
Naphthalene	160		5.0	1.7	ug/L	5		8260B	Total/NA
Toluene	510		2.5	0.76	ug/L	5		8260B	Total/NA
1,2,4-Trimethylbenzene	380		5.0	1.8	ug/L	5		8260B	Total/NA
1,3,5-Trimethylbenzene	87		5.0	1.3	ug/L	5		8260B	Total/NA
Xylenes, Total	920		5.0	1.1	ug/L	5		8260B	Total/NA
Benzene - DL	9900		25	7.3	ug/L	50		8260B	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-182370-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-182370-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	370		1.0	0.29	ug/L	2		8260B	Total/NA
Naphthalene	280		2.0	0.67	ug/L	2		8260B	Total/NA
Toluene	49		1.0	0.30	ug/L	2		8260B	Total/NA
1,3,5-Trimethylbenzene	330		2.0	0.51	ug/L	2		8260B	Total/NA
Ethylbenzene - DL	480		10	3.7	ug/L	20		8260B	Total/NA
1,2,4-Trimethylbenzene - DL	380		20	7.2	ug/L	20		8260B	Total/NA
Xylenes, Total - DL	780		20	4.4	ug/L	20		8260B	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-182370-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	340		1.0	0.29	ug/L	2		8260B	Total/NA
Naphthalene	170		2.0	0.67	ug/L	2		8260B	Total/NA
Toluene	24		1.0	0.30	ug/L	2		8260B	Total/NA
1,2,4-Trimethylbenzene	45		2.0	0.72	ug/L	2		8260B	Total/NA
1,3,5-Trimethylbenzene	23		2.0	0.51	ug/L	2		8260B	Total/NA
Xylenes, Total	170		2.0	0.44	ug/L	2		8260B	Total/NA
Ethylbenzene - DL	1100		10	3.7	ug/L	20		8260B	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 500-182370-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.6		0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-6P — Lab Sample ID: 500-182370-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.3		0.50	0.15	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-6P (Continued) — Lab Sample ID: 500-182370-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	3.5		0.50	0.18	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.51	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: MW-6D — Lab Sample ID: 500-182370-8

No Detections.

Client Sample ID: MW-7 — Lab Sample ID: 500-182370-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.17	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-8P — Lab Sample ID: 500-182370-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	64		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	27		0.50	0.18	ug/L	1		8260B	Total/NA
Toluene	0.71		0.50	0.15	ug/L	1		8260B	Total/NA
Xylenes, Total	1.4		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 500-182370-11

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 500-182370-12

No Detections.

Client Sample ID: MW-11 — Lab Sample ID: 500-182370-13

No Detections.

Client Sample ID: MW-12P — Lab Sample ID: 500-182370-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	22		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	0.38	J	0.50	0.18	ug/L	1		8260B	Total/NA
Toluene	0.21	J	0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 500-182370-15

No Detections.

Client Sample ID: MW-13 — Lab Sample ID: 500-182370-16

No Detections.

Client Sample ID: MW-13D — Lab Sample ID: 500-182370-17

No Detections.

Client Sample ID: Webster — Lab Sample ID: 500-182370-18

No Detections.

Client Sample ID: Witkowski — Lab Sample ID: 500-182370-19

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI

Protocol References:

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

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-182370-1	MW-1	Ground Water	05/19/20 11:20	05/21/20 10:20	
500-182370-2	MW-2P	Ground Water	05/19/20 09:50	05/21/20 10:20	
500-182370-3	MW-3D	Ground Water	05/19/20 10:00	05/21/20 10:20	
500-182370-4	MW-4	Ground Water	05/19/20 10:10	05/21/20 10:20	
500-182370-5	MW-4P	Ground Water	05/19/20 10:20	05/21/20 10:20	
500-182370-6	MW-6	Ground Water	05/19/20 10:45	05/21/20 10:20	
500-182370-7	MW-6P	Ground Water	05/19/20 10:55	05/21/20 10:20	
500-182370-8	MW-6D	Ground Water	05/19/20 11:10	05/21/20 10:20	
500-182370-9	MW-7	Ground Water	05/19/20 11:45	05/21/20 10:20	
500-182370-10	MW-8P	Ground Water	05/19/20 11:30	05/21/20 10:20	
500-182370-11	MW-9	Ground Water	05/19/20 09:40	05/21/20 10:20	
500-182370-12	MW-10	Ground Water	05/19/20 09:30	05/21/20 10:20	
500-182370-13	MW-11	Ground Water	05/19/20 12:10	05/21/20 10:20	
500-182370-14	MW-12P	Ground Water	05/19/20 12:20	05/21/20 10:20	
500-182370-15	MW-12D	Ground Water	05/19/20 12:00	05/21/20 10:20	
500-182370-16	MW-13	Ground Water	05/19/20 12:30	05/21/20 10:20	
500-182370-17	MW-13D	Ground Water	05/19/20 12:45	05/21/20 10:20	
500-182370-18	Webster	Ground Water	05/19/20 10:30	05/21/20 10:20	
500-182370-19	Witkowski	Ground Water	05/19/20 13:00	05/21/20 10:20	

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-1

Date Collected: 05/19/20 11:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-1

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.9**		0.50	0.15	ug/L			05/29/20 17:39	1
Ethylbenzene	**200**		0.50	0.18	ug/L			05/29/20 17:39	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 17:39	1
Naphthalene	**51**		1.0	0.34	ug/L			05/29/20 17:39	1
Toluene	**15**		0.50	0.15	ug/L			05/29/20 17:39	1
1,2,4-Trimethylbenzene	**160**		1.0	0.36	ug/L			05/29/20 17:39	1
1,3,5-Trimethylbenzene	**21**		1.0	0.25	ug/L			05/29/20 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 17:39*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 17:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*05/29/20 17:39*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 17:39*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	**290**		10	2.2	ug/L			05/29/20 18:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 18:05*	*10*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 18:05*	*10*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*05/29/20 18:05*	*10*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 18:05*	*10*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-2P

Date Collected: 05/19/20 09:50
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-2

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**810**		2.5	0.92	ug/L			05/29/20 18:32	5
Methyl tert-butyl ether	<2.0		5.0	2.0	ug/L			05/29/20 18:32	5
Naphthalene	**160**		5.0	1.7	ug/L			05/29/20 18:32	5
Toluene	**510**		2.5	0.76	ug/L			05/29/20 18:32	5
1,2,4-Trimethylbenzene	**380**		5.0	1.8	ug/L			05/29/20 18:32	5
1,3,5-Trimethylbenzene	**87**		5.0	1.3	ug/L			05/29/20 18:32	5
Xylenes, Total	**920**		5.0	1.1	ug/L			05/29/20 18:32	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 18:32*	*5*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 18:32*	*5*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 18:32*	*5*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 18:32*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**9900**		25	7.3	ug/L			05/29/20 18:58	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*		*05/29/20 18:58*	*50*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*05/29/20 18:58*	*50*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*05/29/20 18:58*	*50*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 18:58*	*50*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-3D
Date Collected: 05/19/20 10:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-3
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 12:21	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 12:21	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 12:21	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 12:21	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 12:21	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 12:21	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 12:21	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 12:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 12:21*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 120*		*05/29/20 12:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*05/29/20 12:21*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 12:21*	*1*

Client Sample ID: MW-4
Date Collected: 05/19/20 10:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-4
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**370**		1.0	0.29	ug/L			05/29/20 20:17	2
Methyl tert-butyl ether	<0.79		2.0	0.79	ug/L			05/29/20 20:17	2
Naphthalene	**280**		2.0	0.67	ug/L			05/29/20 20:17	2
Toluene	**49**		1.0	0.30	ug/L			05/29/20 20:17	2
1,3,5-Trimethylbenzene	**330**		2.0	0.51	ug/L			05/29/20 20:17	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 20:17*	*2*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/29/20 20:17*	*2*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*05/29/20 20:17*	*2*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 20:17*	*2*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**480**		10	3.7	ug/L			05/29/20 20:43	20
1,2,4-Trimethylbenzene	**380**		20	7.2	ug/L			05/29/20 20:43	20
Xylenes, Total	**780**		20	4.4	ug/L			05/29/20 20:43	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 20:43*	*20*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 20:43*	*20*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*05/29/20 20:43*	*20*
Toluene-d8 (Surr)	*101*		*75 - 120*		*05/29/20 20:43*	*20*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-4P

Date Collected: 05/19/20 10:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-5

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**340**		1.0	0.29	ug/L			05/29/20 19:24	2
Methyl tert-butyl ether	<0.79		2.0	0.79	ug/L			05/29/20 19:24	2
Naphthalene	**170**		2.0	0.67	ug/L			05/29/20 19:24	2
Toluene	**24**		1.0	0.30	ug/L			05/29/20 19:24	2
1,2,4-Trimethylbenzene	**45**		2.0	0.72	ug/L			05/29/20 19:24	2
1,3,5-Trimethylbenzene	**23**		2.0	0.51	ug/L			05/29/20 19:24	2
Xylenes, Total	**170**		2.0	0.44	ug/L			05/29/20 19:24	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 19:24*	*2*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*05/29/20 19:24*	*2*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 19:24*	*2*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 19:24*	*2*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**1100**		10	3.7	ug/L			05/29/20 19:51	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*		*05/29/20 19:51*	*20*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*05/29/20 19:51*	*20*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*05/29/20 19:51*	*20*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 19:51*	*20*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-6

Date Collected: 05/19/20 10:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-6

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.6**		0.50	0.15	ug/L			05/29/20 12:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 12:48	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 12:48	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 12:48	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 12:48	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 12:48	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 12:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 12:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*05/29/20 12:48*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 12:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*05/29/20 12:48*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 12:48*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-6P
Date Collected: 05/19/20 10:55
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-7
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.3**		0.50	0.15	ug/L			05/29/20 13:14	1
Ethylbenzene	**3.5**		0.50	0.18	ug/L			05/29/20 13:14	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 13:14	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 13:14	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 13:14	1
1,2,4-Trimethylbenzene	**0.51**	**J**	1.0	0.36	ug/L			05/29/20 13:14	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 13:14	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*05/29/20 13:14*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 13:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 13:14*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 13:14*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-6D

Date Collected: 05/19/20 11:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-8

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 13:40	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 13:40	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 13:40	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 13:40	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 13:40	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 13:40	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 13:40	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 13:40*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 13:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*05/29/20 13:40*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 13:40*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-7
Date Collected: 05/19/20 11:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-9
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.17**	**J**	0.50	0.15	ug/L			05/29/20 14:07	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 14:07	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 14:07	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 14:07	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 14:07	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 14:07	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 14:07	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 14:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 14:07*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 14:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*05/29/20 14:07*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 14:07*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-8P
Date Collected: 05/19/20 11:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-10
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**64**		0.50	0.15	ug/L			05/29/20 14:33	1
Ethylbenzene	**27**		0.50	0.18	ug/L			05/29/20 14:33	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 14:33	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 14:33	1
Toluene	**0.71**		0.50	0.15	ug/L			05/29/20 14:33	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 14:33	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 14:33	1
Xylenes, Total	**1.4**		1.0	0.22	ug/L			05/29/20 14:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 14:33*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/29/20 14:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 14:33*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 14:33*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-9

Date Collected: 05/19/20 09:40
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-11

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 15:00	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 15:00	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 15:00	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 15:00	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 15:00	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 15:00	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 15:00	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 15:00*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/29/20 15:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*05/29/20 15:00*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*05/29/20 15:00*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-10

Date Collected: 05/19/20 09:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-12

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 15:27	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 15:27	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 15:27	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 15:27	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 15:27	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 15:27	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 15:27	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*05/29/20 15:27*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 15:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 15:27*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 15:27*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-11
Date Collected: 05/19/20 12:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-13
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 15:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 15:53	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 15:53	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 15:53	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 15:53	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 15:53	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 15:53	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*05/29/20 15:53*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 120*		*05/29/20 15:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*05/29/20 15:53*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 15:53*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-12P

Date Collected: 05/19/20 12:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-14

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**22**		0.50	0.15	ug/L			05/29/20 16:20	1
Ethylbenzene	**0.38**	**J**	0.50	0.18	ug/L			05/29/20 16:20	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 16:20	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 16:20	1
Toluene	**0.21**	**J**	0.50	0.15	ug/L			05/29/20 16:20	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 16:20	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 16:20	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*05/29/20 16:20*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*05/29/20 16:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*05/29/20 16:20*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*05/29/20 16:20*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-12D

Date Collected: 05/19/20 12:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-15

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 16:46	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 16:46	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 16:46	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 16:46	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 16:46	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 16:46	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 16:46	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*05/29/20 16:46*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 120*		*05/29/20 16:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 126*		*05/29/20 16:46*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*05/29/20 16:46*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-13
Date Collected: 05/19/20 12:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-16
Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 17:13	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 17:13	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 17:13	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 17:13	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 17:13	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 17:13	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 17:13	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*05/29/20 17:13*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*05/29/20 17:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*05/29/20 17:13*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 17:13*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-13D

Date Collected: 05/19/20 12:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-17

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 18:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 18:26	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 18:26	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 18:26	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 18:26	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 18:26	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 18:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*72 - 124*		*05/29/20 18:26*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*05/29/20 18:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*05/29/20 18:26*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*05/29/20 18:26*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: Webster

Date Collected: 05/19/20 10:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-18

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 18:51	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 18:51	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 18:51	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 18:51	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 18:51	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 18:51	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 18:51	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*72 - 124*		*05/29/20 18:51*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 120*		*05/29/20 18:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*05/29/20 18:51*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*05/29/20 18:51*	*1*

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: Witkowski

Date Collected: 05/19/20 13:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-19

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 19:16	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 19:16	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 19:16	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 19:16	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 19:16	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 19:16	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 19:16	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*72 - 124*		*05/29/20 19:16*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 120*		*05/29/20 19:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*05/29/20 19:16*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*05/29/20 19:16*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

QC Association Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

GC/MS VOA

Analysis Batch: 544939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-182370-17	MW-13D	Total/NA	Ground Water	8260B	
500-182370-18	Webster	Total/NA	Ground Water	8260B	
500-182370-19	Witkowski	Total/NA	Ground Water	8260B	
MB 500-544939/7	Method Blank	Total/NA	Water	8260B	
LCS 500-544939/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 544947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-182370-1	MW-1	Total/NA	Ground Water	8260B	
500-182370-1 - DL	MW-1	Total/NA	Ground Water	8260B	
500-182370-2	MW-2P	Total/NA	Ground Water	8260B	
500-182370-2 - DL	MW-2P	Total/NA	Ground Water	8260B	
500-182370-3	MW-3D	Total/NA	Ground Water	8260B	
500-182370-4	MW-4	Total/NA	Ground Water	8260B	
500-182370-4 - DL	MW-4	Total/NA	Ground Water	8260B	
500-182370-5	MW-4P	Total/NA	Ground Water	8260B	
500-182370-5 - DL	MW-4P	Total/NA	Ground Water	8260B	
500-182370-6	MW-6	Total/NA	Ground Water	8260B	
500-182370-7	MW-6P	Total/NA	Ground Water	8260B	
500-182370-8	MW-6D	Total/NA	Ground Water	8260B	
500-182370-9	MW-7	Total/NA	Ground Water	8260B	
500-182370-10	MW-8P	Total/NA	Ground Water	8260B	
500-182370-11	MW-9	Total/NA	Ground Water	8260B	
500-182370-12	MW-10	Total/NA	Ground Water	8260B	
500-182370-13	MW-11	Total/NA	Ground Water	8260B	
500-182370-14	MW-12P	Total/NA	Ground Water	8260B	
500-182370-15	MW-12D	Total/NA	Ground Water	8260B	
500-182370-16	MW-13	Total/NA	Ground Water	8260B	
MB 500-544947/7	Method Blank	Total/NA	Water	8260B	
LCS 500-544947/5	Lab Control Sample	Total/NA	Water	8260B	
500-182370-16 MS	MW-13	Total/NA	Ground Water	8260B	
500-182370-16 MSD	MW-13	Total/NA	Ground Water	8260B	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(72-124)	(75-120)	(75-126)	(75-120)
500-182370-1	MW-1	98	96	102	98
500-182370-1 - DL	MW-1	99	96	102	99
500-182370-2	MW-2P	98	96	101	99
500-182370-2 - DL	MW-2P	101	97	104	98
500-182370-3	MW-3D	99	95	99	100
500-182370-4	MW-4	98	98	103	100
500-182370-4 - DL	MW-4	99	96	100	101
500-182370-5	MW-4P	99	97	101	98
500-182370-5 - DL	MW-4P	102	97	102	100
500-182370-6	MW-6	100	96	103	99
500-182370-7	MW-6P	95	96	101	99
500-182370-8	MW-6D	98	96	99	99
500-182370-9	MW-7	99	96	103	98
500-182370-10	MW-8P	98	98	101	99
500-182370-11	MW-9	99	98	102	99
500-182370-12	MW-10	99	96	101	100
500-182370-13	MW-11	100	94	102	100
500-182370-14	MW-12P	98	97	101	100
500-182370-15	MW-12D	100	96	104	101
500-182370-16	MW-13	100	98	103	98
500-182370-16 MS	MW-13	106	98	99	102
500-182370-16 MSD	MW-13	100	99	100	98
500-182370-17	MW-13D	114	97	93	97
500-182370-18	Webster	114	99	92	96
500-182370-19	Witkowski	116	94	92	98

Surrogate Legend

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

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(72-124)	(75-120)	(75-126)	(75-120)
LCS 500-544939/5	Lab Control Sample	99	98	90	99
LCS 500-544947/5	Lab Control Sample	96	100	100	99
MB 500-544939/7	Method Blank	114	100	98	102
MB 500-544947/7	Method Blank	100	94	101	100

Surrogate Legend

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

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-544939/7
Matrix: Water
Analysis Batch: 544939

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 10:25	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 10:25	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 10:25	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 10:25	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 10:25	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 10:25	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 10:25	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 10:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*72 - 124*		*05/29/20 10:25*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*05/29/20 10:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*05/29/20 10:25*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*05/29/20 10:25*	*1*

Lab Sample ID: LCS 500-544939/5
Matrix: Water
Analysis Batch: 544939

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	46.5		ug/L		93	70 - 120
Ethylbenzene	50.0	50.2		ug/L		100	70 - 123
Methyl tert-butyl ether	50.0	42.4		ug/L		85	55 - 123
Naphthalene	50.0	48.7		ug/L		97	53 - 144
Toluene	50.0	47.5		ug/L		95	70 - 125
1,2,4-Trimethylbenzene	50.0	48.0		ug/L		96	70 - 123
1,3,5-Trimethylbenzene	50.0	48.9		ug/L		98	70 - 123
Xylenes, Total	100	94.9		ug/L		95	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*
Dibromofluoromethane (Surr)	*98*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*

Lab Sample ID: MB 500-544947/7
Matrix: Water
Analysis Batch: 544947

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/29/20 11:55	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/29/20 11:55	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/29/20 11:55	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/29/20 11:55	1
Toluene	<0.15		0.50	0.15	ug/L			05/29/20 11:55	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/29/20 11:55	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/29/20 11:55	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/29/20 11:55	1

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		72 - 124		05/29/20 11:55	1
Dibromofluoromethane (Surr)	94		75 - 120		05/29/20 11:55	1
1,2-Dichloroethane-d4 (Surr)	101		75 - 126		05/29/20 11:55	1
Toluene-d8 (Surr)	100		75 - 120		05/29/20 11:55	1

Lab Sample ID: LCS 500-544947/5
Matrix: Water
Analysis Batch: 544947

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.3		ug/L		99	70 - 120
Ethylbenzene	50.0	50.6		ug/L		101	70 - 123
Methyl tert-butyl ether	50.0	46.7		ug/L		93	55 - 123
Naphthalene	50.0	49.3		ug/L		99	53 - 144
Toluene	50.0	49.7		ug/L		99	70 - 125
1,2,4-Trimethylbenzene	50.0	48.4		ug/L		97	70 - 123
1,3,5-Trimethylbenzene	50.0	48.4		ug/L		97	70 - 123
Xylenes, Total	100	97.7		ug/L		98	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		72 - 124
Dibromofluoromethane (Surr)	100		75 - 120
1,2-Dichloroethane-d4 (Surr)	100		75 - 126
Toluene-d8 (Surr)	99		75 - 120

Lab Sample ID: 500-182370-16 MS
Matrix: Ground Water
Analysis Batch: 544947

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.15		50.0	48.5		ug/L		97	70 - 120
Ethylbenzene	<0.18		50.0	48.8		ug/L		98	70 - 123
Methyl tert-butyl ether	<0.39		50.0	45.8		ug/L		92	55 - 123
Naphthalene	<0.34		50.0	55.9		ug/L		112	53 - 144
Toluene	<0.15		50.0	50.4		ug/L		101	70 - 125
1,2,4-Trimethylbenzene	<0.36		50.0	48.7		ug/L		97	70 - 123
1,3,5-Trimethylbenzene	<0.25		50.0	49.5		ug/L		99	70 - 123
Xylenes, Total	<0.22		100	92.3		ug/L		92	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		72 - 124
Dibromofluoromethane (Surr)	98		75 - 120
1,2-Dichloroethane-d4 (Surr)	99		75 - 126
Toluene-d8 (Surr)	102		75 - 120

Lab Sample ID: 500-182370-16 MSD
Matrix: Ground Water
Analysis Batch: 544947

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.15		50.0	48.4		ug/L		97	70 - 120	0	20

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

Lab Sample ID: 500-182370-16 MSD
Matrix: Ground Water
Analysis Batch: 544947

Client Sample ID: MW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	<0.18		50.0	48.7		ug/L		97	70 - 123	0	20
Methyl tert-butyl ether	<0.39		50.0	46.0		ug/L		92	55 - 123	0	20
Naphthalene	<0.34		50.0	56.9		ug/L		114	53 - 144	2	20
Toluene	<0.15		50.0	48.3		ug/L		97	70 - 125	4	20
1,2,4-Trimethylbenzene	<0.36		50.0	48.4		ug/L		97	70 - 123	1	20
1,3,5-Trimethylbenzene	<0.25		50.0	48.7		ug/L		97	70 - 123	2	20
Xylenes, Total	<0.22		100	93.5		ug/L		94	70 - 125	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*
Dibromofluoromethane (Surr)	*99*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*
Toluene-d8 (Surr)	*98*		*75 - 120*

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-1
Date Collected: 05/19/20 11:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 17:39	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	10	544947	05/29/20 18:05	JDD	TAL CHI

Client Sample ID: MW-2P
Date Collected: 05/19/20 09:50
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	544947	05/29/20 18:32	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	50	544947	05/29/20 18:58	JDD	TAL CHI

Client Sample ID: MW-3D
Date Collected: 05/19/20 10:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 12:21	JDD	TAL CHI

Client Sample ID: MW-4
Date Collected: 05/19/20 10:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	544947	05/29/20 20:17	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	20	544947	05/29/20 20:43	JDD	TAL CHI

Client Sample ID: MW-4P
Date Collected: 05/19/20 10:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	544947	05/29/20 19:24	JDD	TAL CHI
Total/NA	Analysis	8260B	DL	20	544947	05/29/20 19:51	JDD	TAL CHI

Client Sample ID: MW-6
Date Collected: 05/19/20 10:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 12:48	JDD	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-6P
Date Collected: 05/19/20 10:55
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 13:14	JDD	TAL CHI

Client Sample ID: MW-6D
Date Collected: 05/19/20 11:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 13:40	JDD	TAL CHI

Client Sample ID: MW-7
Date Collected: 05/19/20 11:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 14:07	JDD	TAL CHI

Client Sample ID: MW-8P
Date Collected: 05/19/20 11:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 14:33	JDD	TAL CHI

Client Sample ID: MW-9
Date Collected: 05/19/20 09:40
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-11
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 15:00	JDD	TAL CHI

Client Sample ID: MW-10
Date Collected: 05/19/20 09:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-12
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 15:27	JDD	TAL CHI

Client Sample ID: MW-11
Date Collected: 05/19/20 12:10
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-13
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 15:53	JDD	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Client Sample ID: MW-12P
Date Collected: 05/19/20 12:20
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-14
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 16:20	JDD	TAL CHI

Client Sample ID: MW-12D
Date Collected: 05/19/20 12:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-15
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 16:46	JDD	TAL CHI

Client Sample ID: MW-13
Date Collected: 05/19/20 12:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-16
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544947	05/29/20 17:13	JDD	TAL CHI

Client Sample ID: MW-13D
Date Collected: 05/19/20 12:45
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-17
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544939	05/29/20 18:26	STW	TAL CHI

Client Sample ID: Webster
Date Collected: 05/19/20 10:30
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-18
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544939	05/29/20 18:51	STW	TAL CHI

Client Sample ID: Witkowski
Date Collected: 05/19/20 13:00
Date Received: 05/21/20 10:20

Lab Sample ID: 500-182370-19
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	544939	05/29/20 19:16	STW	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-182370-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-20

Chain of Custody Record

388561

eurofins | Environment Testing TestAmerica

Address: _____

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

TAL-8210

Client Contact	Project Manager: Mitch Evenson	Site Contact: Anna Beckman	Date: 5/19/20	COC No:
Company Name: Cedar Corporation	Tel/Email:	Lab Contact: Sandie F.	Carrier: FedEx	1 of 2 COCs
Address: 604 Wilson Ave	Analysis Turnaround Time			Sampler: AmB
City/State/Zip: Menomonie, WI 54751	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 715-235-9081	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Lab Sampling:
Project Name: Olson Corners				Job / SDG No.:
Site:				500-182370
P O #				

500-182370 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS + Appendix A	Sample Specific Notes:
1	MW-1	5/19	1120	G	GW	3			X	
2	MW-2P		0950							
3	MW-3D		1000							
4	MW-4		1010							
5	MW-4P		1020							
6	MW-6		1045							
7	MW-6P		1055							
8	MW-6D		1110							
9	MW-7		1145							
10	MW-8P		1130							
11	MW-9		0940							
12	MW-10		0930							

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

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

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

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

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

Special Instructions/QC Requirements & Comments:

PFCFA Pricing Tracking: 772858380347

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.9 Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Anna Beckman	Cedar Corp	5/20/20 1130			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: Ann Scott	Company: TA CHT	Date/Time: 5/21/20 1020

Chain of Custody Record

388559 eurofins | Environment Testing TestAmerica

Address: _____

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

TAL-8210

Client Contact	Project Manager: Mitch Evenson	Site Contact: Anna Beckman	Date: 5/19/20	COC No:
Company Name: Cedar Corporation	Tel/Email:	Lab Contact: Sandie F.	Carrier: FedEx	2 of 2 COCs
Address: 604 Wilson Ave	Analysis Turnaround Time			Sampler: AMB
City/State/Zip: Menomonie, WI 54751	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 715-235-9081	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Olson Corners	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			SDG-182370

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PCC's + Naphthalene	Sample Specific Notes:
13	MW-11	5/19	~~09~~ 1210	G	GW	3			X	
14	MW-12P		1220							
15	MW-12D		1200							
16	MW-13		1230							
17	MW-13D		1245							
18	Webster		1030		DW					
19	Witkowski		1300		DW					

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

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

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

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

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
PECFA Pricing Tracking: 172858380347

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by: Anna Beckman	Cedar Corp	5/20/20	Received by:		
Relinquished by:	Company:	Date/Time: 1130	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: Shim Scott	Company: TA-CHI	Date/Time: 5/21/20 1020


ORIGIN ID:PHDA (715) 235-9081
MITCH EVENSON
CEDAR CORPORATION
604 WILSON AVENUE

MENOMONIE, WI 54751
UNITED STATES US

SHIP DATE: 27MAR20
CAD: 0562065/CAFE3311

TO

EUROFINS TESTAMERICA CHICAGO
2417 BOND STREET

UNIVERSITY PARK IL 604843101
(708) 534-6200

500-182370 Waybill

REF: S600-80700

RMA

FedEx Express

TRK# 0221 1728 5838 0347

RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 1728 5838 0347

THU - 21 MAY 10:30A
PRIORITY OVERNIGHT

60484
IL-US
ORD

NA JOTA

FID 543099 20MAY20 EAUA 56BC3/2925/05A2

48 qt.

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-182370-1

Login Number: 182370
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	