2019 Progress Report

Environmental Remediation
of a
Petroleum Release

Site
Perry's Corners
N6097 STH 73
Gilman, WI 54433

Prepared for

Ruth Olson
W5030 Erika's Way
Medford, WI 54451

WDNR BRRTS #03-61-168823
PECFA # 54433-9753-97

Prepared by:

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Project O4178-008
November 27, 2019
Cedar Corporation
PECFA Participation No. 24017

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November 27, 2019

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

SUBJECT: Perry's Corners – 2019 Progress Monitoring Report
N6097 STH 73, Hannibal, WI
WDNR BRRTS# 03-61-168823
PECFA ID # 54433-9753-97

Dear Ms. Stoltz:

Cedar Corporation has completed the proposed scope of work approved by the Department of Natural Resources in November 2018 for the Perry's Corners site at N6097 STH 73 in Hannibal, WI. Four rounds of groundwater monitoring have occurred from November 2018 to October 2019, including the sampling of all monitoring wells on-site and two private residential wells. This report serves as the 2019 Progress Report for the work completed at the site within the Scope of the current Bid Deferment and presents the current status of the project.

Attachments

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

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 – Groundwater Isoconcentration Map (Monitoring Wells)
Figure 6 – Groundwater Isoconcentration Map (Mid-Depth Piezometers)

Appendix A – Standard Procedures
Appendix B – Laboratory Analytical Reports

PROCEDURES:

Cedar Corporation protocols 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, WI, Taylor County. The area surrounding the site is rural with scattered residences 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; 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 (location of the mobile home 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. About 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.

Groundwater Monitoring:

Sampling of groundwater monitoring wells installed 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. These wells are 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 also 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 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 elevations in the vicinity of the site are 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 created for groundwater elevations collected on October 23, 2019 for monitoring wells, mid-depth piezometers, and deep piezometers, are presented as Figures 2-4. These maps also indicate a persistent groundwater flow to the south, with a slight variation in the shallow groundwater flow to the south/southeast (as shown on Figure 2).

Groundwater Quality

Monitoring Wells

During the last four (4) rounds of groundwater monitoring, the following trends have been observed in monitoring wells throughout the site:

Well#	Trend	Exceedance (10/23/2019)
MW-1	decreasing	PAL
MW-2P	increasing	ES
MW-3D	stable	None
MW-4	variable	ES
MW-4P	stable	ES
MW-6	stable	PAL
MW-6P	variable	None
MW-6D	stable	None
MW-7	stable	None
MW-8P	increasing	ES
MW-9	stable	None
MW-10	stable	None
MW-11	stable	None
MW-12P	increasing	ES
MW-12D	stable	None

MW-13	stable	None
MW-13D	stable	None

Over the last four (4) rounds of groundwater monitoring, it was observed that the majority of the monitoring wells and piezometers sampled throughout the site exhibit a stable trend; furthermore, most of these wells with a stable trend are shallow monitoring wells. Approximately half of the wells do not exceed any Protective Action Limits (PALs) or Enforcement Standards (ESs). All monitoring wells with an NR 140 exceedance contain concentrations of compounds above the PAL, with the exception of an ES exceedance at MW-4. The three wells exhibiting an increasing trend are MW-2P, MW-8P, and 12P; the mid-depth piezometers. These are also the majority of the wells with an ES exceedance for at least one compound. However, no deep piezometers exceed any NR 140 groundwater standards. Also notable is the absence of any 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

The original source property well (the Ruth Ann Olson Well) was discovered to be impacted and was replaced by the current on-site well in 1997 (Olson Well). The private well on the Witkowski property to the south was also discovered to be impacted. This well was abandoned in 2017 when the Witkowski residence was connected to the Glen Webster well on the property to the north). Today, Glen Webster resides on the former Ruth Ann Olson property. The Olson well has continued to be sampled and has remained unimpacted. The Witkowski water supply well (the Webster well) has also continued to be sampled since 2017. In October 2019, there was an exceedance for Benzene above the NR 140 Protective Action Limit. Confirmation sampling will be completed to confirm these results and assess the potential for the provision of bottled drinking water for the residence. The locations of the above-mentioned private wells are noted on the attached figures.

RESULTS

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

- Groundwater contamination trends in shallow monitoring wells are generally stable or decreasing, with most wells exceeding an NR 140 PAL.
- Groundwater contamination trends in mid-depth piezometers are generally increasing, with most wells exceeding an NR 140 ES.
- Groundwater sampled in the deep piezometers remains generally 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. It is apparent that while shallow groundwater contamination appears to be attenuating, or at least stabilizing, contamination in mid-depth groundwater wells is increasing and the vertical movement of contaminants is predominant. It is however encouraging that 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 feasible remedial actions to reduce groundwater contamination at the site are proposed at this time. Based on the most recent groundwater monitoring results, Cedar Corporation recommends an additional two (2) rounds of groundwater sampling of the same monitoring and private wells which have been sampled the last several rounds (concurrent with our latest conversations), and subsequent review of the data for potential closure of the site at that time. 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

Encl.

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		1264.64		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		

Destroyed

Destroyed

Abandoned

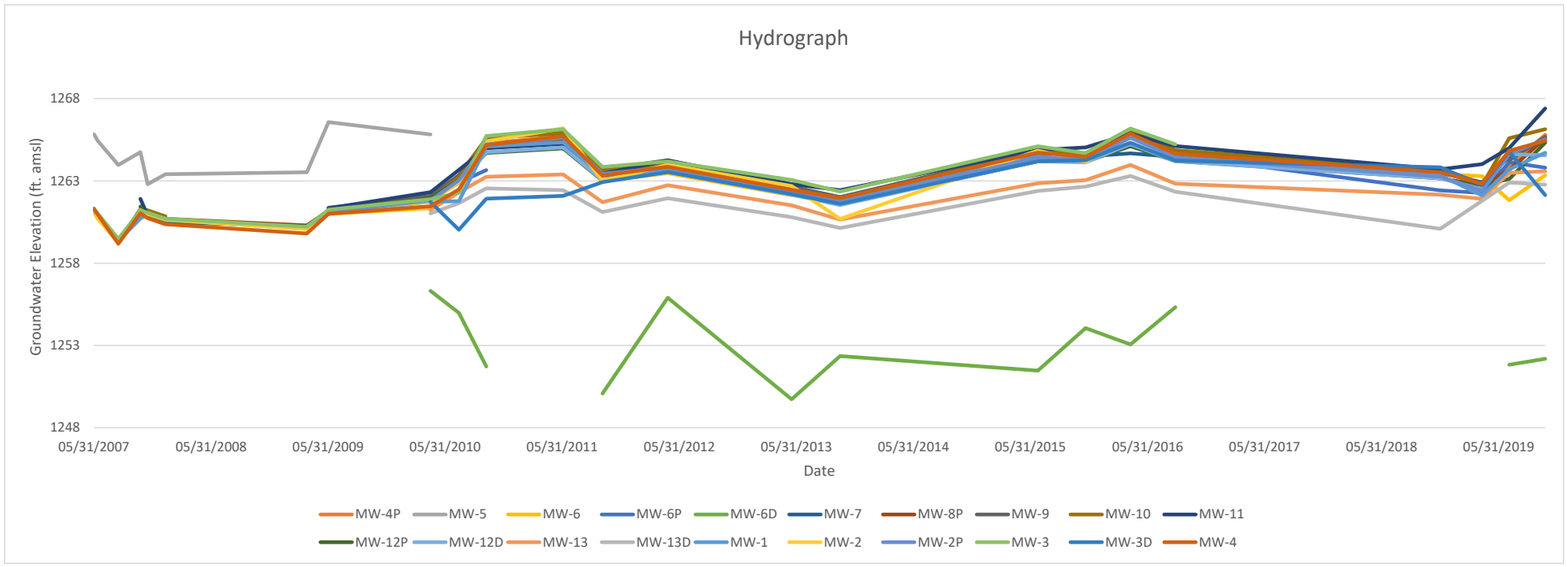

Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

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
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						
	4/9/2019	Well Destroyed						
	7/3/2019	Well Destroyed						
	10/23/2019	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*

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						
	4/9/2019	Well Destroyed						
	7/3/2019	Well Destroyed						
	10/23/2019	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
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**

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
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
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

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-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
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
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

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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
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
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

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
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
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
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

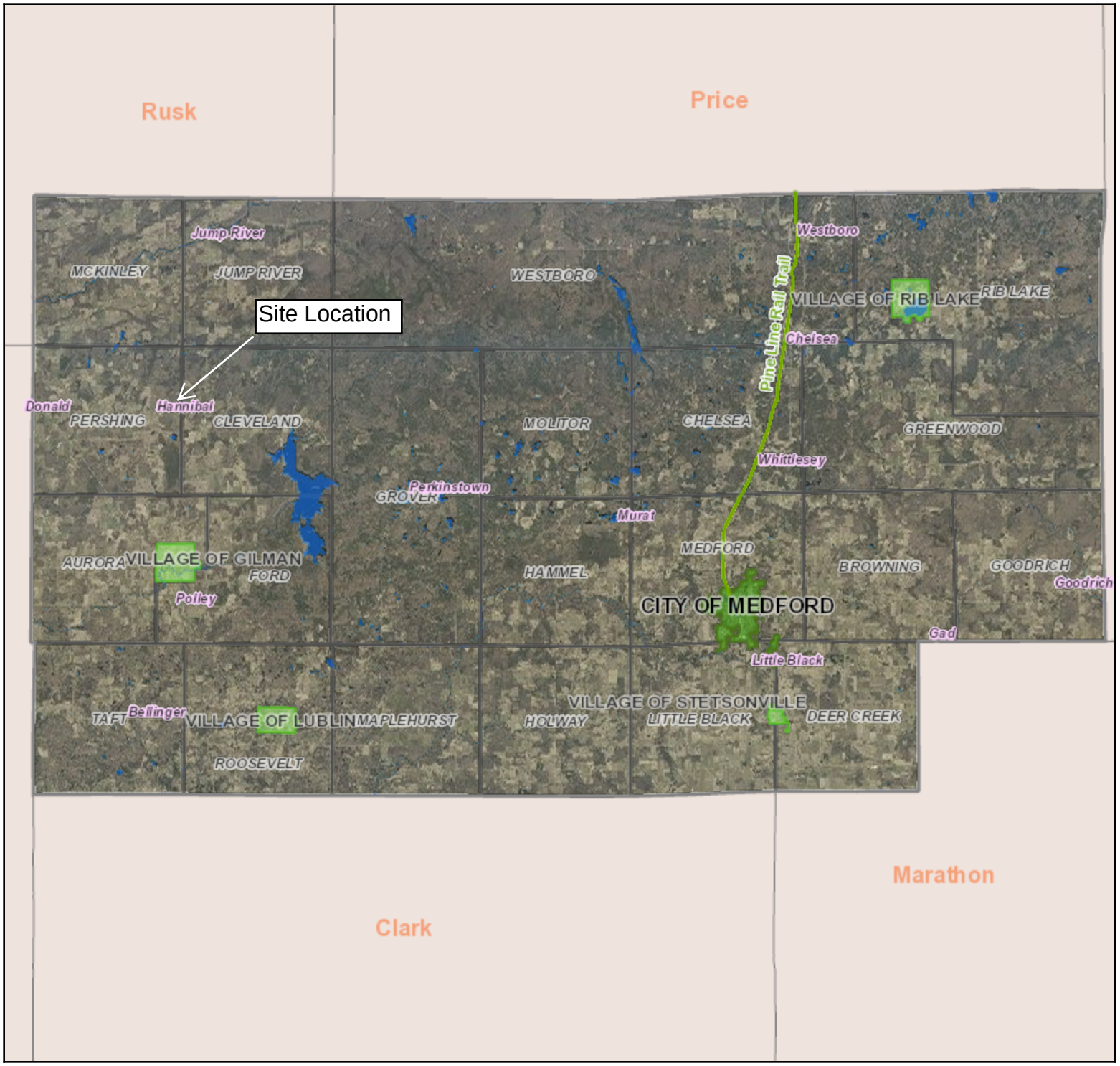
Table 2: Groundwater Analytical Data
Perrys Corner
Hannibal, WI

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**							
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
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
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.

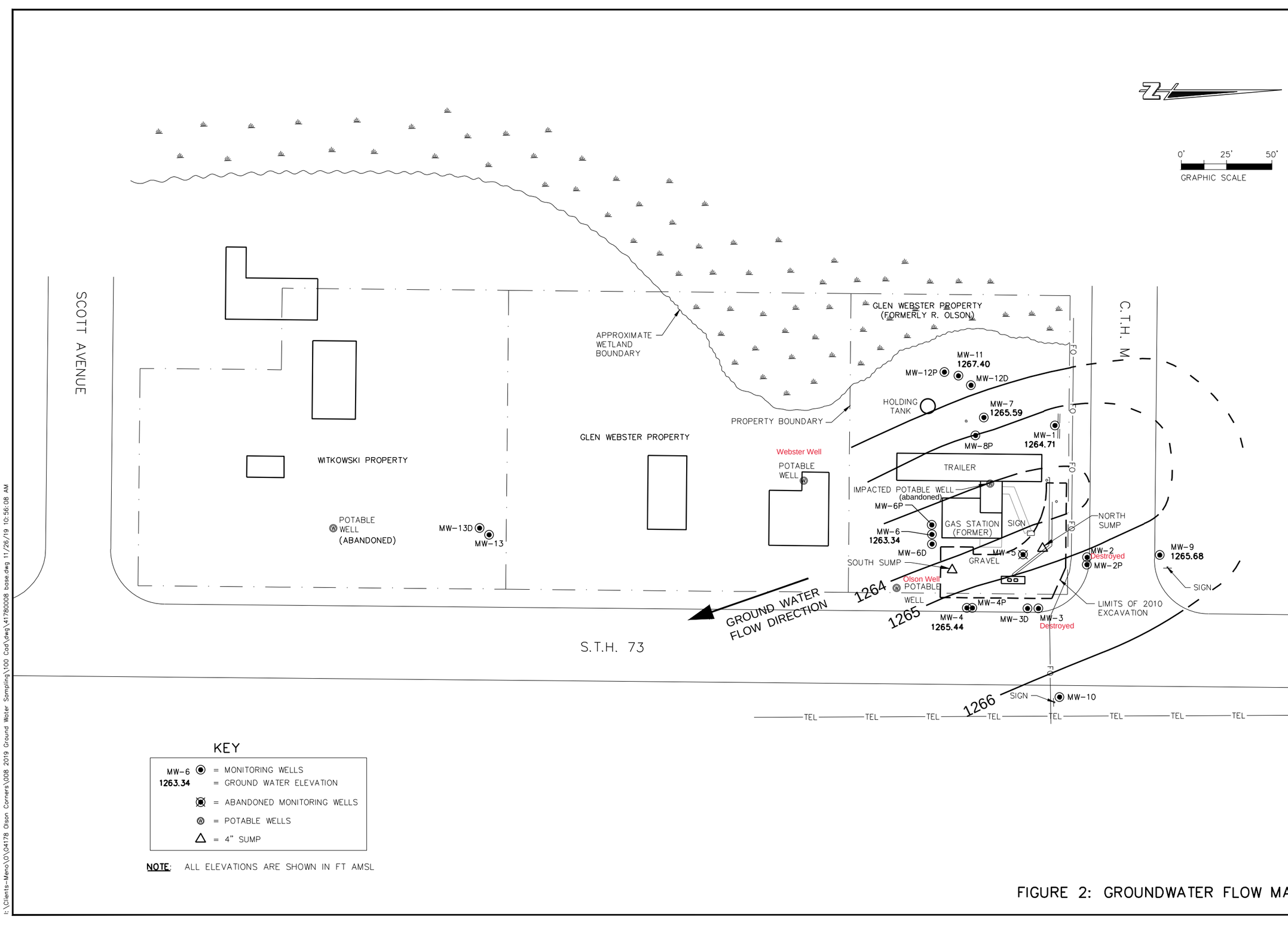
Perry's Corner

Author: Hannibal, WI

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

Sources: Taylor County GIS

TAYLOR COUNTY



KEY

MW-6 ◉	= MONITORING WELLS
1263.34	= GROUND WATER ELEVATION
⊗	= ABANDONED MONITORING WELLS
Ⓦ	= POTABLE WELLS
△	= 4" SUMP

NOTE: ALL ELEVATIONS ARE SHOWN IN FT AMSL

FIGURE 2: GROUNDWATER FLOW MAP

JOB NO.	04178-008
BOOK NO.	
DRAWN BY	KAT
CHECKED BY	AMB
DATE	NOV 2019
REVISIONS	NOV 2019
REFERENCE FILE	
DRAWING FILE	41780005 base

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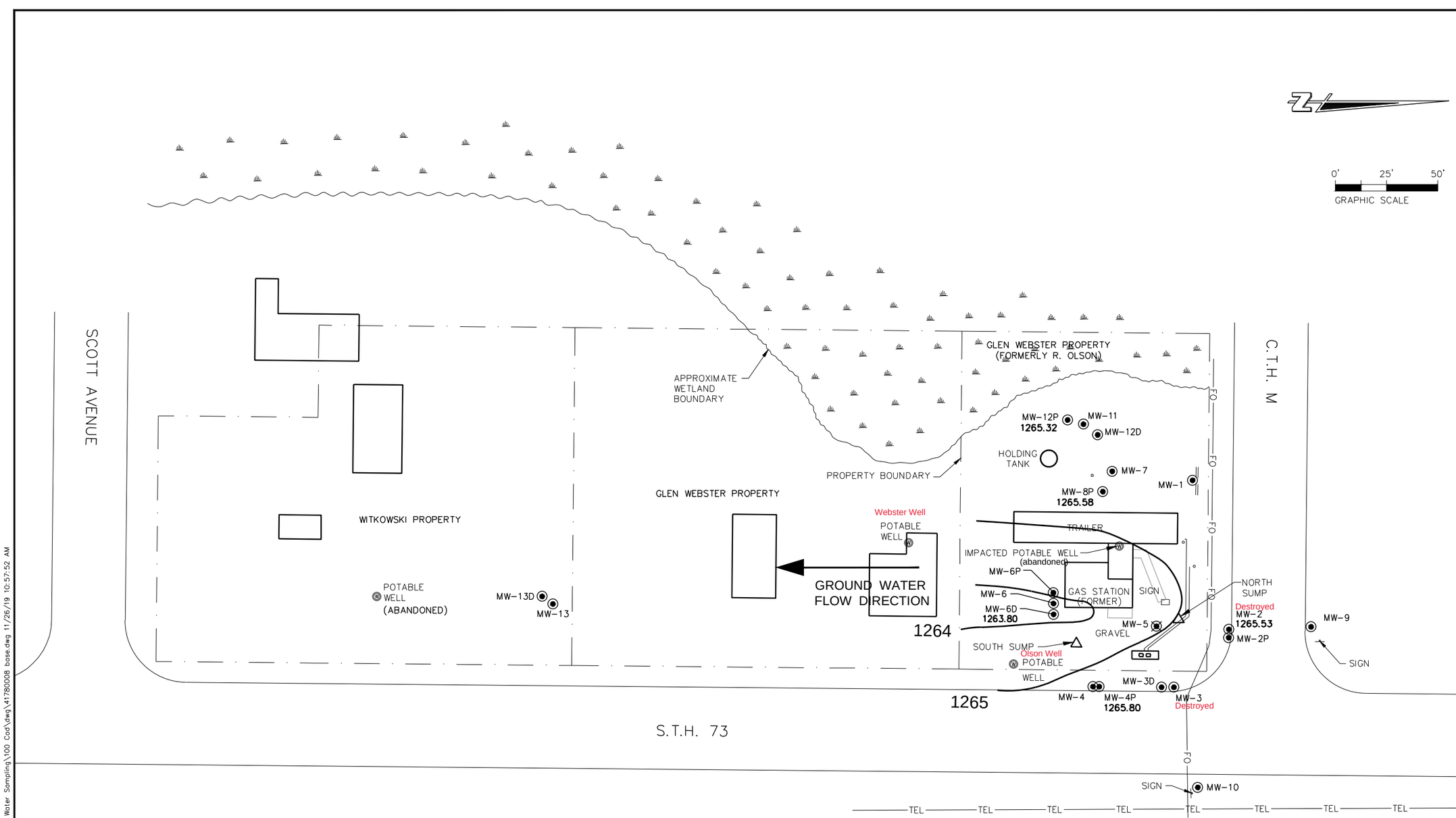
GROUNDWATER FLOW MAP (MONITORING WELLS) PERRY'S CORNER HANNIBAL, WISCONSIN

FIGURE NO. 2



KEY

MW-6	= MONITORING WELLS
1263.34	= GROUND WATER ELEVATION
	= ABANDONED MONITORING WELLS
	= POTABLE WELLS
	= 4" SUMP

NOTE: ALL ELEVATIONS ARE SHOWN IN FT AMSL

FIGURE 3: GROUNDWATER FLOW MAP

JOB NO.	04178-008
BOOK NO.	
DRAWN BY	KAT
CHECKED BY	AMB
DATE	NOV 2019
REVISIONS	NOV 2019
REFERENCE FILE	
DRAWING FILE	41780005 base

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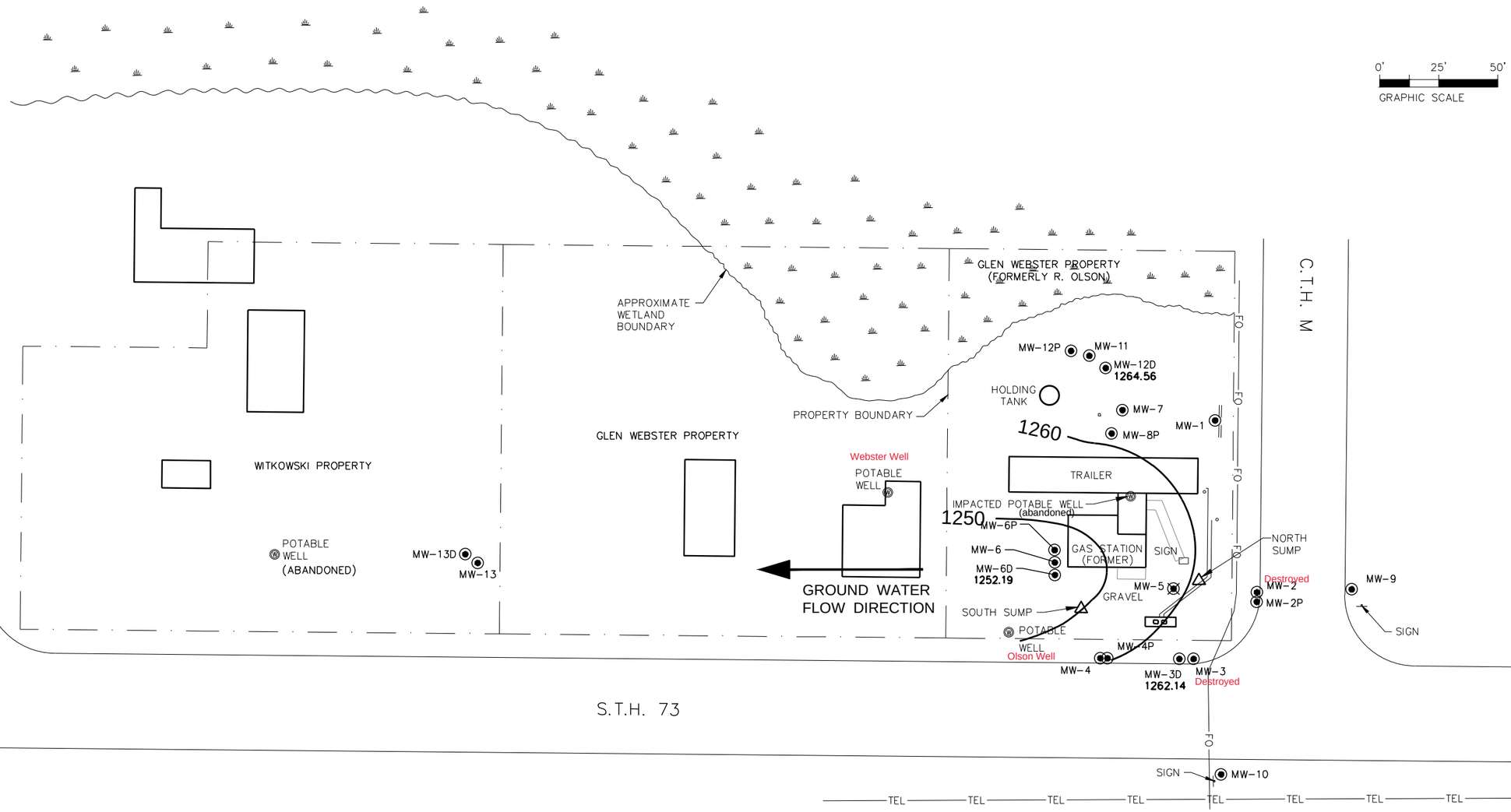
GROUNDWATER FLOW MAP (MID-DEPTH PIEZOMETERS)
PERRY'S CORNER
HANNIBAL, WISCONSIN

FIGURE NO.
3



KEY

MW-6	= MONITORING WELLS
1263.34	= GROUND WATER ELEVATION
	= ABANDONED MONITORING WELLS
	= POTABLE WELLS
	= 4" SUMP

NOTE: ALL ELEVATIONS ARE SHOWN IN FT AMSL

FIGURE 4: GROUNDWATER ISOCONCENTRATION MAP

JOB NO.	04178-008
BOOK NO.	
DRAWN BY	KAT
CHECKED BY	AMB
DATE	NOV 2019
REVISIONS	NOV 2019
REFERENCE FILE	
DRAWING FILE	41780005 base

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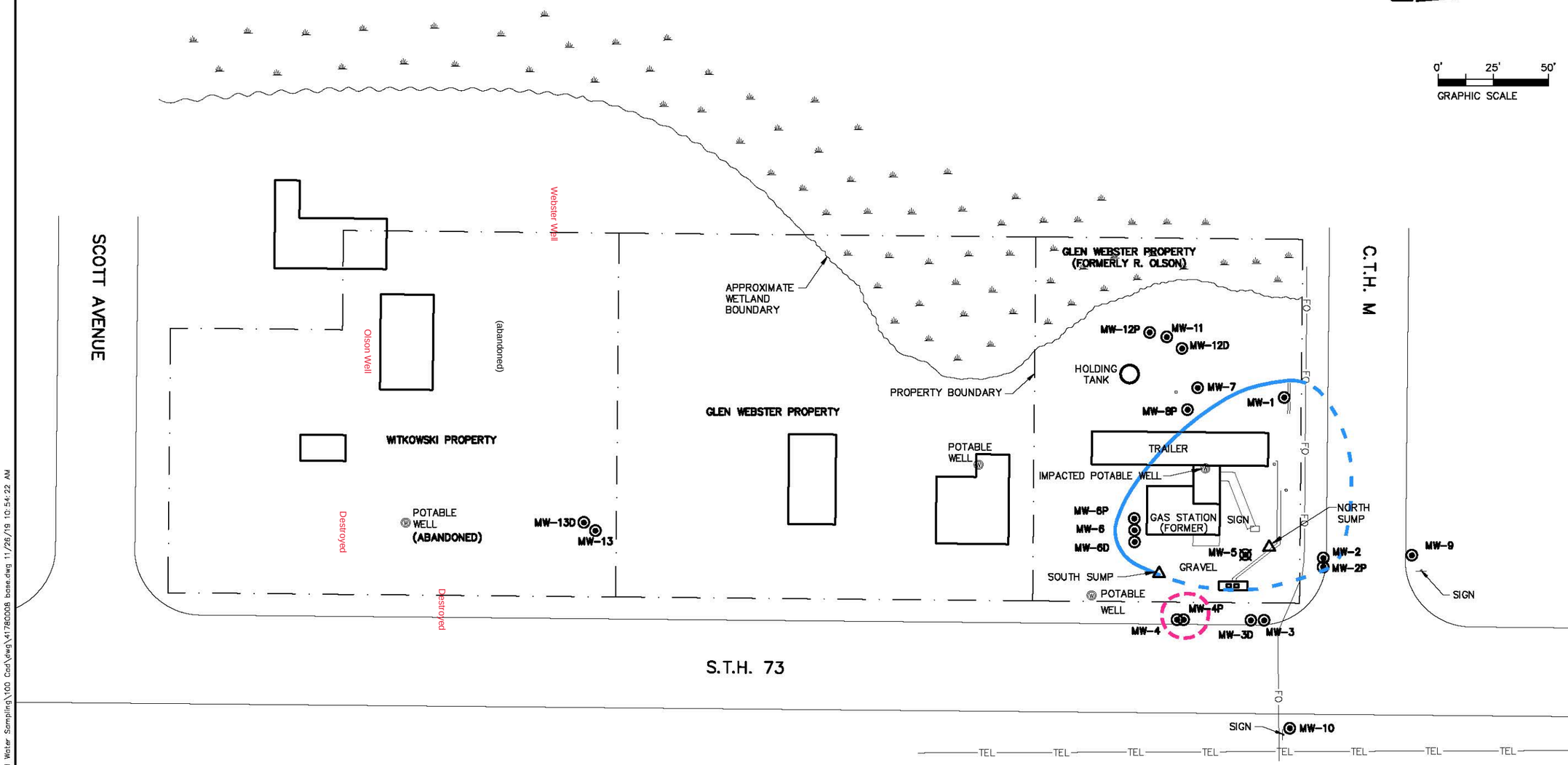
GROUNDWATER ISOCONCENTRATION MAP
(DEEP PIEZOMETERS)
PERRY'S CORNER
HANNIBAL, WISCONSIN

FIGURE NO.
4



KEY

- MW-6 ◎ = MONITORING WELLS
- 1283.34 = GROUND WATER ELEVATION
- ⊠ = ABANDONED MONITORING WELLS
- Ⓦ = POTABLE WELLS
- △ = 4" SUMP
- = APPROXIMATE AREA OF GROUND WATER EXCEEDING AN NR 140 PAL
- = APPROXIMATE AREA OF GROUND WATER EXCEEDING AN NR 140 ES AND PAL

0' 25' 50'
GRAPHIC SCALE

FIGURE 5: GROUNDWATER ISOCONCENTRATION MAP

JOB NO.	04178-008
BOOK NO.	
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CHECKED BY	AMB
DATE	NOV 2019
REVISIONS	NOV 2019
REFERENCE FILE	
DRAWING FILE	41780005 base

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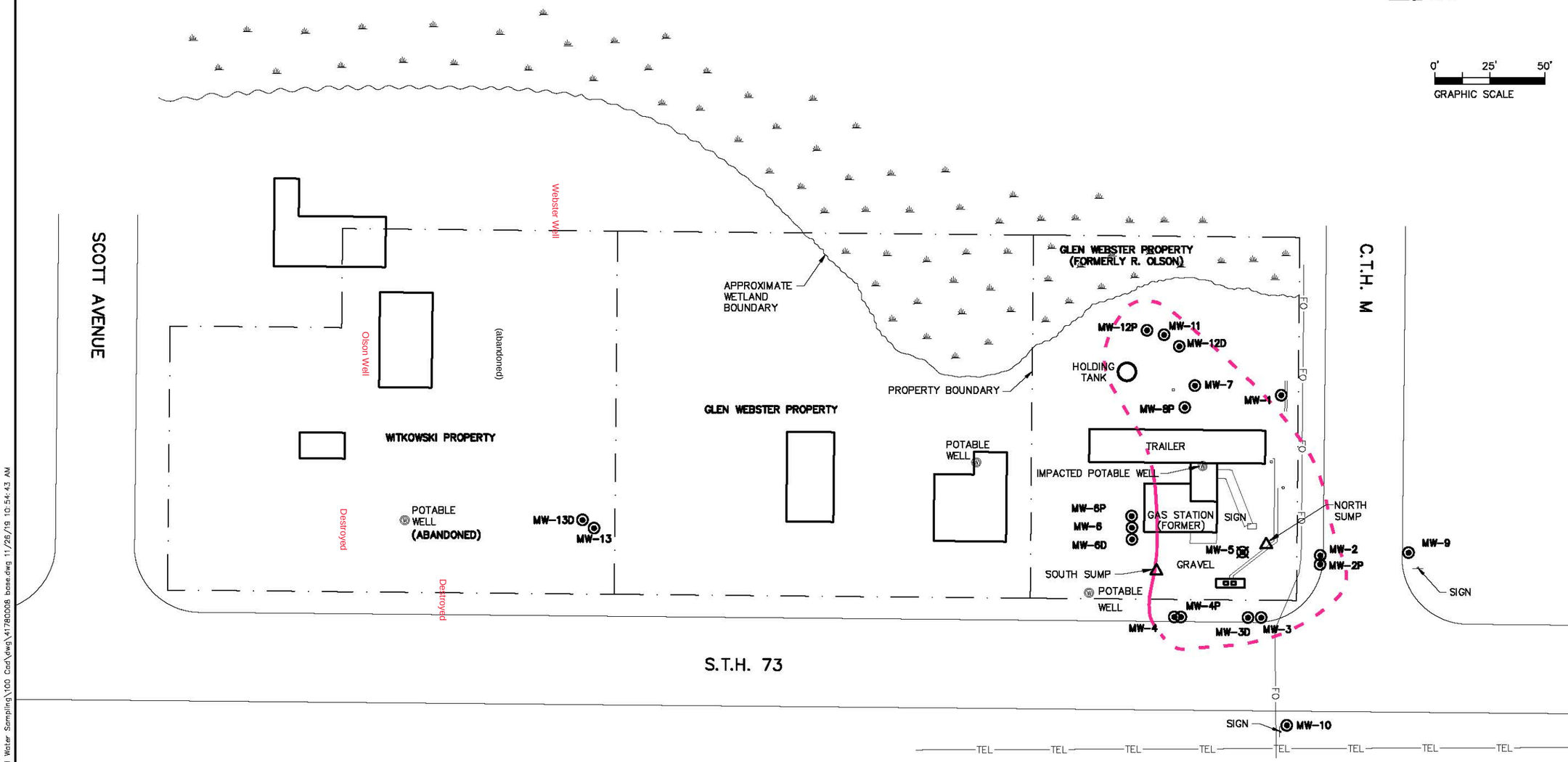
GROUNDWATER ISOCONCENTRATION MAP (MONITORING WELLS)
PERRY'S CORNER
HANNIBAL, WISCONSIN

FIGURE NO.
5



KEY

- MW-6 / 1283.34 = MONITORING WELLS / GROUND WATER ELEVATION
- = ABANDONED MONITORING WELLS
- = POTABLE WELLS
- = 4" SUMP
- = APPROXIMATE AREA OF GROUND WATER EXCEEDING AN NR 140 ES AND/OR AN ES AND PAL.

FIGURE 6: GROUNDWATER ISOCONCENTRATION MAP

JOB NO. 04178-008
BOOK NO.
DRAWN BY KAT
CHECKED BY AMB
DATE NOV 2019
REVISIONS NOV 2019
REFERENCE FILE
DRAWING FILE 41780005 base

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GROUNDWATER ISOCONCENTRATION MAP (MID-DEPTH PIEZOMETERS)
PERRY'S CORNER
HANNIBAL, WISCONSIN

FIGURE NO. 6

APPENDIX A - Standard Procedures

Standard Operating Procedure

Collection of Quality Control Samples

Purpose

To describe the procedures used in the collection of quality control samples (masked duplicate samples, trip blanks, field blanks, and equipment blanks).

Applicability

This procedure applies to sample handling techniques used by both the technician(s) and the laboratory in regards to quality control.

Definitions

Masked Split Sample. This is the collection of a sample at the same time the original sample is being collected. Both samples are collected, preserved, and analyzed exactly the same. This is done to check laboratory and sampling precision.

Trip Blank. Is a water blank free of any contaminants, prepared prior to sampling events by the laboratory providing the sampling containers. The purpose of the trip blank is to determine if contamination has occurred from:

1. Improper sampling container cleaning.
2. Contaminated blank source water.
3. Sample contamination during storage and transportation due to exposure to contaminants.
4. Other environmental conditions during sampling.

Field Blank. A sample container prepared onsite by filling it with (analyte-free) water. These blanks are used to evaluate:

1. The effects of onsite environmental contaminants.
2. The purity of reagents used as preservative or additives.
3. General sample container filling/collecting techniques.

Equipment Blank. A sample collected from the final (analyte-free) rinse water. The water is rinsed on or through sampling equipment. The rinse water is collected for analysis. These blanks are used to determine:

1. The effectiveness of field cleaning procedures.
2. Any sources of contamination in a trip blank.

References

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

Procedure

Quality Control Samples

C. Split duplicate sample:

1. Collect samples by rotating sampling containers from original sample to the split (using the same exact methods for both).
2. Preserve, store, and transport the split duplicate sample in the same manner as the original sample.
3. Submit the masked duplicate sample to the laboratory for the same analysis as the original sample.

Note: Ten percent of all samples are collected in duplicate (split).

D. Trip blank:

1. Trip blanks are sealed prior to sampling (prepared by the laboratory doing the analysis).
2. Transport trip blanks to the site in the sample storage cooler.
3. Trip blanks are not to be opened in the field.
4. Transport trip blanks back to the laboratory in the sample storage cooler.
5. The trip blanks should be listed on the chain-of-custody along with the other samples and the analysis required. (Generally, VOCs are the only requirement for trip blanks).

Note: Labeling of all sample blank containers follow the SOP for the collection of groundwater samples.

E. Field blank:

1. Get the appropriate sampling containers. (Generally, field blanks are taken for each parameter.)
2. Prepare field blanks onsite by filling sample containers with the (analyte-free) water.
3. Seal the field blank sample containers and store with other samples collected (should be handled exactly the same).

Note: One field blank should be prepared per day or at a frequency of 10 percent of the samples per sampling event, whichever is greater.

4. Transport all of the samples tot he laboratory for analysis. The analysis on both field blanks and samples should be exactly the same.

F. Equipment Blank:

Bailer blank:

1. Pour (analyte- free) water into a clean bailer.
2. Pour this water into the appropriate sampling containers.
3. Store and transport the equipment blank with the appropriate samples for laboratory analysis.

Filtered equipment blank:

1. Pour (analyte-free) water into the groundwater sampling filter.
2. Begin filtering.
3. After filtering is completed, pour water into the appropriate sampling container.
4. Store and transport the equipment blank with the appropriate samples for laboratory analysis.

Note: The filtered equipment blank is usually conducted for filtered metals samples.

Documentation

The quality control samples are documented on the chain-of-custody record and the field log data sheet. The technician(s) are required to document any such quality control samples.

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

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 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	$585. 8 \times 10^{-3}$
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 depth

APPENDIX B – Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 500-155595-1
Client Project/Site: Olson Corners/Hannibal

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
12/10/2018 8:54:08 AM

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

Table of Contents

Case Narrative

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Job ID: 500-155595-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-155595-1

Comments
No additional comments.

Receipt
The samples were received on 12/4/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

GC VOA
Method(s) WI-GRO: The following sample was diluted due to the nature of the sample matrix: MW-6 (500-155595-6). Elevated reporting limits (RLs) are provided. Sample is a foamer.

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

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

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Client Sample ID: MW-1 — Lab Sample ID: 500-155595-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	130		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	100		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	20		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	220		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	72		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	72		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	180		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	470		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-155595-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	0.48	J	0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	0.85		0.50	0.36	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	0.40	J	0.50	0.24	ug/L	1		WDNR	Total/NA
Toluene	0.41	J	0.50	0.33	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-155595-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-155595-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	700		5.0	3.0	ug/L	10		WDNR	Total/NA
1,3,5-Trimethylbenzene	430		5.0	3.0	ug/L	10		WDNR	Total/NA
Benzene	5000		13	9.0	ug/L	25		WDNR	Total/NA
Ethylbenzene	580		5.0	3.7	ug/L	10		WDNR	Total/NA
Methyl tert-butyl ether	80		5.0	2.4	ug/L	10		WDNR	Total/NA
Naphthalene	670		50	24	ug/L	10		WDNR	Total/NA
Toluene	490		5.0	3.3	ug/L	10		WDNR	Total/NA
Xylenes, Total	1700		15	5.8	ug/L	10		WDNR	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-155595-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	49		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	74		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	800		5.0	3.6	ug/L	10		WDNR	Total/NA
Ethylbenzene	1400		5.0	3.7	ug/L	10		WDNR	Total/NA
Methyl tert-butyl ether	34		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	150		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	43		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	210		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 500-155595-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6.1		2.5	1.8	ug/L	5		WDNR	Total/NA
Ethylbenzene	9.6		2.5	1.9	ug/L	5		WDNR	Total/NA
Methyl tert-butyl ether	1.7	J	2.5	1.2	ug/L	5		WDNR	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Client Sample ID: MW-6 (Continued) — Lab Sample ID: 500-155595-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	48		25	12	ug/L	5		WDNR	Total/NA

Client Sample ID: MW-6P — Lab Sample ID: 500-155595-7

No Detections.

Client Sample ID: MW-7 — Lab Sample ID: 500-155595-8

No Detections.

Client Sample ID: MW-8P — Lab Sample ID: 500-155595-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	13		0.50	0.36	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	1.8		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 500-155595-10

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 500-155595-11

No Detections.

Client Sample ID: MW-11 — Lab Sample ID: 500-155595-12

No Detections.

Client Sample ID: MW-12P — Lab Sample ID: 500-155595-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	11		0.50	0.36	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	7.4		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 500-155595-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.49	J	0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 500-155595-15

No Detections.

Client Sample ID: MW-13D — Lab Sample ID: 500-155595-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.57		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: Webster — Lab Sample ID: 500-155595-17

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Method	Method Description	Protocol	Laboratory
WDNR	Wisconsin - Gasoline Range Organics (GC)	WI-GRO	TAL NSH
5030B	Purge and Trap	SW846	TAL NSH

Protocol References:

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

WI-GRO = "Modified GRO: Method For Determining Gasoline Range Organics", Wisconsin DNR, Publ-SW-140, September, 1995.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Sample Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-155595-1	MW-1	Water	11/30/18 11:10	12/04/18 09:30
500-155595-2	MW-2P	Water	11/30/18 09:00	12/04/18 09:30
500-155595-3	MW-3D	Water	11/30/18 09:50	12/04/18 09:30
500-155595-4	MW-4	Water	11/30/18 10:05	12/04/18 09:30
500-155595-5	MW-4P	Water	11/30/18 10:00	12/04/18 09:30
500-155595-6	MW-6	Water	11/30/18 10:30	12/04/18 09:30
500-155595-7	MW-6P	Water	11/30/18 10:45	12/04/18 09:30
500-155595-8	MW-7	Water	11/30/18 11:40	12/04/18 09:30
500-155595-9	MW-8P	Water	11/30/18 11:25	12/04/18 09:30
500-155595-10	MW-9	Water	11/30/18 09:20	12/04/18 09:30
500-155595-11	MW-10	Water	11/30/18 09:40	12/04/18 09:30
500-155595-12	MW-11	Water	11/30/18 12:15	12/04/18 09:30
500-155595-13	MW-12P	Water	11/30/18 12:30	12/04/18 09:30
500-155595-14	MW-12D	Water	11/30/18 12:00	12/04/18 09:30
500-155595-15	MW-13	Water	11/30/18 13:10	12/04/18 09:30
500-155595-16	MW-13D	Water	11/30/18 13:30	12/04/18 09:30
500-155595-17	Webster	Water	11/30/18 08:30	12/04/18 09:30

Client Sample ID: MW-1

Lab Sample ID: 500-155595-1
Date Collected: 11/30/18 11:10
Matrix: Water
Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	130		0.50	0.30	ug/L			12/07/18 20:12	1
1,3,5-Trimethylbenzene	100		0.50	0.30	ug/L			12/07/18 20:12	1
Benzene	20		0.50	0.36	ug/L			12/07/18 20:12	1
Ethylbenzene	220		0.50	0.37	ug/L			12/07/18 20:12	1
Methyl tert-butyl ether	72		0.50	0.24	ug/L			12/07/18 20:12	1
Naphthalene	72		5.0	2.4	ug/L			12/07/18 20:12	1
Toluene	180		0.50	0.33	ug/L			12/07/18 20:12	1
Xylenes, Total	470		1.5	0.58	ug/L			12/07/18 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*80 - 120*		*12/07/18 20:12*	*1*

Client Sample ID: MW-2P

Lab Sample ID: 500-155595-2
Date Collected: 11/30/18 09:00
Matrix: Water
Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	0.48	J	0.50	0.30	ug/L			12/07/18 13:04	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 13:04	1
Benzene	0.85		0.50	0.36	ug/L			12/07/18 13:04	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 13:04	1
Methyl tert-butyl ether	0.40	J	0.50	0.24	ug/L			12/07/18 13:04	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 13:04	1
Toluene	0.41	J	0.50	0.33	ug/L			12/07/18 13:04	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*80 - 120*		*12/07/18 13:04*	*1*

Client Sample ID: MW-3D

Lab Sample ID: 500-155595-3
Date Collected: 11/30/18 09:50
Matrix: Water
Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 13:35	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 13:35	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 13:35	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 13:35	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 13:35	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 13:35	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 13:35	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*104*		*80 - 120*		*12/07/18 13:35*	*1*

Client Sample ID: MW-4

Date Collected: 11/30/18 10:05
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-4
Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	700		5.0	3.0	ug/L			12/08/18 00:46	10
1,3,5-Trimethylbenzene	430		5.0	3.0	ug/L			12/08/18 00:46	10
Benzene	5000		13	9.0	ug/L			12/08/18 01:47	25
Ethylbenzene	580		5.0	3.7	ug/L			12/08/18 00:46	10
Methyl tert-butyl ether	80		5.0	2.4	ug/L			12/08/18 00:46	10
Naphthalene	670		50	24	ug/L			12/08/18 00:46	10
Toluene	490		5.0	3.3	ug/L			12/08/18 00:46	10
Xylenes, Total	1700		15	5.8	ug/L			12/08/18 00:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/08/18 00:46*	*10*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/08/18 01:47*	*25*

Client Sample ID: MW-4P

Date Collected: 11/30/18 10:00
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-5
Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	49		0.50	0.30	ug/L			12/07/18 21:43	1
1,3,5-Trimethylbenzene	74		0.50	0.30	ug/L			12/07/18 21:43	1
Benzene	800		5.0	3.6	ug/L			12/07/18 22:44	10
Ethylbenzene	1400		5.0	3.7	ug/L			12/07/18 22:44	10
Methyl tert-butyl ether	34		0.50	0.24	ug/L			12/07/18 21:43	1
Naphthalene	150		5.0	2.4	ug/L			12/07/18 21:43	1
Toluene	43		0.50	0.33	ug/L			12/07/18 21:43	1
Xylenes, Total	210		1.5	0.58	ug/L			12/07/18 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*106*		*80 - 120*		*12/07/18 21:43*	*1*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*12/07/18 22:44*	*10*

Client Sample ID: MW-6

Date Collected: 11/30/18 10:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-6
Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<1.5		2.5	1.5	ug/L			12/07/18 23:15	5
1,3,5-Trimethylbenzene	<1.5		2.5	1.5	ug/L			12/07/18 23:15	5
Benzene	6.1		2.5	1.8	ug/L			12/07/18 23:15	5
Ethylbenzene	9.6		2.5	1.9	ug/L			12/07/18 23:15	5
Methyl tert-butyl ether	1.7	J	2.5	1.2	ug/L			12/07/18 23:15	5
Naphthalene	48		25	12	ug/L			12/07/18 23:15	5
Toluene	<1.7		2.5	1.7	ug/L			12/07/18 23:15	5
Xylenes, Total	<2.9		7.5	2.9	ug/L			12/07/18 23:15	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/07/18 23:15*	*5*

Client Sample ID: MW-6P

Lab Sample ID: 500-155595-7

Date Collected: 11/30/18 10:45

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 14:05	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 14:05	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 14:05	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 14:05	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 14:05	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 14:05	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 14:05	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*80 - 120*		*12/07/18 14:05*	*1*

Client Sample ID: MW-7

Lab Sample ID: 500-155595-8

Date Collected: 11/30/18 11:40

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 14:36	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 14:36	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 14:36	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 14:36	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 14:36	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 14:36	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 14:36	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*80 - 120*		*12/07/18 14:36*	*1*

Client Sample ID: MW-8P

Lab Sample ID: 500-155595-9

Date Collected: 11/30/18 11:25

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 15:06	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 15:06	1
Benzene	**13**		0.50	0.36	ug/L			12/07/18 15:06	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 15:06	1
Methyl tert-butyl ether	**1.8**		0.50	0.24	ug/L			12/07/18 15:06	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 15:06	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 15:06	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*80 - 120*		*12/07/18 15:06*	*1*

Client Sample ID: MW-9

Lab Sample ID: 500-155595-10

Date Collected: 11/30/18 09:20

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 15:37	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 15:37	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 15:37	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 15:37	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 15:37	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 15:37	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 15:37	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*80 - 120*		*12/07/18 15:37*	*1*

Client Sample ID: MW-10

Lab Sample ID: 500-155595-11

Date Collected: 11/30/18 09:40

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 16:07	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 16:07	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 16:07	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 16:07	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 16:07	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 16:07	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 16:07	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/07/18 16:07*	*1*

Client Sample ID: MW-11

Lab Sample ID: 500-155595-12

Date Collected: 11/30/18 12:15

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 17:39	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 17:39	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 17:39	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 17:39	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 17:39	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 17:39	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 17:39	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*12/07/18 17:39*	*1*

Client Sample ID: MW-12P

Lab Sample ID: 500-155595-13

Date Collected: 11/30/18 12:30

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 18:10	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 18:10	1
Benzene	**11**		0.50	0.36	ug/L			12/07/18 18:10	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 18:10	1
Methyl tert-butyl ether	**7.4**		0.50	0.24	ug/L			12/07/18 18:10	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 18:10	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 18:10	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*104*		*80 - 120*		*12/07/18 18:10*	*1*

Client Sample ID: MW-12D

Lab Sample ID: 500-155595-14

Date Collected: 11/30/18 12:00

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 18:40	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 18:40	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 18:40	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 18:40	1
Methyl tert-butyl ether	**0.49**	**J**	0.50	0.24	ug/L			12/07/18 18:40	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 18:40	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 18:40	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*12/07/18 18:40*	*1*

Client Sample ID: MW-13

Lab Sample ID: 500-155595-15

Date Collected: 11/30/18 13:10

Matrix: Water

Date Received: 12/04/18 09:30

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 19:11	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 19:11	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 19:11	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 19:11	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 19:11	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 19:11	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 19:11	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/07/18 19:11*	*1*

Client Sample ID: MW-13D

Date Collected: 11/30/18 13:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-16
Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 19:41	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 19:41	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 19:41	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 19:41	1
Methyl tert-butyl ether	**0.57**		0.50	0.24	ug/L			12/07/18 19:41	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 19:41	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 19:41	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*80 - 120*		*12/07/18 19:41*	*1*

Client Sample ID: Webster

Date Collected: 11/30/18 08:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-17
Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 10:47	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 10:47	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 10:47	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 10:47	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 10:47	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 10:47	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 10:47	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 10:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*80 - 120*		*12/07/18 10:47*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Qualifiers

GC 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/Hannibal

TestAmerica Job ID: 500-155595-1

GC VOA

Analysis Batch: 562036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-155595-1	MW-1	Total/NA	Water	WDNR	
500-155595-2	MW-2P	Total/NA	Water	WDNR	
500-155595-3	MW-3D	Total/NA	Water	WDNR	
500-155595-4	MW-4	Total/NA	Water	WDNR	
500-155595-4	MW-4	Total/NA	Water	WDNR	
500-155595-5	MW-4P	Total/NA	Water	WDNR	
500-155595-5	MW-4P	Total/NA	Water	WDNR	
500-155595-6	MW-6	Total/NA	Water	WDNR	
500-155595-7	MW-6P	Total/NA	Water	WDNR	
500-155595-8	MW-7	Total/NA	Water	WDNR	
500-155595-9	MW-8P	Total/NA	Water	WDNR	
500-155595-10	MW-9	Total/NA	Water	WDNR	
500-155595-11	MW-10	Total/NA	Water	WDNR	
500-155595-12	MW-11	Total/NA	Water	WDNR	
500-155595-13	MW-12P	Total/NA	Water	WDNR	
500-155595-14	MW-12D	Total/NA	Water	WDNR	
500-155595-15	MW-13	Total/NA	Water	WDNR	
500-155595-16	MW-13D	Total/NA	Water	WDNR	
500-155595-17	Webster	Total/NA	Water	WDNR	
MB 490-562036/33	Method Blank	Total/NA	Water	WDNR	
MB 490-562036/6	Method Blank	Total/NA	Water	WDNR	
LCS 490-562036/5	Lab Control Sample	Total/NA	Water	WDNR	
LCSD 490-562036/39	Lab Control Sample Dup	Total/NA	Water	WDNR	
500-155595-17 MS	Webster	Total/NA	Water	WDNR	
500-155595-17 MSD	Webster	Total/NA	Water	WDNR	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TFT (80-120)						
500-155595-1	MW-1	87						
500-155595-2	MW-2P	99						
500-155595-3	MW-3D	104						
500-155595-4	MW-4	101						
500-155595-4	MW-4	101						
500-155595-5	MW-4P	106						
500-155595-5	MW-4P	96						
500-155595-6	MW-6	101						
500-155595-7	MW-6P	102						
500-155595-8	MW-7	102						
500-155595-9	MW-8P	103						
500-155595-10	MW-9	102						
500-155595-11	MW-10	101						
500-155595-12	MW-11	100						
500-155595-13	MW-12P	104						
500-155595-14	MW-12D	100						
500-155595-15	MW-13	101						
500-155595-16	MW-13D	103						
500-155595-17	Webster	103						
500-155595-17 MS	Webster	103						
500-155595-17 MSD	Webster	104						
LCS 490-562036/5	Lab Control Sample	104						
LCSD 490-562036/39	Lab Control Sample Dup	101						
MB 490-562036/33	Method Blank	101						
MB 490-562036/6	Method Blank	101						

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Lab Sample ID: MB 490-562036/33
Matrix: Water
Analysis Batch: 562036

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/08/18 00:16	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/08/18 00:16	1
Benzene	<0.36		0.50	0.36	ug/L			12/08/18 00:16	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/08/18 00:16	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/08/18 00:16	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/08/18 00:16	1
Toluene	<0.33		0.50	0.33	ug/L			12/08/18 00:16	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/08/18 00:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/08/18 00:16*	*1*

Lab Sample ID: MB 490-562036/6
Matrix: Water
Analysis Batch: 562036

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 10:11	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			12/07/18 10:11	1
Benzene	<0.36		0.50	0.36	ug/L			12/07/18 10:11	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			12/07/18 10:11	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			12/07/18 10:11	1
Naphthalene	<2.4		5.0	2.4	ug/L			12/07/18 10:11	1
Toluene	<0.33		0.50	0.33	ug/L			12/07/18 10:11	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			12/07/18 10:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*12/07/18 10:11*	*1*

Lab Sample ID: LCS 490-562036/5
Matrix: Water
Analysis Batch: 562036

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	19.1		ug/L		96	60 - 131
1,3,5-Trimethylbenzene	20.0	19.1		ug/L		95	70 - 130
Benzene	20.0	20.7		ug/L		104	69 - 129
Ethylbenzene	20.0	19.3		ug/L		97	70 - 130
Methyl tert-butyl ether	20.0	18.6		ug/L		93	57 - 138
m-Xylene & p-Xylene	40.0	38.3		ug/L		96	65 - 127
Naphthalene	20.0	21.7		ug/L		108	69 - 133
o-Xylene	20.0	20.0		ug/L		100	64 - 128
Toluene	20.0	19.8		ug/L		99	66 - 127
Xylenes, Total	60.0	58.3		ug/L		97	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*104*		*80 - 120*

QC Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Lab Sample ID: LCSD 490-562036/39
Matrix: Water
Analysis Batch: 562036

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene			20.0	18.6		ug/L		93	60 - 131	3	43
1,3,5-Trimethylbenzene			20.0	18.6		ug/L		93	70 - 130	2	20
Benzene			20.0	20.6		ug/L		103	69 - 129	1	33
Ethylbenzene			20.0	19.0		ug/L		95	70 - 130	2	35
Methyl tert-butyl ether			20.0	20.6		ug/L		103	57 - 138	11	40
m-Xylene & p-Xylene			40.0	37.4		ug/L		93	65 - 127	2	39
Naphthalene			20.0	21.1		ug/L		106	69 - 133	2	48
o-Xylene			20.0	19.5		ug/L		97	64 - 128	2	35
Toluene			20.0	19.3		ug/L		96	66 - 127	3	34
Xylenes, Total			60.0	56.9		ug/L		95		2	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Lab Sample ID: 500-155595-17 MS
Matrix: Water
Analysis Batch: 562036

Client Sample ID: Webster
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	<0.30		20.0	18.6		ug/L		93	40 - 165
1,3,5-Trimethylbenzene	<0.30		20.0	18.8		ug/L		94	60 - 140
Benzene	<0.36		20.0	20.5		ug/L		102	29 - 176
Ethylbenzene	<0.37		20.0	19.0		ug/L		95	30 - 170
Methyl tert-butyl ether	<0.24		20.0	18.6		ug/L		93	23 - 165
m-Xylene & p-Xylene	<0.29		40.0	37.8		ug/L		94	27 - 165
Naphthalene	<2.4		20.0	19.2		ug/L		96	10 - 175
o-Xylene	<0.29		20.0	19.3		ug/L		96	23 - 169
Toluene	<0.33		20.0	19.6		ug/L		98	30 - 167
Xylenes, Total	<0.58		60.0	57.1		ug/L		95	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*103*		*80 - 120*

Lab Sample ID: 500-155595-17 MSD
Matrix: Water
Analysis Batch: 562036

Client Sample ID: Webster
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	<0.30		20.0	20.7		ug/L		103	40 - 165	11	43
1,3,5-Trimethylbenzene	<0.30		20.0	20.8		ug/L		104	60 - 140	10	20
Benzene	<0.36		20.0	22.7		ug/L		114	29 - 176	10	33
Ethylbenzene	<0.37		20.0	20.7		ug/L		104	30 - 170	9	35
Methyl tert-butyl ether	<0.24		20.0	20.9		ug/L		104	23 - 165	12	40
m-Xylene & p-Xylene	<0.29		40.0	42.3		ug/L		106	27 - 165	11	39
Naphthalene	<2.4		20.0	22.0		ug/L		110	10 - 175	14	48
o-Xylene	<0.29		20.0	21.5		ug/L		108	23 - 169	11	35
Toluene	<0.33		20.0	21.5		ug/L		108	30 - 167	10	34
Xylenes, Total	<0.58		60.0	63.8		ug/L		106		11	

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: 500-155595-17 MSD
Matrix: Water
Analysis Batch: 562036

Client Sample ID: Webster
Prep Type: Total/NA

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene	104		80 - 120

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Client Sample ID: MW-1
Date Collected: 11/30/18 11:10
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 20:12	AK1	TAL NSH

Client Sample ID: MW-2P
Date Collected: 11/30/18 09:00
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 13:04	AK1	TAL NSH

Client Sample ID: MW-3D
Date Collected: 11/30/18 09:50
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 13:35	AK1	TAL NSH

Client Sample ID: MW-4
Date Collected: 11/30/18 10:05
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		10	562036	12/08/18 00:46	AK1	TAL NSH
Total/NA	Analysis	WDNR		25	562036	12/08/18 01:47	AK1	TAL NSH

Client Sample ID: MW-4P
Date Collected: 11/30/18 10:00
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 21:43	AK1	TAL NSH
Total/NA	Analysis	WDNR		10	562036	12/07/18 22:44	AK1	TAL NSH

Client Sample ID: MW-6
Date Collected: 11/30/18 10:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		5	562036	12/07/18 23:15	AK1	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Client Sample ID: MW-6P
Date Collected: 11/30/18 10:45
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 14:05	AK1	TAL NSH

Client Sample ID: MW-7
Date Collected: 11/30/18 11:40
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 14:36	AK1	TAL NSH

Client Sample ID: MW-8P
Date Collected: 11/30/18 11:25
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 15:06	AK1	TAL NSH

Client Sample ID: MW-9
Date Collected: 11/30/18 09:20
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 15:37	AK1	TAL NSH

Client Sample ID: MW-10
Date Collected: 11/30/18 09:40
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 16:07	AK1	TAL NSH

Client Sample ID: MW-11
Date Collected: 11/30/18 12:15
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 17:39	AK1	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Client Sample ID: MW-12P
Date Collected: 11/30/18 12:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 18:10	AK1	TAL NSH

Client Sample ID: MW-12D
Date Collected: 11/30/18 12:00
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 18:40	AK1	TAL NSH

Client Sample ID: MW-13
Date Collected: 11/30/18 13:10
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 19:11	AK1	TAL NSH

Client Sample ID: MW-13D
Date Collected: 11/30/18 13:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 19:41	AK1	TAL NSH

Client Sample ID: Webster
Date Collected: 11/30/18 08:30
Date Received: 12/04/18 09:30

Lab Sample ID: 500-155595-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	562036	12/07/18 10:47	AK1	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Cedar Corporation
Project/Site: Olson Corners/Hannibal

TestAmerica Job ID: 500-155595-1

Laboratory: TestAmerica Chicago

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

Laboratory: TestAmerica Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998020430	08-31-19

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Mitch Evenson + Anna Beckman
Company:
Address:
Address:
Phone:
Fax:
E-Mail:

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-155595

Chain of Custody Number:

Page 1 of 2

Temperature °C of Cooler: AS 12/4/18 ~~28~~ 26

Client	Client Project #	Preservative
Cedar Corp		
Project Name: Olson Corners / Hannibal		Parameter
Project Location/State: Hannibal, WI	Lab Project #	
Sampler: AMB + MEE	Lab PM: Sandie Fredrick	

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

500-155595 COC

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	PVOCs + naphthalene	Comments
1		MW-1	11/30/18	1110	3	W	X	
2		MW-2P		0900			X	
3		MW-3D		0950			X	
4		MW-4		1005			X	
5		MW-4P		1000			X	
6		MW-6		1030			X	
7		MW-6P		1045			X	
		MW-6D						No sample
8		MW-7		1140			X	
9		MW-8P		1125			X	

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar Corp	12/3/18	0800	[illegible] Sauer	TALK	12/4/18	0930
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped FX Priority
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments
PFOA pricing

Lab Comments:

TAL-4124-500 (1209)

12/10/2018

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Mitch Evenson & Anna Beckman
Company:
Address:
Address:
Phone:
Fax:
E-Mail:

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-155595
Chain of Custody Number:
Page 2 of 2
Temperature °C of Cooler: 2.6

Client: Cedar Corp
Client Project #:
Project Name: Olson Corners / Hannibal
Project Location/State: Hannibal, WI
Lab Project #:
Sampler: AMB & MEE
Lab PM: Sandie Fredrick

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Preservative	Parameter: PVOCs + naphthalene	Comments
10		MW-9	11/30/18	0920	3	W		X	
11		MW-10		0940				X	
12		MW-11		1215				X	
13		MW-12P		1230				X	
14		MW-12D		1200				X	
15		MW-13		1310				X	
16		MW-13D		1330				X	
17		Webster		0830				X	

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar Corp	12/3/18	0800	[signature]	TAL-HL	12/4/18	0930

Lab Courier:
Shipped: FX Priority
Hand Delivered:

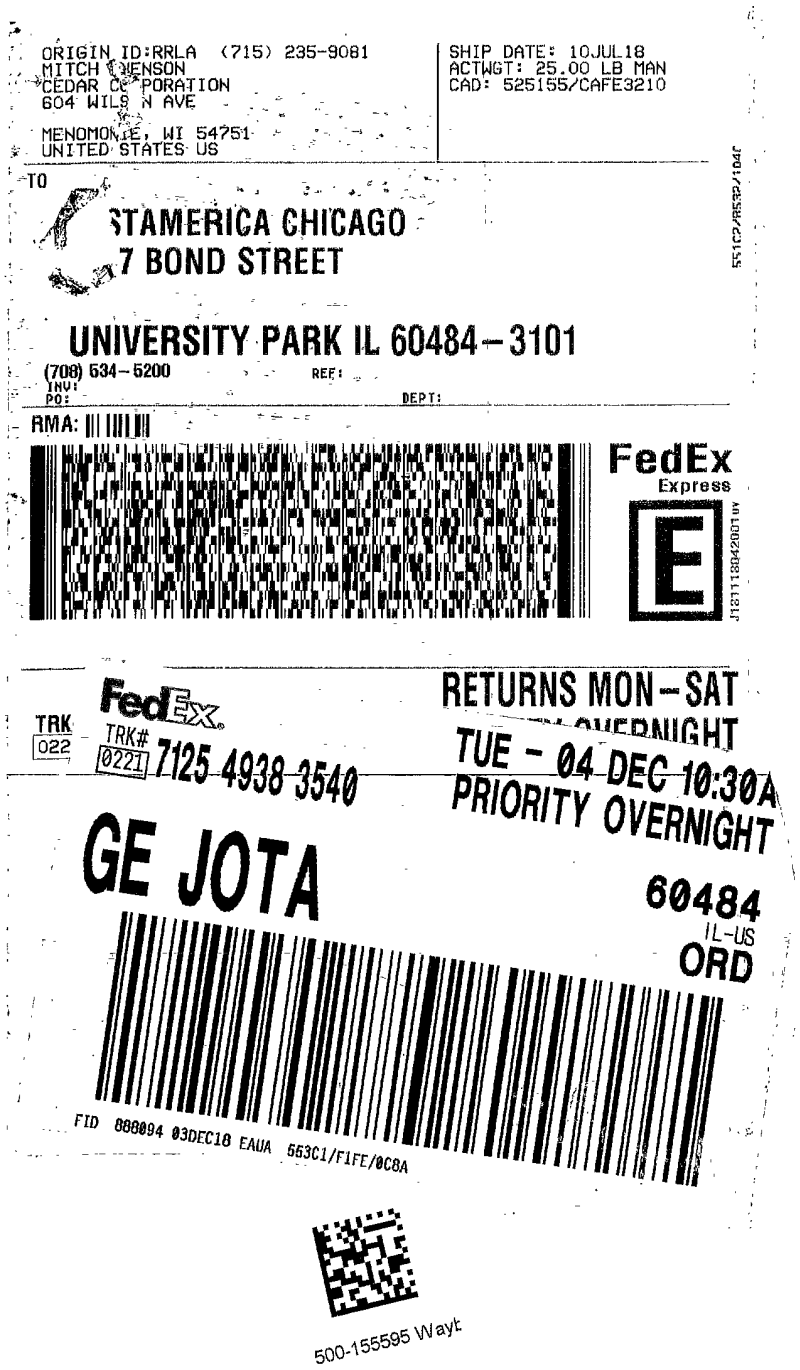
Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments: PECFA pricing

Lab Comments:

TAL-4124-500 (1209)

12/10/2018


ORIGIN ID:RRLA (715) 235-9081
MITCH WENSON
CEDAR CORPORATION
604 WILSON AVE
MENOMONIE, WI 54751
UNITED STATES US
SHIP DATE: 10JUL18
ACTWGT: 25.00 LB MAN
CAD: 525155/CAFE3210
TO
STAMERICA CHICAGO
7 BOND STREET
UNIVERSITY PARK IL 60484-3101
(708) 534-5200
REF:
INV:
PO:
DEPT:
RMA:
FedEx
Express
FedEx
TRK
022
TRK#
0221 7125 4938 3540
RETURNS MON-SAT
TUE - 04 DEC 10:30A
PRIORITY OVERNIGHT
GE JOTA
60484
IL-US
ORD
FID 880094 03DEC18 EAUA 563C1/F1FE/0C8A
500-155595 Wayt

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

500-155595 Chain of Custody

Cooler Received/Opened On 12-05-2018 @ 10:05

Time Samples Removed From Cooler 1124 Time Samples Placed In Storage 1144 (2 Hour Window)

1. Tracking # 0349 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 14740456 pH Strip Lot ~~[illegible]~~ Chlorine Strip Lot ~~[illegible]~~

2. Temperature of rep. sample or temp blank when opened: 2.0 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA Blank

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) KD

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) TR 2.2

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) TR 2.2

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) TR 2.2

I certify that I attached a label with the unique LIMS number to each container (intial) TR 2.2

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

500-155595

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie J	COC No: 500-114279.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	State of Origin: Wisconsin — Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin	Job #: 500-155595-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 12/14/2018		
City: Nashville	TAT Requested (days):		
State, Zip: TN, 37204			
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:		
Email:	WO #:		
Project Name: Olson Corners/Hannibal	Project #: 50006556		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-1 (500-155595-1)	11/30/18	11:10 Central		Water			X	3	
MW-2P (500-155595-2)	11/30/18	09:00 Central		Water			X	3	
MW-3D (500-155595-3)	11/30/18	09:50 Central		Water			X	3	
MW-4 (500-155595-4)	11/30/18	10:05 Central		Water			X	3	
MW-4P (500-155595-5)	11/30/18	10:00 Central		Water			X	3	
MW-6 (500-155595-6)	11/30/18	10:30 Central		Water			X	3	
MW-6P (500-155595-7)	11/30/18	10:45 Central		Water			X	3	
MW-7 (500-155595-8)	11/30/18	11:40 Central		Water			X	3	
MW-8P (500-155595-9)	11/30/18	11:25 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: [signature]	Date/Time: 12/4/18 1600	Company TA	Received by: [signature] Date/Time: 12/05/18 10:05 Company TA-WI
Relinquished by:	Date/Time:	Company	Received by: Date/Time: Company
Relinquished by:	Date/Time:	Company	Received by: Date/Time: Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 2.0	

Ver: 09/20/2016

TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

Loc: 500
155595

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie J	COC No: 500-114279.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin	Job #: 500-155595-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 12/14/2018		
City: Nashville	TAT Requested (days):		
State, Zip: TN, 37204			
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:		
Email:	WO #:		
Project Name: Olson Corners/Hannibal	Project #: 50006556		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-9 (500-155595-10)	11/30/18	09:20 Central		Water			X	3	
MW-10 (500-155595-11)	11/30/18	09:40 Central		Water			X	3	
MW-11 (500-155595-12)	11/30/18	12:15 Central		Water			X	3	
MW-12P (500-155595-13)	11/30/18	12:30 Central		Water			X	3	
MW-12D (500-155595-14)	11/30/18	12:00 Central		Water			X	3	
MW-13 (500-155595-15)	11/30/18	13:10 Central		Water			X	3	
MW-13D (500-155595-16)	11/30/18	13:30 Central		Water			X	3	
Webster (500-155595-17)	11/30/18	08:30 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 12/4/18 1600	Company: TA	Received by:		Date/Time: 12/05/18 10:05	Company: TA-NAS	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.0

Ver: 09/20/2016

12/10/2018

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-155595-1

Login Number: 155595
List Number: 1
Creator: Sanchez, Ariel M

List Source: 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	2.6
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	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 500-161417-1
Client Project/Site: Olson's Corner

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
4/22/2019 12:47:49 PM

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

Table of Contents

Case Narrative

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Job ID: 500-161417-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-161417-1

Comments
No additional comments.

Receipt
The samples were received on 4/11/2019 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1º C.

GC VOA
Method(s) WI-GRO: Surrogate recovery for the following samples were outside control limits: MW-1 (500-161417-1), MW-2P (500-161417-2) and MW-4 (500-161417-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) WI-GRO: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 490-588475/589042.

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

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

Detection Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: MW-1 — Lab Sample ID: 500-161417-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	250		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	45		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	74		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	520		2.5	1.9	ug/L	5		WDNR	Total/NA
Methyl tert-butyl ether	160		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	130		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	240		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	1300		7.5	2.9	ug/L	5		WDNR	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-161417-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	160		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	91		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	5700		10	7.2	ug/L	20		WDNR	Total/NA
Ethylbenzene	310		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	300		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	91		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	180		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	460		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-161417-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-161417-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	1500		10	6.0	ug/L	20		WDNR	Total/NA
1,3,5-Trimethylbenzene	1000		10	6.0	ug/L	20		WDNR	Total/NA
Benzene	4600		10	7.2	ug/L	20		WDNR	Total/NA
Ethylbenzene	1000		10	7.4	ug/L	20		WDNR	Total/NA
Methyl tert-butyl ether	130		10	4.8	ug/L	20		WDNR	Total/NA
Naphthalene	1400		100	48	ug/L	20		WDNR	Total/NA
Toluene	700		10	6.6	ug/L	20		WDNR	Total/NA
Xylenes, Total	2800		30	12	ug/L	20		WDNR	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-161417-5

No Detections.

Client Sample ID: MW-6 — Lab Sample ID: 500-161417-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.41	J	0.50	0.36	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	1.0		0.50	0.24	ug/L	1		WDNR	Total/NA
Xylenes, Total	3.2		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6P — Lab Sample ID: 500-161417-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	2.9		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	1.1		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	3.5		0.50	0.36	ug/L	1		WDNR	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-6P (Continued) — Lab Sample ID: 500-161417-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	6.5		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	0.51		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	63		5.0	2.4	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6D — Lab Sample ID: 500-161417-8

No Detections.

Client Sample ID: MW-7 — Lab Sample ID: 500-161417-9

No Detections.

Client Sample ID: MW-8P — Lab Sample ID: 500-161417-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	0.31	J	0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	140		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	120		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	66		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	6.0		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	2.2		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	4.3		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 500-161417-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	0.60		0.50	0.30	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 500-161417-12

No Detections.

Client Sample ID: MW-12P — Lab Sample ID: 500-161417-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	8.3		0.50	0.36	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	23		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 500-161417-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.34	J	0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 500-161417-15

No Detections.

Client Sample ID: MW-13D — Lab Sample ID: 500-161417-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.43	J	0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: Webster — Lab Sample ID: 500-161417-17

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: Witkowski — Lab Sample ID: 500-161417-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	4.9		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-161417-19

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Method	Method Description	Protocol	Laboratory
WDNR	Wisconsin - Gasoline Range Organics (GC)	WI-GRO	TAL NSH
5030B	Purge and Trap	SW846	TAL NSH

Protocol References:

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

WI-GRO = "Modified GRO: Method For Determining Gasoline Range Organics", Wisconsin DNR, Publ-SW-140, September, 1995.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Sample Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-161417-1	MW-1	Water	04/09/19 10:15	04/11/19 09:20
500-161417-2	MW-2P	Water	04/09/19 12:00	04/11/19 09:20
500-161417-3	MW-3D	Water	04/09/19 11:45	04/11/19 09:20
500-161417-4	MW-4	Water	04/09/19 12:30	04/11/19 09:20
500-161417-5	MW-4P	Water	04/09/19 12:15	04/11/19 09:20
500-161417-6	MW-6	Water	04/09/19 13:00	04/11/19 09:20
500-161417-7	MW-6P	Water	04/09/19 12:45	04/11/19 09:20
500-161417-8	MW-6D	Water	04/09/19 12:30	04/11/19 09:20
500-161417-9	MW-7	Water	04/09/19 10:45	04/11/19 09:20
500-161417-10	MW-8P	Water	04/09/19 10:30	04/11/19 09:20
500-161417-11	MW-10	Water	04/09/19 11:00	04/11/19 09:20
500-161417-12	MW-11	Water	04/09/19 11:15	04/11/19 09:20
500-161417-13	MW-12P	Water	04/09/19 11:30	04/11/19 09:20
500-161417-14	MW-12D	Water	04/09/19 11:00	04/11/19 09:20
500-161417-15	MW-13	Water	04/09/19 13:15	04/11/19 09:20
500-161417-16	MW-13D	Water	04/09/19 13:30	04/11/19 09:20
500-161417-17	Webster	Water	04/09/19 09:45	04/11/19 09:20
500-161417-18	Witkowski	Water	04/09/19 13:45	04/11/19 09:20
500-161417-19	Trip Blank	Water	04/09/19 00:00	04/11/19 09:20

Client Sample ID: MW-1

Lab Sample ID: 500-161417-1

Date Collected: 04/09/19 10:15

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	250		0.50	0.30	ug/L			04/17/19 15:11	1
1,3,5-Trimethylbenzene	45		0.50	0.30	ug/L			04/17/19 15:11	1
Benzene	74		0.50	0.36	ug/L			04/17/19 15:11	1
Ethylbenzene	520		2.5	1.9	ug/L			04/18/19 22:58	5
Methyl tert-butyl ether	160		0.50	0.24	ug/L			04/17/19 15:11	1
Naphthalene	130		5.0	2.4	ug/L			04/17/19 15:11	1
Toluene	240		0.50	0.33	ug/L			04/17/19 15:11	1
Xylenes, Total	1300		7.5	2.9	ug/L			04/18/19 22:58	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*225*	*X*	*80 - 120*		*04/17/19 15:11*	*1*
a,a,a-Trifluorotoluene	*121*	*X*	*80 - 120*		*04/18/19 22:58*	*5*

Client Sample ID: MW-2P

Lab Sample ID: 500-161417-2

Date Collected: 04/09/19 12:00

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	160		0.50	0.30	ug/L			04/17/19 15:42	1
1,3,5-Trimethylbenzene	91		0.50	0.30	ug/L			04/17/19 15:42	1
Benzene	5700		10	7.2	ug/L			04/19/19 10:00	20
Ethylbenzene	310		0.50	0.37	ug/L			04/17/19 15:42	1
Methyl tert-butyl ether	300		0.50	0.24	ug/L			04/17/19 15:42	1
Naphthalene	91		5.0	2.4	ug/L			04/17/19 15:42	1
Toluene	180		0.50	0.33	ug/L			04/17/19 15:42	1
Xylenes, Total	460		1.5	0.58	ug/L			04/17/19 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*234*	*X*	*80 - 120*		*04/17/19 15:42*	*1*
a,a,a-Trifluorotoluene	*90*		*80 - 120*		*04/19/19 10:00*	*20*

Client Sample ID: MW-3D

Lab Sample ID: 500-161417-3

Date Collected: 04/09/19 11:45

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 11:59	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 11:59	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 11:59	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 11:59	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 11:59	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 11:59	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 11:59	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*80 - 120*		*04/18/19 11:59*	*1*

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: MW-4

Lab Sample ID: 500-161417-4

Date Collected: 04/09/19 12:30
Matrix: Water
Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	1500		10	6.0	ug/L			04/18/19 08:29	20
1,3,5-Trimethylbenzene	1000		10	6.0	ug/L			04/18/19 08:29	20
Benzene	4600		10	7.2	ug/L			04/18/19 08:29	20
Ethylbenzene	1000		10	7.4	ug/L			04/18/19 08:29	20
Methyl tert-butyl ether	130		10	4.8	ug/L			04/18/19 08:29	20
Naphthalene	1400		100	48	ug/L			04/18/19 08:29	20
Toluene	700		10	6.6	ug/L			04/18/19 08:29	20
Xylenes, Total	2800		30	12	ug/L			04/18/19 08:29	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*121*	*X*	*80 - 120*		*04/18/19 08:29*	*20*

Client Sample ID: MW-4P

Lab Sample ID: 500-161417-5

Date Collected: 04/09/19 12:15
Matrix: Water
Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 20:53	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 20:53	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 20:53	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 20:53	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 20:53	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 20:53	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 20:53	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*80 - 120*		*04/18/19 20:53*	*1*

Client Sample ID: MW-6

Lab Sample ID: 500-161417-6

Date Collected: 04/09/19 13:00
Matrix: Water
Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 21:24	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 21:24	1
Benzene	0.41	J	0.50	0.36	ug/L			04/18/19 21:24	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 21:24	1
Methyl tert-butyl ether	1.0		0.50	0.24	ug/L			04/18/19 21:24	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 21:24	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 21:24	1
Xylenes, Total	3.2		1.5	0.58	ug/L			04/18/19 21:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*80 - 120*		*04/18/19 21:24*	*1*

Client Sample ID: MW-6P

Lab Sample ID: 500-161417-7

Date Collected: 04/09/19 12:45

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	2.9		0.50	0.30	ug/L			04/18/19 07:10	1
1,3,5-Trimethylbenzene	1.1		0.50	0.30	ug/L			04/18/19 07:10	1
Benzene	3.5		0.50	0.36	ug/L			04/18/19 07:10	1
Ethylbenzene	6.5		0.50	0.37	ug/L			04/18/19 07:10	1
Methyl tert-butyl ether	0.51		0.50	0.24	ug/L			04/18/19 07:10	1
Naphthalene	63		5.0	2.4	ug/L			04/18/19 07:10	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 07:10	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 07:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*04/18/19 07:10*	*1*

Client Sample ID: MW-6D

Lab Sample ID: 500-161417-8

Date Collected: 04/09/19 12:30

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 10:25	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 10:25	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 10:25	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 10:25	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 10:25	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 10:25	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 10:25	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 10:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*80 - 120*		*04/18/19 10:25*	*1*

Client Sample ID: MW-7

Lab Sample ID: 500-161417-9

Date Collected: 04/09/19 10:45

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 12:30	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 12:30	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 12:30	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 12:30	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 12:30	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 12:30	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 12:30	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 12:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*82*		*80 - 120*		*04/18/19 12:30*	*1*

Client Sample ID: MW-8P

Lab Sample ID: 500-161417-10

Date Collected: 04/09/19 10:30

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**0.31**	**J**	0.50	0.30	ug/L			04/18/19 13:02	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 13:02	1
Benzene	**140**		0.50	0.36	ug/L			04/18/19 13:02	1
Ethylbenzene	**120**		0.50	0.37	ug/L			04/18/19 13:02	1
Methyl tert-butyl ether	**66**		0.50	0.24	ug/L			04/18/19 13:02	1
Naphthalene	**6.0**		5.0	2.4	ug/L			04/18/19 13:02	1
Toluene	**2.2**		0.50	0.33	ug/L			04/18/19 13:02	1
Xylenes, Total	**4.3**		1.5	0.58	ug/L			04/18/19 13:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*112*		*80 - 120*		*04/18/19 13:02*	*1*

Client Sample ID: MW-10

Lab Sample ID: 500-161417-11

Date Collected: 04/09/19 11:00

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**0.60**		0.50	0.30	ug/L			04/18/19 14:04	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 14:04	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 14:04	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 14:04	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 14:04	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 14:04	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 14:04	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*80 - 120*		*04/18/19 14:04*	*1*

Client Sample ID: MW-11

Lab Sample ID: 500-161417-12

Date Collected: 04/09/19 11:15

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 14:36	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 14:36	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 14:36	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 14:36	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 14:36	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 14:36	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 14:36	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*80*		*80 - 120*		*04/18/19 14:36*	*1*

Client Sample ID: MW-12P

Lab Sample ID: 500-161417-13

Date Collected: 04/09/19 11:30

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 15:07	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 15:07	1
Benzene	**8.3**		0.50	0.36	ug/L			04/18/19 15:07	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 15:07	1
Methyl tert-butyl ether	**23**		0.50	0.24	ug/L			04/18/19 15:07	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 15:07	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 15:07	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 15:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*04/18/19 15:07*	*1*

Client Sample ID: MW-12D

Lab Sample ID: 500-161417-14

Date Collected: 04/09/19 11:00

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 15:39	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 15:39	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 15:39	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 15:39	1
Methyl tert-butyl ether	**0.34**	**J**	0.50	0.24	ug/L			04/18/19 15:39	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 15:39	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 15:39	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*80 - 120*		*04/18/19 15:39*	*1*

Client Sample ID: MW-13

Lab Sample ID: 500-161417-15

Date Collected: 04/09/19 13:15

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 16:10	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 16:10	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 16:10	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 16:10	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 16:10	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 16:10	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 16:10	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*80 - 120*		*04/18/19 16:10*	*1*

Client Sample ID: MW-13D

Lab Sample ID: 500-161417-16

Date Collected: 04/09/19 13:30

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 16:42	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 16:42	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 16:42	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 16:42	1
Methyl tert-butyl ether	**0.43**	**J**	0.50	0.24	ug/L			04/18/19 16:42	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 16:42	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 16:42	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*81*		*80 - 120*		*04/18/19 16:42*	*1*

Client Sample ID: Webster

Lab Sample ID: 500-161417-17

Date Collected: 04/09/19 09:45

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 17:13	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 17:13	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 17:13	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 17:13	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 17:13	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 17:13	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 17:13	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*80 - 120*		*04/18/19 17:13*	*1*

Client Sample ID: Witkowski

Lab Sample ID: 500-161417-18

Date Collected: 04/09/19 13:45

Matrix: Water

Date Received: 04/11/19 09:20

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/17/19 14:39	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/17/19 14:39	1
Benzene	<0.36		0.50	0.36	ug/L			04/17/19 14:39	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/17/19 14:39	1
Methyl tert-butyl ether	**4.9**		0.50	0.24	ug/L			04/17/19 14:39	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/17/19 14:39	1
Toluene	<0.33		0.50	0.33	ug/L			04/17/19 14:39	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/17/19 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*04/17/19 14:39*	*1*

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: Trip Blank

Date Collected: 04/09/19 00:00
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-19

Matrix: Water

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 16:06	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 16:06	1
Benzene	<0.36		0.50	0.36	ug/L			04/19/19 16:06	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/19/19 16:06	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/19/19 16:06	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/19/19 16:06	1
Toluene	<0.33		0.50	0.33	ug/L			04/19/19 16:06	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/19/19 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*80 - 120*		*04/19/19 16:06*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
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's Corner

Job ID: 500-161417-1

GC VOA

Analysis Batch: 588475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-161417-1	MW-1	Total/NA	Water	WDNR	
500-161417-1	MW-1	Total/NA	Water	WDNR	
500-161417-2	MW-2P	Total/NA	Water	WDNR	
500-161417-3	MW-3D	Total/NA	Water	WDNR	
500-161417-4	MW-4	Total/NA	Water	WDNR	
500-161417-5	MW-4P	Total/NA	Water	WDNR	
500-161417-6	MW-6	Total/NA	Water	WDNR	
500-161417-7	MW-6P	Total/NA	Water	WDNR	
500-161417-8	MW-6D	Total/NA	Water	WDNR	
500-161417-9	MW-7	Total/NA	Water	WDNR	
500-161417-10	MW-8P	Total/NA	Water	WDNR	
500-161417-11	MW-10	Total/NA	Water	WDNR	
500-161417-12	MW-11	Total/NA	Water	WDNR	
500-161417-13	MW-12P	Total/NA	Water	WDNR	
500-161417-14	MW-12D	Total/NA	Water	WDNR	
500-161417-15	MW-13	Total/NA	Water	WDNR	
500-161417-16	MW-13D	Total/NA	Water	WDNR	
500-161417-17	Webster	Total/NA	Water	WDNR	
500-161417-18	Witkowski	Total/NA	Water	WDNR	
MB 490-588475/35	Method Blank	Total/NA	Water	WDNR	
MB 490-588475/4	Method Blank	Total/NA	Water	WDNR	
LCS 490-588475/3	Lab Control Sample	Total/NA	Water	WDNR	
LCS 490-588475/34	Lab Control Sample	Total/NA	Water	WDNR	
LCSD 490-588475/30	Lab Control Sample Dup	Total/NA	Water	WDNR	
LCSD 490-588475/41	Lab Control Sample Dup	Total/NA	Water	WDNR	

Analysis Batch: 589042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-161417-2	MW-2P	Total/NA	Water	WDNR	
500-161417-19	Trip Blank	Total/NA	Water	WDNR	
MB 490-589042/16	Method Blank	Total/NA	Water	WDNR	
MB 490-589042/4	Method Blank	Total/NA	Water	WDNR	
LCS 490-589042/15	Lab Control Sample	Total/NA	Water	WDNR	
LCS 490-589042/3	Lab Control Sample	Total/NA	Water	WDNR	
LCSD 490-589042/11	Lab Control Sample Dup	Total/NA	Water	WDNR	
LCSD 490-589042/39	Lab Control Sample Dup	Total/NA	Water	WDNR	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT (80-120)
500-161417-1	MW-1	121 X
500-161417-1	MW-1	225 X
500-161417-2	MW-2P	234 X
500-161417-2	MW-2P	90
500-161417-3	MW-3D	88
500-161417-4	MW-4	121 X
500-161417-5	MW-4P	94
500-161417-6	MW-6	92
500-161417-7	MW-6P	95
500-161417-8	MW-6D	88
500-161417-9	MW-7	82
500-161417-10	MW-8P	112
500-161417-11	MW-10	87
500-161417-12	MW-11	80
500-161417-13	MW-12P	101
500-161417-14	MW-12D	88
500-161417-15	MW-13	88
500-161417-16	MW-13D	81
500-161417-17	Webster	94
500-161417-18	Witkowski	95
500-161417-19	Trip Blank	93
LCS 490-588475/3	Lab Control Sample	87
LCS 490-588475/34	Lab Control Sample	96
LCS 490-589042/15	Lab Control Sample	87
LCS 490-589042/3	Lab Control Sample	93
LCSD 490-588475/30	Lab Control Sample Dup	90
LCSD 490-588475/41	Lab Control Sample Dup	88
LCSD 490-589042/11	Lab Control Sample Dup	95
LCSD 490-589042/39	Lab Control Sample Dup	95
MB 490-588475/35	Method Blank	95
MB 490-588475/4	Method Blank	94
MB 490-589042/16	Method Blank	92
MB 490-589042/4	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Lab Sample ID: MB 490-588475/35
Matrix: Water
Analysis Batch: 588475

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 20:22	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/18/19 20:22	1
Benzene	<0.36		0.50	0.36	ug/L			04/18/19 20:22	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/18/19 20:22	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/18/19 20:22	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/18/19 20:22	1
Toluene	<0.33		0.50	0.33	ug/L			04/18/19 20:22	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/18/19 20:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*04/18/19 20:22*	*1*

Lab Sample ID: MB 490-588475/4
Matrix: Water
Analysis Batch: 588475

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/17/19 13:58	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/17/19 13:58	1
Benzene	<0.36		0.50	0.36	ug/L			04/17/19 13:58	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/17/19 13:58	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/17/19 13:58	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/17/19 13:58	1
Toluene	<0.33		0.50	0.33	ug/L			04/17/19 13:58	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/17/19 13:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*80 - 120*		*04/17/19 13:58*	*1*

Lab Sample ID: LCS 490-588475/3
Matrix: Water
Analysis Batch: 588475

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	21.6		ug/L		108	60 - 131
1,3,5-Trimethylbenzene	20.0	21.6		ug/L		108	70 - 130
Benzene	20.0	20.8		ug/L		104	69 - 129
Ethylbenzene	20.0	21.1		ug/L		106	70 - 130
Methyl tert-butyl ether	20.0	21.1		ug/L		105	57 - 138
m-Xylene & p-Xylene	40.0	43.0		ug/L		107	65 - 127
Naphthalene	20.0	21.2		ug/L		106	69 - 133
o-Xylene	20.0	21.2		ug/L		106	64 - 128
Toluene	20.0	21.0		ug/L		105	66 - 127
Xylenes, Total	60.0	64.2		ug/L		107	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*87*		*80 - 120*

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCS 490-588475/34
Matrix: Water
Analysis Batch: 588475

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,4-Trimethylbenzene			20.0	18.9		ug/L		95	60 - 131		
1,3,5-Trimethylbenzene			20.0	19.0		ug/L		95	70 - 130		
Benzene			20.0	18.2		ug/L		91	69 - 129		
Ethylbenzene			20.0	18.5		ug/L		92	70 - 130		
Methyl tert-butyl ether			20.0	19.1		ug/L		95	57 - 138		
m-Xylene & p-Xylene			40.0	37.8		ug/L		94	65 - 127		
Naphthalene			20.0	20.1		ug/L		100	69 - 133		
o-Xylene			20.0	18.7		ug/L		93	64 - 128		
Toluene			20.0	18.5		ug/L		92	66 - 127		
Xylenes, Total			60.0	56.5		ug/L		94			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*80 - 120*

Lab Sample ID: LCSD 490-588475/30
Matrix: Water
Analysis Batch: 588475

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene			20.0	19.2		ug/L		96	60 - 131	12	43
1,3,5-Trimethylbenzene			20.0	19.2		ug/L		96	70 - 130	12	20
Benzene			20.0	18.8		ug/L		94	69 - 129	10	33
Ethylbenzene			20.0	18.9		ug/L		94	70 - 130	11	35
Methyl tert-butyl ether			20.0	19.8		ug/L		99	57 - 138	6	40
m-Xylene & p-Xylene			40.0	38.4		ug/L		96	65 - 127	11	39
Naphthalene			20.0	20.2		ug/L		101	69 - 133	5	48
o-Xylene			20.0	19.0		ug/L		95	64 - 128	11	35
Toluene			20.0	18.9		ug/L		95	66 - 127	10	34
Xylenes, Total			60.0	57.4		ug/L		96		11	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*90*		*80 - 120*

Lab Sample ID: LCSD 490-588475/41
Matrix: Water
Analysis Batch: 588475

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene			20.0	18.8		ug/L		94	60 - 131	1	43
1,3,5-Trimethylbenzene			20.0	18.7		ug/L		94	70 - 130	1	20
Benzene			20.0	18.0		ug/L		90	69 - 129	1	33
Ethylbenzene			20.0	18.5		ug/L		92	70 - 130	0	35
Methyl tert-butyl ether			20.0	18.3		ug/L		92	57 - 138	4	40
m-Xylene & p-Xylene			40.0	37.9		ug/L		95	65 - 127	0	39
Naphthalene			20.0	19.6		ug/L		98	69 - 133	3	48
o-Xylene			20.0	18.6		ug/L		93	64 - 128	0	35
Toluene			20.0	18.2		ug/L		91	66 - 127	1	34
Xylenes, Total			60.0	56.5		ug/L		94		0	

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	*88*		*80 - 120*

Lab Sample ID: MB 490-589042/16
Matrix: Water
Analysis Batch: 589042

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 15:35	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 15:35	1
Benzene	<0.36		0.50	0.36	ug/L			04/19/19 15:35	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/19/19 15:35	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/19/19 15:35	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/19/19 15:35	1
Toluene	<0.33		0.50	0.33	ug/L			04/19/19 15:35	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/19/19 15:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*92*		*80 - 120*		*04/19/19 15:35*	*1*

Lab Sample ID: MB 490-589042/4
Matrix: Water
Analysis Batch: 589042

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 08:51	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			04/19/19 08:51	1
Benzene	<0.36		0.50	0.36	ug/L			04/19/19 08:51	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			04/19/19 08:51	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			04/19/19 08:51	1
Naphthalene	<2.4		5.0	2.4	ug/L			04/19/19 08:51	1
Toluene	<0.33		0.50	0.33	ug/L			04/19/19 08:51	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			04/19/19 08:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*92*		*80 - 120*		*04/19/19 08:51*	*1*

Lab Sample ID: LCS 490-589042/15
Matrix: Water
Analysis Batch: 589042

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	18.6		ug/L		93	60 - 131
1,3,5-Trimethylbenzene	20.0	18.6		ug/L		93	70 - 130
Benzene	20.0	17.8		ug/L		89	69 - 129
Ethylbenzene	20.0	18.0		ug/L		90	70 - 130
Methyl tert-butyl ether	20.0	17.8		ug/L		89	57 - 138
m-Xylene & p-Xylene	40.0	36.9		ug/L		92	65 - 127
Naphthalene	20.0	18.2		ug/L		91	69 - 133
o-Xylene	20.0	18.2		ug/L		91	64 - 128
Toluene	20.0	18.0		ug/L		90	66 - 127
Xylenes, Total	60.0	55.1		ug/L		92	

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	87		80 - 120

Lab Sample ID: LCS 490-589042/3
Matrix: Water
Analysis Batch: 589042

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	18.8		ug/L		94	60 - 131
1,3,5-Trimethylbenzene	20.0	18.8		ug/L		94	70 - 130
Benzene	20.0	18.0		ug/L		90	69 - 129
Ethylbenzene	20.0	18.2		ug/L		91	70 - 130
Methyl tert-butyl ether	20.0	18.4		ug/L		92	57 - 138
m-Xylene & p-Xylene	40.0	37.2		ug/L		93	65 - 127
Naphthalene	20.0	18.7		ug/L		94	69 - 133
o-Xylene	20.0	18.4		ug/L		92	64 - 128
Toluene	20.0	18.1		ug/L		91	66 - 127
Xylenes, Total	60.0	55.6		ug/L		93	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	93		80 - 120

Lab Sample ID: LCSD 490-589042/11
Matrix: Water
Analysis Batch: 589042

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	20.0	18.7		ug/L		94	60 - 131	0	43
1,3,5-Trimethylbenzene	20.0	18.7		ug/L		94	70 - 130	0	20
Benzene	20.0	18.0		ug/L		90	69 - 129	0	33
Ethylbenzene	20.0	18.1		ug/L		91	70 - 130	0	35
Methyl tert-butyl ether	20.0	18.7		ug/L		94	57 - 138	2	40
m-Xylene & p-Xylene	40.0	37.2		ug/L		93	65 - 127	0	39
Naphthalene	20.0	18.8		ug/L		94	69 - 133	0	48
o-Xylene	20.0	18.4		ug/L		92	64 - 128	0	35
Toluene	20.0	18.1		ug/L		90	66 - 127	0	34
Xylenes, Total	60.0	55.6		ug/L		93		0	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	95		80 - 120

Lab Sample ID: LCSD 490-589042/39
Matrix: Water
Analysis Batch: 589042

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	20.0	19.2		ug/L		96	60 - 131	3	43
1,3,5-Trimethylbenzene	20.0	19.3		ug/L		96	70 - 130	4	20
Benzene	20.0	18.2		ug/L		91	69 - 129	3	33
Ethylbenzene	20.0	18.5		ug/L		92	70 - 130	2	35
Methyl tert-butyl ether	20.0	18.5		ug/L		92	57 - 138	4	40
m-Xylene & p-Xylene	40.0	38.3		ug/L		96	65 - 127	4	39

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCSD 490-589042/39
Matrix: Water
Analysis Batch: 589042

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			20.0	18.2		ug/L		91	69 - 133	0	48
o-Xylene			20.0	18.9		ug/L		94	64 - 128	4	35
Toluene			20.0	18.6		ug/L		93	66 - 127	3	34
Xylenes, Total			60.0	57.2		ug/L		95		4	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*95*		*80 - 120*

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: MW-1
Lab Sample ID: 500-161417-1
Date Collected: 04/09/19 10:15
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/17/19 15:11	S1S	TAL NSH
Total/NA	Analysis	WDNR		5	588475	04/18/19 22:58	S1S	TAL NSH

Client Sample ID: MW-2P
Lab Sample ID: 500-161417-2
Date Collected: 04/09/19 12:00
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/17/19 15:42	S1S	TAL NSH
Total/NA	Analysis	WDNR		20	589042	04/19/19 10:00	GWM	TAL NSH

Client Sample ID: MW-3D
Lab Sample ID: 500-161417-3
Date Collected: 04/09/19 11:45
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 11:59	S1S	TAL NSH

Client Sample ID: MW-4
Lab Sample ID: 500-161417-4
Date Collected: 04/09/19 12:30
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		20	588475	04/18/19 08:29	S1S	TAL NSH

Client Sample ID: MW-4P
Lab Sample ID: 500-161417-5
Date Collected: 04/09/19 12:15
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 20:53	S1S	TAL NSH

Client Sample ID: MW-6
Lab Sample ID: 500-161417-6
Date Collected: 04/09/19 13:00
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 21:24	S1S	TAL NSH

Client Sample ID: MW-6P
Lab Sample ID: 500-161417-7
Date Collected: 04/09/19 12:45
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 07:10	S1S	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: MW-6D
Lab Sample ID: 500-161417-8
Date Collected: 04/09/19 12:30
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 10:25	S1S	TAL NSH

Client Sample ID: MW-7
Lab Sample ID: 500-161417-9
Date Collected: 04/09/19 10:45
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 12:30	S1S	TAL NSH

Client Sample ID: MW-8P
Lab Sample ID: 500-161417-10
Date Collected: 04/09/19 10:30
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 13:02	S1S	TAL NSH

Client Sample ID: MW-10
Lab Sample ID: 500-161417-11
Date Collected: 04/09/19 11:00
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 14:04	S1S	TAL NSH

Client Sample ID: MW-11
Lab Sample ID: 500-161417-12
Date Collected: 04/09/19 11:15
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 14:36	S1S	TAL NSH

Client Sample ID: MW-12P
Lab Sample ID: 500-161417-13
Date Collected: 04/09/19 11:30
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 15:07	S1S	TAL NSH

Client Sample ID: MW-12D
Lab Sample ID: 500-161417-14
Date Collected: 04/09/19 11:00
Matrix: Water
Date Received: 04/11/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 15:39	S1S	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Client Sample ID: MW-13
Date Collected: 04/09/19 13:15
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 16:10	S1S	TAL NSH

Client Sample ID: MW-13D
Date Collected: 04/09/19 13:30
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 16:42	S1S	TAL NSH

Client Sample ID: Webster
Date Collected: 04/09/19 09:45
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/18/19 17:13	S1S	TAL NSH

Client Sample ID: Witkowski
Date Collected: 04/09/19 13:45
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	588475	04/17/19 14:39	S1S	TAL NSH

Client Sample ID: Trip Blank
Date Collected: 04/09/19 00:00
Date Received: 04/11/19 09:20

Lab Sample ID: 500-161417-19
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	589042	04/19/19 16:06	GWM	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Cedar Corporation
Project/Site: Olson's Corner

Job ID: 500-161417-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

Laboratory: Eurofins TestAmerica, Nashville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-19
Arizona	State Program	9	AZ0473	05-05-19
Arkansas DEQ	State Program	6	88-0737	04-25-20
California	State Program	9	2938	06-30-19
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-19
Georgia	State Program	4	NA: NELAP & A2LA	12-31-19
Illinois	NELAP	5	200010	12-09-19
Iowa	State Program	7	131	04-01-20
Kansas	NELAP	7	E-10229	10-31-19
Kentucky (UST)	State Program	4	19	06-30-19
Kentucky (WW)	State Program	4	90038	12-31-19
Louisiana	NELAP	6	30613	06-30-19
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-20
Massachusetts	State Program	1	M-TN032	06-30-19
Minnesota	NELAP	5	047-999-345	12-31-19
Mississippi	State Program	4	N/A	06-30-19
Nevada	State Program	9	TN00032	07-31-19
New Hampshire	NELAP	1	2963	10-09-19
New Jersey	NELAP	2	TN965	06-30-19
New York	NELAP	2	11342	03-31-20
North Carolina (WW/SW)	State Program	4	387	12-31-19
North Dakota	State Program	8	R-146	06-30-19
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-19
Oregon	NELAP	10	TN200001	04-26-19
Pennsylvania	NELAP	3	68-00585	07-31-19
Rhode Island	State Program	1	LAO00268	12-30-19
South Carolina	State Program	4	84009 (001)	02-28-19 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-19
USDA	Federal		P330-13-00306	04-10-20
Utah	NELAP	8	TN00032	07-31-19
Virginia	NELAP	3	460152	06-14-19
Washington	State Program	10	C789	07-19-19
West Virginia DEP	State Program	3	219	02-28-19 *
Wisconsin	State Program	5	998020430	08-31-19
Wyoming (UST)	A2LA	8	453.07	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL T

2417 Bond Street, University Park, IL 604
Phone: 708.534.5200 Fax: 708.534.5

500-161417 COC

(optional)

Report To
Contact: Mitch Evenson + Anna Beckman
Company:
Address:
Address:
Phone:
Fax:
E-Mail:

(optional)

Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-161417

Chain of Custody Number:

Page 1 of 2

Temperature °C of Cooler: 5.1

Client: Cedar Corp
Client Project #:
Project Name: Olson's Corner
Project Location/State: Hannibal, WI
Lab Project #:
Sampler: AMB
Lab PM: Sandie Fredrick

Preservative:
Parameter: 8VOCs + Naphthalene

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	8VOCs + Naphthalene	Comments
1		MW-1	4/9/19	1015	2	W	X	
2		MW-2P		1200				
3		MW-3D		1145				
4		MW-4		1230				
5		MW-4P		1215				
6		MW-6		1300				
7		MW-6P		1245				
8		MW-6D		1230				
9		MW-7		1045				
10		MW-8P		1030				

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	4/10/19	0800	Allen Scott	TA-CRL	4/11/19	0920
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier:
Shipped: FedEx
Hand Delivered:

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments: PECFA pricing

Lab Comments:

4/22/2019

TAL-4124-506 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: 500-16147

Chain of Custody Number:

Page 2 of 2

Temperature °C of Cooler:

(optional) Report To		(optional) Bill To	
Contact:	Mitch Evenson + Anna Beckman	Contact:	
Company:		Company:	
Address:		Address:	
Address:		Address:	
Phone:		Phone:	
Fax:		Fax:	
E-Mail:		PO#/Reference#	

Client	Cedar Corp
Client Project #	
Project Name	Olson's Corner
Project Location/State	Hannibal, WI
Lab Project #	
Sampler	AMB
Lab PM	Sandie Fredrick

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	Preservative	Parameter: PAHs + Naphthalene								Comments
11		mw-10	4/9/19	1100	2	W		X								
12		mw-11		1115												
13		mw-12P		1130												
14		mw-12D		1100												
15		mw-13		1315												
16		mw-13D		1330												
17		Webster		0945												
18		Witkowski		1345												
19		Trip Blank														

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	4/10/19	0800	Shri Scott	TA-CHI	4/11/19	0920
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped Fed X
Hand Delivered

Matrix Key

WW – Wastewater	SE – Sediment
W – Water	SO – Soil
S – Soil	L – Leachate
SL – Sludge	WI – Wipe
MS – Miscellaneous	DW – Drinking Water
OL – Oil	O – Other
A – Air	

Client Comments: PECFA pricing

Lab Comments:

TAL-4124-500 (1209)

4/22/2019

500-161417 Waybill

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

MENOMONIE, WI 54751
UNITED STATES US

SHIP DATE: 18JAN19
ACTWGT: 10.00 LB MAN
CAD: 0562071/CAFE3211

TO SAMPLE RECEIVING
TESTAMERICA CHICAGO
2417 BOND STREET

UNIVERSITY PARK IL 604843101
(708) 534-6200
REF: S500-69149

RMA:

FedEx Express

FedEx
TRK# 0221 4761 6868 3166

THU - 11 APR 10:30A
PRIORITY OVERNIGHT

GE JOTA

60484
IL-US
ORD

FID 152427 10APR19 EAUA 563C1/D7E5/0C8A

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

500-161417 Chain of Custody

Cooler Received/Opened On 04-13-2019 @ 09:00

Time Samples Removed From Cooler 1600 Time Samples Placed In Storage 1250 (2 Hour Window)

1. Tracking # 4810 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 31470368 pH Strip Lot _____ Chlorine Strip Lot _____

2. Temperature of rep. sample or temp blank when opened: 3.0 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA Blank

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) KD

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this. .

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) 2.2

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) 2.2

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) 2.2

I certify that I attached a label with the unique LIMS number to each container (intial) 2.2

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

500-161417

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	COC No: 500-119642.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin	Job #: 500-161417-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 4/23/2019		
City: Nashville	TAT Requested (days):		
State, Zip: TN, 37204			
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:		
Email:	WO #:		
Project Name: General Projects	Project #: 50006556		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-1 (500-161417-1)	4/9/19	10:15 Central		Water			X	2	
MW-2P (500-161417-2)	4/9/19	12:00 Central		Water			X	2	
MW-3D (500-161417-3)	4/9/19	11:45 Central		Water			X	2	
MW-4 (500-161417-4)	4/9/19	12:30 Central		Water			X	2	
MW-4P (500-161417-5)	4/9/19	12:15 Central		Water			X	2	
MW-6 (500-161417-6)	4/9/19	13:00 Central		Water			X	2	
MW-6P (500-161417-7)	4/9/19	12:45 Central		Water			X	2	
MW-6D (500-161417-8)	4/9/19	12:30 Central		Water			X	2	
MW-7 (500-161417-9)	4/9/19	10:45 Central		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/11/19 1620	TA	Jameria Jordan	04/13/19 09:00	TA-WAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.0

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

Loc: 500
161417

fins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	42.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	State of Origin: Wisconsin	
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-161417-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 4/23/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: General Projects	Project #: 50006556			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - Di Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-8P (500-161417-10)	4/9/19	10:30 Central		Water			X	2	
MW-10 (500-161417-11)	4/9/19	11:00 Central		Water			X	2	
MW-11 (500-161417-12)	4/9/19	11:15 Central		Water			X	2	
MW-12P (500-161417-13)	4/9/19	11:30 Central		Water			X	2	
MW-12D (500-161417-14)	4/9/19	11:00 Central		Water			X	2	
MW-13 (500-161417-15)	4/9/19	13:15 Central		Water			X	2	
MW-13D (500-161417-16)	4/9/19	13:30 Central		Water			X	2	
Webster (500-161417-17)	4/9/19	09:45 Central		Water			X	2	
Witkowski (500-161417-18)	4/9/19	13:45 Central		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/11/19 1620	TA	[signature]	04/13/19 09:00	TA-WAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.0

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

Loc: 500
161417

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Track	OC No: 00-119642.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	State of Orig. Wisconsin	age: Page 3 of 3
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-161417-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 4/23/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: General Projects	Project #: 50006556			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Trip Blank (500-161417-19)	4/9/19	Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 4/10/19 1620	Company TA	Received by:		Date/Time: 04/13/19 09:00	Company TA-WAS	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.0

Ver: 01/16/2019

4/22/2019

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-161417-1

Login Number: 161417
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	5.1
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").	True	
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: 500-166351-1
Client Project/Site: Olson Corners

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
7/16/2019 4:11:58 PM

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

Table of Contents

Case Narrative

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Job ID: 500-166351-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-166351-1

Comments
No additional comments.

Receipt
The samples were received on 7/9/2019 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

GC VOA
Method(s) WI-GRO: Surrogate recovery for the following samples were outside control limits: MW-1 (500-166351-1) and MW-4P (500-166351-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) WI-GRO: The sample duplicate (MSD) precision for analytical batch 490-606482 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method(s) WI-GRO: Ph less than 2. Ph paper lot no. 857466. MW-2P (500-166351-2)

Method(s) WI-GRO: Surrogate recovery for the following sample was outside control limits: MW-2P (500-166351-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

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

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-1 — Lab Sample ID: 500-166351-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	130		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	90		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	39		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	280		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	33		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	76		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	18		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	380		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-166351-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	580		5.0	3.0	ug/L	10		WDNR	Total/NA
1,3,5-Trimethylbenzene	130		5.0	3.0	ug/L	10		WDNR	Total/NA
Benzene	16000		50	36	ug/L	100		WDNR	Total/NA
Ethylbenzene	1300		5.0	3.7	ug/L	10		WDNR	Total/NA
Methyl tert-butyl ether	850		5.0	2.4	ug/L	10		WDNR	Total/NA
Naphthalene	280		50	24	ug/L	10		WDNR	Total/NA
Toluene	570		5.0	3.3	ug/L	10		WDNR	Total/NA
Xylenes, Total	1600		15	5.8	ug/L	10		WDNR	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-166351-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-166351-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	900		13	7.5	ug/L	25		WDNR	Total/NA
1,3,5-Trimethylbenzene	620		13	7.5	ug/L	25		WDNR	Total/NA
Benzene	2900		13	9.0	ug/L	25		WDNR	Total/NA
Ethylbenzene	800		13	9.3	ug/L	25		WDNR	Total/NA
Methyl tert-butyl ether	91		13	6.0	ug/L	25		WDNR	Total/NA
Naphthalene	830		130	60	ug/L	25		WDNR	Total/NA
Toluene	320		13	8.3	ug/L	25		WDNR	Total/NA
Xylenes, Total	2100		38	15	ug/L	25		WDNR	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-166351-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	61		0.50	0.30	ug/L	1		WDNR	Total/NA
1,3,5-Trimethylbenzene	22		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	620		5.0	3.6	ug/L	10		WDNR	Total/NA
Ethylbenzene	1400		5.0	3.7	ug/L	10		WDNR	Total/NA
Methyl tert-butyl ether	59		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	200		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	41		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	230		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 500-166351-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.5		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	1.0		0.50	0.37	ug/L	1		WDNR	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Chicago

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-6 (Continued) — Lab Sample ID: 500-166351-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.72		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6P — Lab Sample ID: 500-166351-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	2.6		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	5.3		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	13		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	0.52		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	70		5.0	2.4	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-6D — Lab Sample ID: 500-166351-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.87		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 500-166351-9

No Detections.

Client Sample ID: MW-8P — Lab Sample ID: 500-166351-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	92		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	90		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	28		0.50	0.24	ug/L	1		WDNR	Total/NA
Naphthalene	5.5		5.0	2.4	ug/L	1		WDNR	Total/NA
Toluene	1.2		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	2.9		1.5	0.58	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 500-166351-11

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 500-166351-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	1.3		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-11 — Lab Sample ID: 500-166351-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.44	J	0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-12P — Lab Sample ID: 500-166351-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	0.50		0.50	0.30	ug/L	1		WDNR	Total/NA
Benzene	31		0.50	0.36	ug/L	1		WDNR	Total/NA
Ethylbenzene	1.1		0.50	0.37	ug/L	1		WDNR	Total/NA
Methyl tert-butyl ether	23		0.50	0.24	ug/L	1		WDNR	Total/NA
Toluene	0.81		0.50	0.33	ug/L	1		WDNR	Total/NA
Xylenes, Total	2.4		1.5	0.58	ug/L	1		WDNR	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-12D — Lab Sample ID: 500-166351-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.65		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 500-166351-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.61		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: MW-13D — Lab Sample ID: 500-166351-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	1.2		0.50	0.24	ug/L	1		WDNR	Total/NA

Client Sample ID: WEBSTER — Lab Sample ID: 500-166351-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.25	J	0.50	0.24	ug/L	1		WDNR	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Method	Method Description	Protocol	Laboratory
WDNR	Wisconsin - Gasoline Range Organics (GC)	WI-GRO	TAL NSH
5030B	Purge and Trap	SW846	TAL NSH

Protocol References:

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

WI-GRO = "Modified GRO: Method For Determining Gasoline Range Organics", Wisconsin DNR, Publ-SW-140, September, 1995.

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Sample Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-166351-1	MW-1	Water	07/03/19 10:15	07/09/19 09:45	
500-166351-2	MW-2P	Water	07/03/19 08:45	07/09/19 09:45	
500-166351-3	MW-3D	Water	07/03/19 09:00	07/09/19 09:45	
500-166351-4	MW-4	Water	07/03/19 09:10	07/09/19 09:45	
500-166351-5	MW-4P	Water	07/03/19 09:20	07/09/19 09:45	
500-166351-6	MW-6	Water	07/03/19 09:45	07/09/19 09:45	
500-166351-7	MW-6P	Water	07/03/19 09:50	07/09/19 09:45	
500-166351-8	MW-6D	Water	07/03/19 10:00	07/09/19 09:45	
500-166351-9	MW-7	Water	07/03/19 10:40	07/09/19 09:45	
500-166351-10	MW-8P	Water	07/03/19 10:30	07/09/19 09:45	
500-166351-11	MW-9	Water	07/03/19 08:50	07/09/19 09:45	
500-166351-12	MW-10	Water	07/03/19 08:30	07/09/19 09:45	
500-166351-13	MW-11	Water	07/03/19 11:00	07/09/19 09:45	
500-166351-14	MW-12P	Water	07/03/19 11:10	07/09/19 09:45	
500-166351-15	MW-12D	Water	07/03/19 10:50	07/09/19 09:45	
500-166351-16	MW-13	Water	07/03/19 11:45	07/09/19 09:45	
500-166351-17	MW-13D	Water	07/03/19 12:00	07/09/19 09:45	
500-166351-18	WEBSTER	Water	07/03/19 10:10	07/09/19 09:45	

Client Sample Results

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-1

Lab Sample ID: 500-166351-1

Date Collected: 07/03/19 10:15

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	130		0.50	0.30	ug/L			07/15/19 10:48	1
1,3,5-Trimethylbenzene	90		0.50	0.30	ug/L			07/15/19 10:48	1
Benzene	39		0.50	0.36	ug/L			07/15/19 10:48	1
Ethylbenzene	280		0.50	0.37	ug/L			07/15/19 10:48	1
Methyl tert-butyl ether	33		0.50	0.24	ug/L			07/15/19 10:48	1
Naphthalene	76		5.0	2.4	ug/L			07/15/19 10:48	1
Toluene	18		0.50	0.33	ug/L			07/15/19 10:48	1
Xylenes, Total	380		1.5	0.58	ug/L			07/15/19 10:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*138*	*X*	*80 - 120*		*07/15/19 10:48*	*1*

Client Sample ID: MW-2P

Lab Sample ID: 500-166351-2

Date Collected: 07/03/19 08:45

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	580		5.0	3.0	ug/L			07/16/19 08:38	10
1,3,5-Trimethylbenzene	130		5.0	3.0	ug/L			07/16/19 08:38	10
Benzene	16000		50	36	ug/L			07/16/19 13:17	100
Ethylbenzene	1300		5.0	3.7	ug/L			07/16/19 08:38	10
Methyl tert-butyl ether	850		5.0	2.4	ug/L			07/16/19 08:38	10
Naphthalene	280		50	24	ug/L			07/16/19 08:38	10
Toluene	570		5.0	3.3	ug/L			07/16/19 08:38	10
Xylenes, Total	1600		15	5.8	ug/L			07/16/19 08:38	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*139*	*X*	*80 - 120*		*07/16/19 08:38*	*10*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*07/16/19 13:17*	*100*

Client Sample ID: MW-3D

Lab Sample ID: 500-166351-3

Date Collected: 07/03/19 09:00

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 12:25	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 12:25	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 12:25	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 12:25	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			07/15/19 12:25	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 12:25	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 12:25	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 12:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*07/15/19 12:25*	*1*

Client Sample ID: MW-4

Lab Sample ID: 500-166351-4

Date Collected: 07/03/19 09:10

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	900		13	7.5	ug/L			07/16/19 10:43	25
1,3,5-Trimethylbenzene	620		13	7.5	ug/L			07/16/19 10:43	25
Benzene	2900		13	9.0	ug/L			07/16/19 10:43	25
Ethylbenzene	800		13	9.3	ug/L			07/16/19 10:43	25
Methyl tert-butyl ether	91		13	6.0	ug/L			07/16/19 10:43	25
Naphthalene	830		130	60	ug/L			07/16/19 10:43	25
Toluene	320		13	8.3	ug/L			07/16/19 10:43	25
Xylenes, Total	2100		38	15	ug/L			07/16/19 10:43	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*117*		*80 - 120*		*07/16/19 10:43*	*25*
a,a,a-Trifluorotoluene	*101*		*80 - 120*		*07/16/19 12:17*	*100*

Client Sample ID: MW-4P

Lab Sample ID: 500-166351-5

Date Collected: 07/03/19 09:20

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	61		0.50	0.30	ug/L			07/15/19 20:40	1
1,3,5-Trimethylbenzene	22		0.50	0.30	ug/L			07/15/19 20:40	1
Benzene	620		5.0	3.6	ug/L			07/15/19 21:43	10
Ethylbenzene	1400		5.0	3.7	ug/L			07/15/19 21:43	10
Methyl tert-butyl ether	59		0.50	0.24	ug/L			07/15/19 20:40	1
Naphthalene	200		5.0	2.4	ug/L			07/15/19 20:40	1
Toluene	41		0.50	0.33	ug/L			07/15/19 20:40	1
Xylenes, Total	230		1.5	0.58	ug/L			07/15/19 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*159*	*X*	*80 - 120*		*07/15/19 20:40*	*1*
a,a,a-Trifluorotoluene	*116*		*80 - 120*		*07/15/19 21:43*	*10*

Client Sample ID: MW-6

Lab Sample ID: 500-166351-6

Date Collected: 07/03/19 09:45

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 22:14	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 22:14	1
Benzene	1.5		0.50	0.36	ug/L			07/15/19 22:14	1
Ethylbenzene	1.0		0.50	0.37	ug/L			07/15/19 22:14	1
Methyl tert-butyl ether	0.72		0.50	0.24	ug/L			07/15/19 22:14	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 22:14	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 22:14	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 22:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/15/19 22:14*	*1*

Client Sample ID: MW-6P

Lab Sample ID: 500-166351-7

Date Collected: 07/03/19 09:50

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**2.6**		0.50	0.30	ug/L			07/15/19 23:48	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 23:48	1
Benzene	**5.3**		0.50	0.36	ug/L			07/15/19 23:48	1
Ethylbenzene	**13**		0.50	0.37	ug/L			07/15/19 23:48	1
Methyl tert-butyl ether	**0.52**		0.50	0.24	ug/L			07/15/19 23:48	1
Naphthalene	**70**		5.0	2.4	ug/L			07/15/19 23:48	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 23:48	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 23:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/15/19 23:48*	*1*

Client Sample ID: MW-6D

Lab Sample ID: 500-166351-8

Date Collected: 07/03/19 10:00

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 14:56	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 14:56	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 14:56	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 14:56	1
Methyl tert-butyl ether	**0.87**		0.50	0.24	ug/L			07/15/19 14:56	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 14:56	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 14:56	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*07/15/19 14:56*	*1*

Client Sample ID: MW-7

Lab Sample ID: 500-166351-9

Date Collected: 07/03/19 10:40

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 15:28	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 15:28	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 15:28	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 15:28	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			07/15/19 15:28	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 15:28	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 15:28	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*07/15/19 15:28*	*1*

Client Sample ID: MW-8P

Lab Sample ID: 500-166351-10

Date Collected: 07/03/19 10:30

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 01:22	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 01:22	1
Benzene	**92**		0.50	0.36	ug/L			07/16/19 01:22	1
Ethylbenzene	**90**		0.50	0.37	ug/L			07/16/19 01:22	1
Methyl tert-butyl ether	**28**		0.50	0.24	ug/L			07/16/19 01:22	1
Naphthalene	**5.5**		5.0	2.4	ug/L			07/16/19 01:22	1
Toluene	**1.2**		0.50	0.33	ug/L			07/16/19 01:22	1
Xylenes, Total	**2.9**		1.5	0.58	ug/L			07/16/19 01:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*80 - 120*		*07/16/19 01:22*	*1*

Client Sample ID: MW-9

Lab Sample ID: 500-166351-11

Date Collected: 07/03/19 08:50

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 15:59	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 15:59	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 15:59	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 15:59	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			07/15/19 15:59	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 15:59	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 15:59	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 15:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*07/15/19 15:59*	*1*

Client Sample ID: MW-10

Lab Sample ID: 500-166351-12

Date Collected: 07/03/19 08:30

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 16:30	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 16:30	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 16:30	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 16:30	1
Methyl tert-butyl ether	**1.3**		0.50	0.24	ug/L			07/15/19 16:30	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 16:30	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 16:30	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*07/15/19 16:30*	*1*

Client Sample ID: MW-11

Lab Sample ID: 500-166351-13

Date Collected: 07/03/19 11:00

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 17:02	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 17:02	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 17:02	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 17:02	1
Methyl tert-butyl ether	**0.44**	**J**	0.50	0.24	ug/L			07/15/19 17:02	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 17:02	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 17:02	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*07/15/19 17:02*	*1*

Client Sample ID: MW-12P

Lab Sample ID: 500-166351-14

Date Collected: 07/03/19 11:10

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**0.50**		0.50	0.30	ug/L			07/16/19 02:55	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 02:55	1
Benzene	**31**		0.50	0.36	ug/L			07/16/19 02:55	1
Ethylbenzene	**1.1**		0.50	0.37	ug/L			07/16/19 02:55	1
Methyl tert-butyl ether	**23**		0.50	0.24	ug/L			07/16/19 02:55	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/16/19 02:55	1
Toluene	**0.81**		0.50	0.33	ug/L			07/16/19 02:55	1
Xylenes, Total	**2.4**		1.5	0.58	ug/L			07/16/19 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*120*		*80 - 120*		*07/16/19 02:55*	*1*

Client Sample ID: MW-12D

Lab Sample ID: 500-166351-15

Date Collected: 07/03/19 10:50

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 17:33	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 17:33	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 17:33	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 17:33	1
Methyl tert-butyl ether	**0.65**		0.50	0.24	ug/L			07/15/19 17:33	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 17:33	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 17:33	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/15/19 17:33*	*1*

Client Sample ID: MW-13

Lab Sample ID: 500-166351-16

Date Collected: 07/03/19 11:45

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 18:04	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 18:04	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 18:04	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 18:04	1
Methyl tert-butyl ether	**0.61**		0.50	0.24	ug/L			07/15/19 18:04	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 18:04	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 18:04	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/15/19 18:04*	*1*

Client Sample ID: MW-13D

Lab Sample ID: 500-166351-17

Date Collected: 07/03/19 12:00

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 18:35	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 18:35	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 18:35	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 18:35	1
Methyl tert-butyl ether	**1.2**		0.50	0.24	ug/L			07/15/19 18:35	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 18:35	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 18:35	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*07/15/19 18:35*	*1*

Client Sample ID: WEBSTER

Lab Sample ID: 500-166351-18

Date Collected: 07/03/19 10:10

Matrix: Water

Date Received: 07/09/19 09:45

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 08:07	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 08:07	1
Benzene	<0.36		0.50	0.36	ug/L			07/16/19 08:07	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/16/19 08:07	1
Methyl tert-butyl ether	**0.25**	**J**	0.50	0.24	ug/L			07/16/19 08:07	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/16/19 08:07	1
Toluene	<0.33		0.50	0.33	ug/L			07/16/19 08:07	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/16/19 08:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*07/16/19 08:07*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
J	Reported value was between the limit of detection and the limit of quantitation.
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
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: 500-166351-1

GC VOA

Analysis Batch: 606482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166351-1	MW-1	Total/NA	Water	WDNR	
500-166351-2	MW-2P	Total/NA	Water	WDNR	
500-166351-2	MW-2P	Total/NA	Water	WDNR	
500-166351-3	MW-3D	Total/NA	Water	WDNR	
500-166351-4	MW-4	Total/NA	Water	WDNR	
500-166351-4	MW-4	Total/NA	Water	WDNR	
500-166351-5	MW-4P	Total/NA	Water	WDNR	
500-166351-5	MW-4P	Total/NA	Water	WDNR	
500-166351-6	MW-6	Total/NA	Water	WDNR	
500-166351-7	MW-6P	Total/NA	Water	WDNR	
500-166351-8	MW-6D	Total/NA	Water	WDNR	
500-166351-9	MW-7	Total/NA	Water	WDNR	
500-166351-10	MW-8P	Total/NA	Water	WDNR	
500-166351-11	MW-9	Total/NA	Water	WDNR	
500-166351-12	MW-10	Total/NA	Water	WDNR	
500-166351-13	MW-11	Total/NA	Water	WDNR	
500-166351-14	MW-12P	Total/NA	Water	WDNR	
500-166351-15	MW-12D	Total/NA	Water	WDNR	
500-166351-16	MW-13	Total/NA	Water	WDNR	
500-166351-17	MW-13D	Total/NA	Water	WDNR	
500-166351-18	WEBSTER	Total/NA	Water	WDNR	
MB 490-606482/4	Method Blank	Total/NA	Water	WDNR	
MB 490-606482/44	Method Blank	Total/NA	Water	WDNR	
LCS 490-606482/3	Lab Control Sample	Total/NA	Water	WDNR	
LCS 490-606482/43	Lab Control Sample	Total/NA	Water	WDNR	
LCSD 490-606482/38	Lab Control Sample Dup	Total/NA	Water	WDNR	
LCSD 490-606482/55	Lab Control Sample Dup	Total/NA	Water	WDNR	
500-166351-3 MS	MW-3D	Total/NA	Water	WDNR	
500-166351-3 MSD	MW-3D	Total/NA	Water	WDNR	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**TFT (80-120)**
500-166351-1	MW-1	138 X
500-166351-2	MW-2P	139 X
500-166351-2	MW-2P	98
500-166351-3	MW-3D	95
500-166351-3 MS	MW-3D	97
500-166351-3 MSD	MW-3D	97
500-166351-4	MW-4	117
500-166351-4	MW-4	101
500-166351-5	MW-4P	159 X
500-166351-5	MW-4P	116
500-166351-6	MW-6	97
500-166351-7	MW-6P	97
500-166351-8	MW-6D	96
500-166351-9	MW-7	96
500-166351-10	MW-8P	108
500-166351-11	MW-9	95
500-166351-12	MW-10	96
500-166351-13	MW-11	98
500-166351-14	MW-12P	120
500-166351-15	MW-12D	97
500-166351-16	MW-13	97
500-166351-17	MW-13D	95
500-166351-18	WEBSTER	95
LCS 490-606482/3	Lab Control Sample	100
LCS 490-606482/43	Lab Control Sample	98
LCSD 490-606482/38	Lab Control Sample Dup	97
LCSD 490-606482/55	Lab Control Sample Dup	97
MB 490-606482/4	Method Blank	97
MB 490-606482/44	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: WDNR - Wisconsin - Gasoline Range Organics (GC)

Lab Sample ID: MB 490-606482/4
Matrix: Water
Analysis Batch: 606482

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 09:48	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/15/19 09:48	1
Benzene	<0.36		0.50	0.36	ug/L			07/15/19 09:48	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/15/19 09:48	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			07/15/19 09:48	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/15/19 09:48	1
Toluene	<0.33		0.50	0.33	ug/L			07/15/19 09:48	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/15/19 09:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/15/19 09:48*	*1*

Lab Sample ID: MB 490-606482/44
Matrix: Water
Analysis Batch: 606482

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

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 07:36	1
1,3,5-Trimethylbenzene	<0.30		0.50	0.30	ug/L			07/16/19 07:36	1
Benzene	<0.36		0.50	0.36	ug/L			07/16/19 07:36	1
Ethylbenzene	<0.37		0.50	0.37	ug/L			07/16/19 07:36	1
Methyl tert-butyl ether	<0.24		0.50	0.24	ug/L			07/16/19 07:36	1
Naphthalene	<2.4		5.0	2.4	ug/L			07/16/19 07:36	1
Toluene	<0.33		0.50	0.33	ug/L			07/16/19 07:36	1
Xylenes, Total	<0.58		1.5	0.58	ug/L			07/16/19 07:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*07/16/19 07:36*	*1*

Lab Sample ID: LCS 490-606482/3
Matrix: Water
Analysis Batch: 606482

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	19.0		ug/L		95	60 - 131
1,3,5-Trimethylbenzene	20.0	19.1		ug/L		95	70 - 130
Benzene	20.0	18.7		ug/L		94	69 - 129
Ethylbenzene	20.0	18.7		ug/L		94	70 - 130
Methyl tert-butyl ether	20.0	18.7		ug/L		93	57 - 138
m-Xylene & p-Xylene	40.0	38.0		ug/L		95	65 - 127
Naphthalene	20.0	17.9		ug/L		90	69 - 133
o-Xylene	20.0	18.8		ug/L		94	64 - 128
Toluene	20.0	18.7		ug/L		93	66 - 127
Xylenes, Total	60.0	56.8		ug/L		95	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*100*		*80 - 120*

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCS 490-606482/43
Matrix: Water
Analysis Batch: 606482

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2,4-Trimethylbenzene			20.0	18.7		ug/L		94	60 - 131		
1,3,5-Trimethylbenzene			20.0	18.8		ug/L		94	70 - 130		
Benzene			20.0	18.8		ug/L		94	69 - 129		
Ethylbenzene			20.0	18.6		ug/L		93	70 - 130		
Methyl tert-butyl ether			20.0	18.6		ug/L		93	57 - 138		
m-Xylene & p-Xylene			40.0	37.8		ug/L		94	65 - 127		
Naphthalene			20.0	18.0		ug/L		90	69 - 133		
o-Xylene			20.0	18.8		ug/L		94	64 - 128		
Toluene			20.0	18.7		ug/L		94	66 - 127		
Xylenes, Total			60.0	56.6		ug/L		94			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*80 - 120*

Lab Sample ID: LCSD 490-606482/38
Matrix: Water
Analysis Batch: 606482

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene			20.0	18.5		ug/L		93	60 - 131	3	43
1,3,5-Trimethylbenzene			20.0	18.5		ug/L		93	70 - 130	3	20
Benzene			20.0	18.7		ug/L		93	69 - 129	0	33
Ethylbenzene			20.0	18.4		ug/L		92	70 - 130	1	35
Methyl tert-butyl ether			20.0	18.7		ug/L		93	57 - 138	0	40
m-Xylene & p-Xylene			40.0	37.4		ug/L		93	65 - 127	2	39
Naphthalene			20.0	18.1		ug/L		90	69 - 133	1	48
o-Xylene			20.0	18.6		ug/L		93	64 - 128	1	35
Toluene			20.0	18.5		ug/L		92	66 - 127	1	34
Xylenes, Total			60.0	56.0		ug/L		93		1	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*80 - 120*

Lab Sample ID: LCSD 490-606482/55
Matrix: Water
Analysis Batch: 606482

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene			20.0	19.0		ug/L		95	60 - 131	2	43
1,3,5-Trimethylbenzene			20.0	19.2		ug/L		96	70 - 130	2	20
Benzene			20.0	19.7		ug/L		98	69 - 129	5	33
Ethylbenzene			20.0	19.1		ug/L		96	70 - 130	3	35
Methyl tert-butyl ether			20.0	19.3		ug/L		97	57 - 138	4	40
m-Xylene & p-Xylene			40.0	38.6		ug/L		97	65 - 127	2	39
Naphthalene			20.0	19.2		ug/L		96	69 - 133	7	48
o-Xylene			20.0	19.2		ug/L		96	64 - 128	2	35
Toluene			20.0	19.1		ug/L		96	66 - 127	2	34
Xylenes, Total			60.0	57.8		ug/L		96		2	

Method: WDNR - Wisconsin - Gasoline Range Organics (GC) (Continued)

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	97		80 - 120

Lab Sample ID: 500-166351-3 MS
Matrix: Water
Analysis Batch: 606482

Client Sample ID: MW-3D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	<0.30		20.0	19.0		ug/L		95	40 - 165
1,3,5-Trimethylbenzene	<0.30		20.0	19.2		ug/L		96	60 - 140
Benzene	<0.36		20.0	18.7		ug/L		94	29 - 176
Ethylbenzene	<0.37		20.0	19.0		ug/L		95	30 - 170
Methyl tert-butyl ether	<0.24		20.0	17.4		ug/L		87	23 - 165
m-Xylene & p-Xylene	<0.29		40.0	38.4		ug/L		96	27 - 165
Naphthalene	<2.4		20.0	16.5		ug/L		82	10 - 175
o-Xylene	<0.29		20.0	18.6		ug/L		93	23 - 169
Toluene	<0.33		20.0	18.7		ug/L		94	30 - 167
Xylenes, Total	<0.58		60.0	57.0		ug/L		95	

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene	97		80 - 120

Lab Sample ID: 500-166351-3 MSD
Matrix: Water
Analysis Batch: 606482

Client Sample ID: MW-3D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	<0.30		20.0	14.8		ug/L		74	40 - 165	25	43
1,3,5-Trimethylbenzene	<0.30		20.0	14.9	F2	ug/L		75	60 - 140	25	20
Benzene	<0.36		20.0	14.8		ug/L		74	29 - 176	23	33
Ethylbenzene	<0.37		20.0	14.8		ug/L		74	30 - 170	25	35
Methyl tert-butyl ether	<0.24		20.0	14.2		ug/L		71	23 - 165	20	40
m-Xylene & p-Xylene	<0.29		40.0	30.1		ug/L		75	27 - 165	24	39
Naphthalene	<2.4		20.0	13.1		ug/L		65	10 - 175	23	48
o-Xylene	<0.29		20.0	14.6		ug/L		73	23 - 169	24	35
Toluene	<0.33		20.0	14.7		ug/L		73	30 - 167	24	34
Xylenes, Total	<0.58		60.0	44.7		ug/L		75		24	

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene	97		80 - 120

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-1
Date Collected: 07/03/19 10:15
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 10:48	S1S	TAL NSH

Client Sample ID: MW-2P
Date Collected: 07/03/19 08:45
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		10	606482	07/16/19 08:38	S1S	TAL NSH
Total/NA	Analysis	WDNR		100	606482	07/16/19 13:17	S1S	TAL NSH

Client Sample ID: MW-3D
Date Collected: 07/03/19 09:00
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 12:25	S1S	TAL NSH

Client Sample ID: MW-4
Date Collected: 07/03/19 09:10
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		25	606482	07/16/19 10:43	S1S	TAL NSH
Total/NA	Analysis	WDNR		100	606482	07/16/19 12:17	S1S	TAL NSH

Client Sample ID: MW-4P
Date Collected: 07/03/19 09:20
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 20:40	S1S	TAL NSH
Total/NA	Analysis	WDNR		10	606482	07/15/19 21:43	S1S	TAL NSH

Client Sample ID: MW-6
Date Collected: 07/03/19 09:45
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 22:14	S1S	TAL NSH

Client Sample ID: MW-6P
Date Collected: 07/03/19 09:50
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 23:48	S1S	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-6D
Lab Sample ID: 500-166351-8
Date Collected: 07/03/19 10:00
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 14:56	S1S	TAL NSH

Client Sample ID: MW-7
Lab Sample ID: 500-166351-9
Date Collected: 07/03/19 10:40
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 15:28	S1S	TAL NSH

Client Sample ID: MW-8P
Lab Sample ID: 500-166351-10
Date Collected: 07/03/19 10:30
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/16/19 01:22	S1S	TAL NSH

Client Sample ID: MW-9
Lab Sample ID: 500-166351-11
Date Collected: 07/03/19 08:50
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 15:59	S1S	TAL NSH

Client Sample ID: MW-10
Lab Sample ID: 500-166351-12
Date Collected: 07/03/19 08:30
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 16:30	S1S	TAL NSH

Client Sample ID: MW-11
Lab Sample ID: 500-166351-13
Date Collected: 07/03/19 11:00
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 17:02	S1S	TAL NSH

Client Sample ID: MW-12P
Lab Sample ID: 500-166351-14
Date Collected: 07/03/19 11:10
Matrix: Water
Date Received: 07/09/19 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/16/19 02:55	S1S	TAL NSH

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Client Sample ID: MW-12D
Date Collected: 07/03/19 10:50
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 17:33	S1S	TAL NSH

Client Sample ID: MW-13
Date Collected: 07/03/19 11:45
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 18:04	S1S	TAL NSH

Client Sample ID: MW-13D
Date Collected: 07/03/19 12:00
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/15/19 18:35	S1S	TAL NSH

Client Sample ID: WEBSTER
Date Collected: 07/03/19 10:10
Date Received: 07/09/19 09:45

Lab Sample ID: 500-166351-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WDNR		1	606482	07/16/19 08:07	S1S	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-166351-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19 *

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998020430	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Mitch Evenson & Anna Beckman
Company:
Address:
Address:
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Fax:
E-Mail:

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

500-166351 COC

Chain of Custody Record

Lab Job #: 500-166351
Chain of Custody Number:
Page 1 of 2
Temperature °C of Cooler: 2c 2

Client	Client Project #	Preservative												
Cedar Corp														
Project Name: Olson Corners		Parameter												
Project Location/State: Hannibal, WI	Lab Project #													
Sampler: AMB	Lab PM: Sandie Fredrick													

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	1,4 Dioxane + Naphthalene							
1		MW-1	7/3/19	1015	3	W	X							
2		MW-2P		0845										
3		MW-3D		0900										
4		MW-4		0910										
5		MW-4P		0920										
6		MW-6		0945										
7		MW-6P		0950										
8		MW-6D		1000										
9		MW-7		1040										
10		MW-8P		1030										

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Comments

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	7/8/19	0730		TA	7/8/19	0945
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments
PECFA Pricing

Lab Comments:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

(optional)
Report To
Contact: Mitch Evenson & Anna Beckman
Company:
Address:
Address:
Phone:
Fax:
E-Mail:

(optional)
Bill To
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-16635-1
Chain of Custody Number:
Page 2 of 2
Temperature °C of Cooler:

Client: Cedar Corp
Client Project #:
Project Name: Olson Corners
Project Location/State: Hannibal, WI
Lab Project #:
Sampler: AB
Lab PM: Sandie Fredrick

Preservative
Parameter: PVOC's + Naphthalene

Preservative Key
1. HCL, Cool to 4°
2. H_2SO_4, Cool to 4°
3. HNO_3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. $NaHSO_4$
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	PVOC's + Naphthalene	Comments
11		mw-9	7/3/19	0860	3	W	X	
12		mw-10		0830				
13		mw-11		1100				
14		mw-12P		1110				
15		mw-12D		1050				
16		mw-13		1145				
17		mw-13D		1200				
18		Webster		1010				
		Trip Blank						

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

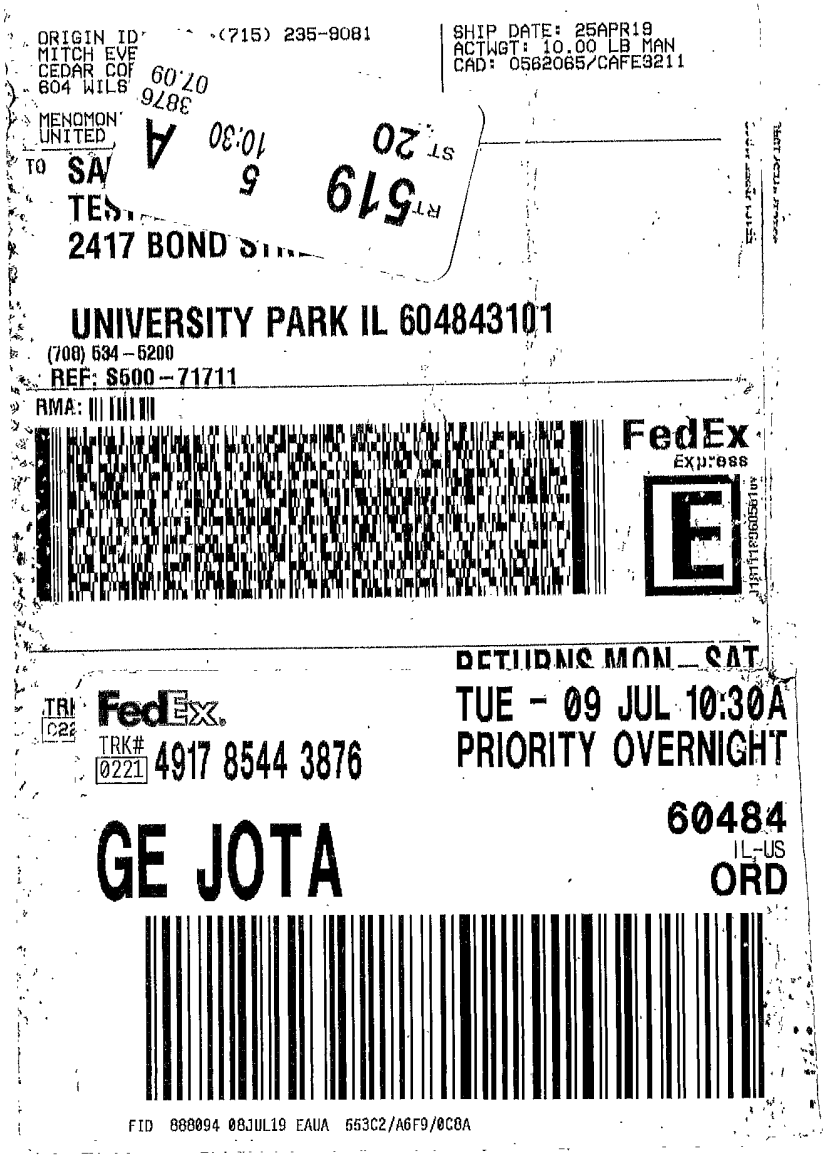
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	7/8/19	0730	Jeff Jones	TA	7/9/19	0745
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments
PECFA Pricing

Lab Comments:



48qt.

500-166351 Waybill

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

500-166351 Chain of Custody

Cooler Received/Opened On 07-10-2019 @ 09:25

Time Samples Removed From Cooler _____ Time Samples Placed In Storage _____ (2 Hour Window)

1. Tracking # 8519 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 17960353 pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 6.4 7-10-19 Degrees Celsius 5.6

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES (NO) NA

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? (YES)...NO...NA

6. Were custody papers inside cooler? (YES)...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)...NO...NA

12. Did all container labels and tags agree with custody papers? (YES)...NO...NA

13a. Were VOA vials received? (YES)...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...(NO)...NA

● ⬅ Larger than this.

14. Was there a Trip Blank in this cooler? YES...(NO)...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) KI

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)...NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) KI

17. Were custody papers properly filled out (ink, signed, etc)? (YES)...NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)...NO...NA

19. Were correct containers used for the analysis requested? (YES)...NO...NA

20. Was sufficient amount of sample sent in each container? (YES)...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) KI

I certify that I attached a label with the unique LIMS number to each container (intial) KI

21. Were there Non-Conformance issues at login? YES...(NO) Was a NCM generated? YES...(NO)...#_____

BIS = Broken in shipment

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie		COC No: 500-123071.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	Wisconsin	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-166351-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 7/19/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: Olson Corners	Project #: 50006556			
Site:	SSOW#:			

Analysis Requested

Loc: 500
166351

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-1 (500-166351-1)	7/3/19	10:15 Central		Water			X	3	
MW-2P (500-166351-2)	7/3/19	08:45 Central		Water			X	3	
MW-3D (500-166351-3)	7/3/19	09:00 Central		Water			X	3	
MW-4 (500-166351-4)	7/3/19	09:10 Central		Water			X	3	
MW-4P (500-166351-5)	7/3/19	09:20 Central		Water			X	3	
MW-6 (500-166351-6)	7/3/19	09:45 Central		Water			X	3	
MW-6P (500-166351-7)	7/3/19	09:50 Central		Water			X	3	
MW-6D (500-166351-8)	7/3/19	10:00 Central		Water			X	3	
MW-7 (500-166351-9)	7/3/19	10:40 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 7/9/19 1500	Company: TA	Received by:	Date/Time: 07-10-2019 09:25	Company: TAWI		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: S.G

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-123071.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandie.fredrick@testamericainc.com	State of Origin: Wisconsin	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-166351-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 7/19/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: Olson Corners	Project #: 50006556			
Site:	SSOW#:			

Analysis Requested

Loc: 500
166351

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - Di Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WI_GRO/5030B (MOD) WISC PVOC + Nap	Total Number of containers	Special Instructions/Note:
			Preservation Code						
MW-8P (500-166351-10)	7/3/19	10:30 Central		Water			X	3	
MW-9 (500-166351-11)	7/3/19	08:50 Central		Water			X	3	
MW-10 (500-166351-12)	7/3/19	08:30 Central		Water			X	3	
MW-11 (500-166351-13)	7/3/19	11:00 Central		Water			X	3	
MW-12P (500-166351-14)	7/3/19	11:10 Central		Water			X	3	
MW-12D (500-166351-15)	7/3/19	10:50 Central		Water			X	3	
MW-13 (500-166351-16)	7/3/19	11:45 Central		Water			X	3	
MW-13D (500-166351-17)	7/3/19	12:00 Central		Water			X	3	
WEBSTER (500-166351-18)	7/3/19	10:10 Central		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 7/9/19 1500	Company TA	Received by:	Date/Time: 07-10-2019 09:25	Company TAMS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.6

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-166351-1

Login Number: 166351
List Number: 1
Creator: James, Jeff A

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	2.2
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	see ncm
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: 500-172380-1
Client Project/Site: Olson Corners

For:
Cedar Corporation
604 Wilson Avenue
Menomonie, Wisconsin 54751

Attn: Mitch Evenson

Authorized for release by:
11/12/2019 6:42:42 PM

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

Table of Contents

Case Narrative

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Job ID: 500-172380-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-172380-1

Comments
No additional comments.

Receipt
The samples were received on 10/25/2019 9:00 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.

GC/MS VOA
Method 8260B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-2P (500-172380-2), MW-4 (500-172380-4), MW-4P (500-172380-5) and MW-8P (500-172380-10). Elevated reporting limits (RLs) are provided.

Method 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 513793 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8260B: The MS/ MSD (matrix spike and matrix spike duplicate) in batch 513783 were analyzed 13 and 37 minutes outside the method specified 12 hour tune time. MW-12D (500-172380-15), MW-13 (500-172380-16), MW-13D (500-172380-17), Webster (500-172380-18), Witkowski (500-172380-19), (500-172380-A-19 MS) and (500-172380-A-19 MSD)

Method 8260B: The MSD (matrix spike duplicate) in batch 513765 was analyzed 25 minutes outside the method specified 12 hour tune time. MW-1 (500-172380-1), MW-2P (500-172380-2), MW-3D (500-172380-3), MW-4 (500-172380-4), MW-4P (500-172380-5), MW-6 (500-172380-6), MW-6P (500-172380-7), MW-6D (500-172380-8), MW-7 (500-172380-9), MW-8P (500-172380-10), MW-9 (500-172380-11), MW-10 (500-172380-12), MW-11 (500-172380-13), MW-12P (500-172380-14), (500-172380-A-14 MS) and (500-172380-A-14 MSD)

Method 8260B: The method blank for 513772 contained Naphthalene and 1,2,4-Trimethylbenzene above the method detection limit and below the Reporting limit (RL). This target analyte concentration were detected in the associated samples; therefore, re-analysis of samples was not performed. Naphthalene and 1,2,4-Trimethylbenzene results have been flagged in the associated samples with a "B" flag denote the presence in the blank and possible lab contamination.

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: 500-172380-1

Client Sample ID: MW-1 — Lab Sample ID: 500-172380-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.53		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	1.2		0.50	0.18	ug/L	1		8260B	Total/NA
Naphthalene	1.1		1.0	0.34	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	1.5		1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	0.89	J	1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	1.6		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: MW-2P — Lab Sample ID: 500-172380-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	910		10	3.7	ug/L	20		8260B	Total/NA
Naphthalene	170		20	6.7	ug/L	20		8260B	Total/NA
Toluene	430		10	3.0	ug/L	20		8260B	Total/NA
1,2,4-Trimethylbenzene	420		20	7.2	ug/L	20		8260B	Total/NA
Xylenes, Total	990		20	4.4	ug/L	20		8260B	Total/NA
Benzene - DL	13000		100	29	ug/L	200		8260B	Total/NA

Client Sample ID: MW-3D — Lab Sample ID: 500-172380-3

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 500-172380-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1100		5.0	1.5	ug/L	10		8260B	Total/NA
Ethylbenzene	510		5.0	1.8	ug/L	10		8260B	Total/NA
Naphthalene	660		10	3.4	ug/L	10		8260B	Total/NA
Toluene	110		5.0	1.5	ug/L	10		8260B	Total/NA
Xylenes, Total	1700		10	2.2	ug/L	10		8260B	Total/NA
1,2,4-Trimethylbenzene - DL	2500	B	50	18	ug/L	50		8260B	Total/NA
1,3,5-Trimethylbenzene - DL	2200		50	13	ug/L	50		8260B	Total/NA

Client Sample ID: MW-4P — Lab Sample ID: 500-172380-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	190	B	1.0	0.34	ug/L	1		8260B	Total/NA
Toluene	63		0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	56	B	1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	2.4		1.0	0.25	ug/L	1		8260B	Total/NA
Benzene - DL	750		5.0	1.5	ug/L	10		8260B	Total/NA
Ethylbenzene - DL	1200		5.0	1.8	ug/L	10		8260B	Total/NA
Xylenes, Total - DL	190		10	2.2	ug/L	10		8260B	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 500-172380-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.8		0.50	0.15	ug/L	1		8260B	Total/NA

Client Sample ID: MW-6P — Lab Sample ID: 500-172380-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.2		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	3.8		0.50	0.18	ug/L	1		8260B	Total/NA
Naphthalene	4.3		1.0	0.34	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Chicago

Detection Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-6P (Continued) — Lab Sample ID: 500-172380-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.28	J	0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.63	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: MW-6D — Lab Sample ID: 500-172380-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.79	J	1.0	0.39	ug/L	1		8260B	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 500-172380-9

No Detections.

Client Sample ID: MW-8P — Lab Sample ID: 500-172380-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	190		0.50	0.18	ug/L	1		8260B	Total/NA
Toluene	2.3		0.50	0.15	ug/L	1		8260B	Total/NA
Xylenes, Total	2.8		1.0	0.22	ug/L	1		8260B	Total/NA
Benzene - DL	300		5.0	1.5	ug/L	10		8260B	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 500-172380-11

No Detections.

Client Sample ID: MW-10 — Lab Sample ID: 500-172380-12

No Detections.

Client Sample ID: MW-11 — Lab Sample ID: 500-172380-13

No Detections.

Client Sample ID: MW-12P — Lab Sample ID: 500-172380-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	180		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	1.8		0.50	0.18	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	12		1.0	0.39	ug/L	1		8260B	Total/NA
Toluene	0.85		0.50	0.15	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.91	J	1.0	0.36	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	0.70	J	1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	1.4		1.0	0.22	ug/L	1		8260B	Total/NA

Client Sample ID: MW-12D — Lab Sample ID: 500-172380-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.86	J	1.0	0.39	ug/L	1		8260B	Total/NA

Client Sample ID: MW-13 — Lab Sample ID: 500-172380-16

No Detections.

Client Sample ID: MW-13D — Lab Sample ID: 500-172380-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.71	J	1.0	0.39	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: 500-172380-1

Client Sample ID: Webster — Lab Sample ID: 500-172380-18

No Detections.

Client Sample ID: Witkowski — Lab Sample ID: 500-172380-19

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.94	F1	0.50	0.15	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	1.0	F1	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: 500-172380-1

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: 500-172380-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-172380-1	MW-1	Water	10/23/19 11:00	10/25/19 09:00	
500-172380-2	MW-2P	Water	10/23/19 09:30	10/25/19 09:00	
500-172380-3	MW-3D	Water	10/23/19 10:00	10/25/19 09:00	
500-172380-4	MW-4	Water	10/23/19 10:30	10/25/19 09:00	
500-172380-5	MW-4P	Water	10/23/19 10:45	10/25/19 09:00	
500-172380-6	MW-6	Water	10/23/19 12:50	10/25/19 09:00	
500-172380-7	MW-6P	Water	10/23/19 12:40	10/25/19 09:00	
500-172380-8	MW-6D	Water	10/23/19 12:30	10/25/19 09:00	
500-172380-9	MW-7	Water	10/23/19 11:30	10/25/19 09:00	
500-172380-10	MW-8P	Water	10/23/19 11:15	10/25/19 09:00	
500-172380-11	MW-9	Water	10/23/19 09:15	10/25/19 09:00	
500-172380-12	MW-10	Water	10/23/19 09:00	10/25/19 09:00	
500-172380-13	MW-11	Water	10/23/19 12:00	10/25/19 09:00	
500-172380-14	MW-12P	Water	10/23/19 12:15	10/25/19 09:00	
500-172380-15	MW-12D	Water	10/23/19 11:45	10/25/19 09:00	
500-172380-16	MW-13	Water	10/23/19 13:05	10/25/19 09:00	
500-172380-17	MW-13D	Water	10/23/19 13:10	10/25/19 09:00	
500-172380-18	Webster	Water	10/23/19 10:15	10/25/19 09:00	
500-172380-19	Witkowski	Water	10/23/19 13:00	10/25/19 09:00	

Client Sample ID: MW-1

Lab Sample ID: 500-172380-1

Date Collected: 10/23/19 11:00

Matrix: Water

Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.53**		0.50	0.15	ug/L			11/06/19 12:57	1
Ethylbenzene	**1.2**		0.50	0.18	ug/L			11/06/19 12:57	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 12:57	1
Naphthalene	**1.1**		1.0	0.34	ug/L			11/06/19 12:57	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 12:57	1
1,2,4-Trimethylbenzene	**1.5**		1.0	0.36	ug/L			11/06/19 12:57	1
1,3,5-Trimethylbenzene	**0.89**	**J**	1.0	0.25	ug/L			11/06/19 12:57	1
Xylenes, Total	**1.6**		1.0	0.22	ug/L			11/06/19 12:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*72 - 124*		*11/06/19 12:57*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 120*		*11/06/19 12:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 126*		*11/06/19 12:57*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*11/06/19 12:57*	*1*

Client Sample ID: MW-2P

Lab Sample ID: 500-172380-2

Date Collected: 10/23/19 09:30

Matrix: Water

Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**910**		10	3.7	ug/L			11/06/19 13:24	20
Methyl tert-butyl ether	<7.9		20	7.9	ug/L			11/06/19 13:24	20
Naphthalene	**170**		20	6.7	ug/L			11/06/19 13:24	20
Toluene	**430**		10	3.0	ug/L			11/06/19 13:24	20
1,2,4-Trimethylbenzene	**420**		20	7.2	ug/L			11/06/19 13:24	20
1,3,5-Trimethylbenzene	<5.1		20	5.1	ug/L			11/06/19 13:24	20
Xylenes, Total	**990**		20	4.4	ug/L			11/06/19 13:24	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*72 - 124*		*11/06/19 13:24*	*20*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*11/06/19 13:24*	*20*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 126*		*11/06/19 13:24*	*20*
Toluene-d8 (Surr)	*101*		*75 - 120*		*11/06/19 13:24*	*20*

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**13000**		100	29	ug/L			11/06/19 14:19	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*72 - 124*		*11/06/19 14:19*	*200*
Dibromofluoromethane (Surr)	*100*		*75 - 120*		*11/06/19 14:19*	*200*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*11/06/19 14:19*	*200*
Toluene-d8 (Surr)	*99*		*75 - 120*		*11/06/19 14:19*	*200*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-3D

Lab Sample ID: 500-172380-3

Date Collected: 10/23/19 10:00
Matrix: Water
Date Received: 10/25/19 09:00

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			11/06/19 15:14	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 15:14	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 15:14	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 15:14	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 15:14	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 15:14	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 15:14	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*72 - 124*		*11/06/19 15:14*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*11/06/19 15:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*11/06/19 15:14*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*11/06/19 15:14*	*1*

Client Sample ID: MW-4

Lab Sample ID: 500-172380-4

Date Collected: 10/23/19 10:30
Matrix: Water
Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1100**		5.0	1.5	ug/L			11/06/19 15:42	10
Ethylbenzene	**510**		5.0	1.8	ug/L			11/06/19 15:42	10
Methyl tert-butyl ether	<3.9		10	3.9	ug/L			11/06/19 15:42	10
Naphthalene	**660**		10	3.4	ug/L			11/06/19 15:42	10
Toluene	**110**		5.0	1.5	ug/L			11/06/19 15:42	10
Xylenes, Total	**1700**		10	2.2	ug/L			11/06/19 15:42	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*72 - 124*		*11/06/19 15:42*	*10*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*11/06/19 15:42*	*10*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*11/06/19 15:42*	*10*
Toluene-d8 (Surr)	*99*		*75 - 120*		*11/06/19 15:42*	*10*

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**2500**	**B**	50	18	ug/L			11/06/19 18:32	50
1,3,5-Trimethylbenzene	**2200**		50	13	ug/L			11/06/19 18:32	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*11/06/19 18:32*	*50*
Dibromofluoromethane (Surr)	*114*		*75 - 120*		*11/06/19 18:32*	*50*
1,2-Dichloroethane-d4 (Surr)	*119*		*75 - 126*		*11/06/19 18:32*	*50*
Toluene-d8 (Surr)	*92*		*75 - 120*		*11/06/19 18:32*	*50*

Client Sample ID: MW-4P

Date Collected: 10/23/19 10:45
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-5
Matrix: 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			11/06/19 19:00	1
Naphthalene	**190**	**B**	1.0	0.34	ug/L			11/06/19 19:00	1
Toluene	**63**		0.50	0.15	ug/L			11/06/19 19:00	1
1,2,4-Trimethylbenzene	**56**	**B**	1.0	0.36	ug/L			11/06/19 19:00	1
1,3,5-Trimethylbenzene	**2.4**		1.0	0.25	ug/L			11/06/19 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*11/06/19 19:00*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 120*		*11/06/19 19:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 126*		*11/06/19 19:00*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*11/06/19 19:00*	*1*

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**750**		5.0	1.5	ug/L			11/06/19 16:09	10
Ethylbenzene	**1200**		5.0	1.8	ug/L			11/06/19 16:09	10
Xylenes, Total	**190**		10	2.2	ug/L			11/06/19 16:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*72 - 124*		*11/06/19 16:09*	*10*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*11/06/19 16:09*	*10*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*11/06/19 16:09*	*10*
Toluene-d8 (Surr)	*97*		*75 - 120*		*11/06/19 16:09*	*10*

Client Sample ID: MW-6

Date Collected: 10/23/19 12:50
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-6
Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.8**		0.50	0.15	ug/L			11/06/19 17:03	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 17:03	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 17:03	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 17:03	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 17:03	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 17:03	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 17:03	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*72 - 124*		*11/06/19 17:03*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 120*		*11/06/19 17:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*11/06/19 17:03*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*11/06/19 17:03*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-6P

Lab Sample ID: 500-172380-7

Date Collected: 10/23/19 12:40

Matrix: Water

Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**5.2**		0.50	0.15	ug/L			11/06/19 17:31	1
Ethylbenzene	**3.8**		0.50	0.18	ug/L			11/06/19 17:31	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 17:31	1
Naphthalene	**4.3**		1.0	0.34	ug/L			11/06/19 17:31	1
Toluene	**0.28**	**J**	0.50	0.15	ug/L			11/06/19 17:31	1
1,2,4-Trimethylbenzene	**0.63**	**J**	1.0	0.36	ug/L			11/06/19 17:31	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 17:31	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*72 - 124*		*11/06/19 17:31*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*11/06/19 17:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*11/06/19 17:31*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 17:31*	*1*

Client Sample ID: MW-6D

Lab Sample ID: 500-172380-8

Date Collected: 10/23/19 12:30

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 17:58	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 17:58	1
Methyl tert-butyl ether	**0.79**	**J**	1.0	0.39	ug/L			11/06/19 17:58	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 17:58	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 17:58	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 17:58	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 17:58	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*72 - 124*		*11/06/19 17:58*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 120*		*11/06/19 17:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*11/06/19 17:58*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*11/06/19 17:58*	*1*

Client Sample ID: MW-7

Lab Sample ID: 500-172380-9

Date Collected: 10/23/19 11:30

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 18:25	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 18:25	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 18:25	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 18:25	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 18:25	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 18:25	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 18:25	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 18:25	1

Client Sample ID: MW-7

Lab Sample ID: 500-172380-9

Date Collected: 10/23/19 11:30

Matrix: Water

Date Received: 10/25/19 09:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		72 - 124		11/06/19 18:25	1
Dibromofluoromethane (Surr)	104		75 - 120		11/06/19 18:25	1
1,2-Dichloroethane-d4 (Surr)	99		75 - 126		11/06/19 18:25	1
Toluene-d8 (Surr)	95		75 - 120		11/06/19 18:25	1

Client Sample ID: MW-8P

Lab Sample ID: 500-172380-10

Date Collected: 10/23/19 11:15

Matrix: Water

Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**190**		0.50	0.18	ug/L			11/06/19 18:52	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 18:52	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 18:52	1
Toluene	**2.3**		0.50	0.15	ug/L			11/06/19 18:52	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 18:52	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 18:52	1
Xylenes, Total	**2.8**		1.0	0.22	ug/L			11/06/19 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		72 - 124		11/06/19 18:52	1
Dibromofluoromethane (Surr)	103		75 - 120		11/06/19 18:52	1
1,2-Dichloroethane-d4 (Surr)	97		75 - 126		11/06/19 18:52	1
Toluene-d8 (Surr)	97		75 - 120		11/06/19 18:52	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**300**		5.0	1.5	ug/L			11/06/19 21:58	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		72 - 124		11/06/19 21:58	10
Dibromofluoromethane (Surr)	90		75 - 120		11/06/19 21:58	10
1,2-Dichloroethane-d4 (Surr)	93		75 - 126		11/06/19 21:58	10
Toluene-d8 (Surr)	98		75 - 120		11/06/19 21:58	10

Client Sample ID: MW-9

Lab Sample ID: 500-172380-11

Date Collected: 10/23/19 09:15

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 19:20	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 19:20	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 19:20	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 19:20	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 19:20	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 19:20	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 19:20	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 19:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		72 - 124		11/06/19 19:20	1

Client Sample ID: MW-9

Lab Sample ID: 500-172380-11

Date Collected: 10/23/19 09:15

Matrix: Water

Date Received: 10/25/19 09:00

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*75 - 120*		*11/06/19 19:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*11/06/19 19:20*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 19:20*	*1*

Client Sample ID: MW-10

Lab Sample ID: 500-172380-12

Date Collected: 10/23/19 09:00

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 19:47	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 19:47	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 19:47	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 19:47	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 19:47	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 19:47	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 19:47	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*72 - 124*		*11/06/19 19:47*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 120*		*11/06/19 19:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*11/06/19 19:47*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 19:47*	*1*

Client Sample ID: MW-11

Lab Sample ID: 500-172380-13

Date Collected: 10/23/19 12:00

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 20:15	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 20:15	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 20:15	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 20:15	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 20:15	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 20:15	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 20:15	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 20:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*72 - 124*		*11/06/19 20:15*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 120*		*11/06/19 20:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*11/06/19 20:15*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 20:15*	*1*

Client Sample ID: MW-12P

Lab Sample ID: 500-172380-14

Date Collected: 10/23/19 12:15

Matrix: Water

Date Received: 10/25/19 09:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**180**		0.50	0.15	ug/L			11/06/19 20:42	1
Ethylbenzene	**1.8**		0.50	0.18	ug/L			11/06/19 20:42	1
Methyl tert-butyl ether	**12**		1.0	0.39	ug/L			11/06/19 20:42	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 20:42	1
Toluene	**0.85**		0.50	0.15	ug/L			11/06/19 20:42	1
1,2,4-Trimethylbenzene	**0.91**	**J**	1.0	0.36	ug/L			11/06/19 20:42	1
1,3,5-Trimethylbenzene	**0.70**	**J**	1.0	0.25	ug/L			11/06/19 20:42	1
Xylenes, Total	**1.4**		1.0	0.22	ug/L			11/06/19 20:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*72 - 124*		*11/06/19 20:42*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 120*		*11/06/19 20:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*11/06/19 20:42*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 20:42*	*1*

Client Sample ID: MW-12D

Lab Sample ID: 500-172380-15

Date Collected: 10/23/19 11:45

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 17:40	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 17:40	1
Methyl tert-butyl ether	**0.86**	**J**	1.0	0.39	ug/L			11/06/19 17:40	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 17:40	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 17:40	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 17:40	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 17:40	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*11/06/19 17:40*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 120*		*11/06/19 17:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*122*		*75 - 126*		*11/06/19 17:40*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*11/06/19 17:40*	*1*

Client Sample ID: MW-13

Lab Sample ID: 500-172380-16

Date Collected: 10/23/19 13:05

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 18:04	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 18:04	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 18:04	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 18:04	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 18:04	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 18:04	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 18:04	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 18:04	1

Client Sample ID: MW-13

Lab Sample ID: 500-172380-16

Date Collected: 10/23/19 13:05

Matrix: Water

Date Received: 10/25/19 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*11/06/19 18:04*	*1*
Dibromofluoromethane (Surr)	*107*		*75 - 120*		*11/06/19 18:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*123*		*75 - 126*		*11/06/19 18:04*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*11/06/19 18:04*	*1*

Client Sample ID: MW-13D

Lab Sample ID: 500-172380-17

Date Collected: 10/23/19 13:10

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 18:28	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 18:28	1
Methyl tert-butyl ether	**0.71**	**J**	1.0	0.39	ug/L			11/06/19 18:28	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 18:28	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 18:28	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 18:28	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 18:28	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*11/06/19 18:28*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 120*		*11/06/19 18:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*123*		*75 - 126*		*11/06/19 18:28*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*11/06/19 18:28*	*1*

Client Sample ID: Webster

Lab Sample ID: 500-172380-18

Date Collected: 10/23/19 10:15

Matrix: Water

Date Received: 10/25/19 09:00

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			11/06/19 18:52	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 18:52	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 18:52	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 18:52	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 18:52	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 18:52	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 18:52	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*		*11/06/19 18:52*	*1*
Dibromofluoromethane (Surr)	*112*		*75 - 120*		*11/06/19 18:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*123*		*75 - 126*		*11/06/19 18:52*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*11/06/19 18:52*	*1*

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: Witkowski

Date Collected: 10/23/19 13:00
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-19

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.94**	**F1**	0.50	0.15	ug/L			11/06/19 19:16	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 19:16	1
Methyl tert-butyl ether	**1.0**	**F1**	1.0	0.39	ug/L			11/06/19 19:16	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 19:16	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 19:16	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 19:16	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 19:16	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*		*11/06/19 19:16*	*1*
Dibromofluoromethane (Surr)	*112*		*75 - 120*		*11/06/19 19:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*126*		*75 - 126*		*11/06/19 19:16*	*1*
Toluene-d8 (Surr)	*103*		*75 - 120*		*11/06/19 19:16*	*1*

Definitions/Glossary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
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: 500-172380-1

GC/MS VOA

Analysis Batch: 513765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-172380-1	MW-1	Total/NA	Water	8260B	
500-172380-2	MW-2P	Total/NA	Water	8260B	
500-172380-2 - DL	MW-2P	Total/NA	Water	8260B	
500-172380-3	MW-3D	Total/NA	Water	8260B	
500-172380-4	MW-4	Total/NA	Water	8260B	
500-172380-5 - DL	MW-4P	Total/NA	Water	8260B	
500-172380-6	MW-6	Total/NA	Water	8260B	
500-172380-7	MW-6P	Total/NA	Water	8260B	
500-172380-8	MW-6D	Total/NA	Water	8260B	
500-172380-9	MW-7	Total/NA	Water	8260B	
500-172380-10	MW-8P	Total/NA	Water	8260B	
500-172380-11	MW-9	Total/NA	Water	8260B	
500-172380-12	MW-10	Total/NA	Water	8260B	
500-172380-13	MW-11	Total/NA	Water	8260B	
500-172380-14	MW-12P	Total/NA	Water	8260B	
MB 500-513765/7	Method Blank	Total/NA	Water	8260B	
LCS 500-513765/5	Lab Control Sample	Total/NA	Water	8260B	
500-172380-14 MS	MW-12P	Total/NA	Water	8260B	
500-172380-14 MSD	MW-12P	Total/NA	Water	8260B	

Analysis Batch: 513772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-172380-4 - DL	MW-4	Total/NA	Water	8260B	
500-172380-5	MW-4P	Total/NA	Water	8260B	
MB 500-513772/7	Method Blank	Total/NA	Water	8260B	
LCS 500-513772/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 513783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-172380-15	MW-12D	Total/NA	Water	8260B	
500-172380-16	MW-13	Total/NA	Water	8260B	
500-172380-17	MW-13D	Total/NA	Water	8260B	
500-172380-18	Webster	Total/NA	Water	8260B	
500-172380-19	Witkowski	Total/NA	Water	8260B	
MB 500-513783/6	Method Blank	Total/NA	Water	8260B	
LCS 500-513783/18	Lab Control Sample	Total/NA	Water	8260B	
500-172380-19 MS	Witkowski	Total/NA	Water	8260B	
500-172380-19 MSD	Witkowski	Total/NA	Water	8260B	

Analysis Batch: 513946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-172380-10 - DL	MW-8P	Total/NA	Water	8260B	
MB 500-513946/6	Method Blank	Total/NA	Water	8260B	
LCS 500-513946/4	Lab Control Sample	Total/NA	Water	8260B	

Surrogate Summary

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	BFB (72-124)	DBFM (75-120)	DCA (75-126)	TOL (75-120)
500-172380-1	MW-1	108	97	91	102
500-172380-2	MW-2P	107	98	91	101
500-172380-2 - DL	MW-2P	110	100	94	99
500-172380-3	MW-3D	109	102	95	99
500-172380-4	MW-4	96	98	95	99
500-172380-4 - DL	MW-4	95	114	119	92
500-172380-5 - DL	MW-4P	106	102	97	97
500-172380-5	MW-4P	95	105	108	95
500-172380-6	MW-6	112	103	99	97
500-172380-7	MW-6P	105	102	100	98
500-172380-8	MW-6D	111	101	97	96
500-172380-9	MW-7	109	104	99	95
500-172380-10	MW-8P	109	103	97	97
500-172380-10 - DL	MW-8P	108	90	93	98
500-172380-11	MW-9	115	103	102	98
500-172380-12	MW-10	112	104	98	98
500-172380-13	MW-11	111	103	100	98
500-172380-14	MW-12P	110	102	98	98
500-172380-14 MS	MW-12P	108	106	97	97
500-172380-14 MSD	MW-12P	107	106	97	96
500-172380-15	MW-12D	99	109	122	102
500-172380-16	MW-13	100	107	123	99
500-172380-17	MW-13D	100	109	123	100
500-172380-18	Webster	100	112	123	100
500-172380-19	Witkowski	102	112	126	103
500-172380-19 MS	Witkowski	102	111	124	103
500-172380-19 MSD	Witkowski	99	112	124	100
LCS 500-513765/5	Lab Control Sample	108	101	91	103
LCS 500-513772/4	Lab Control Sample	95	105	110	99
LCS 500-513783/18	Lab Control Sample	100	102	115	104
LCS 500-513946/4	Lab Control Sample	100	94	92	100
MB 500-513765/7	Method Blank	110	98	95	99
MB 500-513772/7	Method Blank	96	109	113	101
MB 500-513783/6	Method Blank	103	103	117	105
MB 500-513946/6	Method Blank	108	88	91	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)

Lab Sample ID: MB 500-513765/7
Matrix: Water
Analysis Batch: 513765

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			11/06/19 12:02	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 12:02	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 12:02	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 12:02	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 12:02	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 12:02	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 12:02	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 12:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*72 - 124*		*11/06/19 12:02*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 120*		*11/06/19 12:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*11/06/19 12:02*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*11/06/19 12:02*	*1*

Lab Sample ID: LCS 500-513765/5
Matrix: Water
Analysis Batch: 513765

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	50.9		ug/L		102	70 - 120
Ethylbenzene	50.0	51.0		ug/L		102	70 - 123
Methyl tert-butyl ether	50.0	46.6		ug/L		93	55 - 123
Naphthalene	50.0	49.1		ug/L		98	53 - 144
Toluene	50.0	47.0		ug/L		94	70 - 125
1,2,4-Trimethylbenzene	50.0	51.0		ug/L		102	70 - 123
1,3,5-Trimethylbenzene	50.0	51.5		ug/L		103	70 - 123
Xylenes, Total	100	92.9		ug/L		93	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*72 - 124*
Dibromofluoromethane (Surr)	*101*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 126*
Toluene-d8 (Surr)	*103*		*75 - 120*

Lab Sample ID: 500-172380-14 MS
Matrix: Water
Analysis Batch: 513765

Client Sample ID: MW-12P
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	180		50.0	232	E	ug/L		101	70 - 120
Ethylbenzene	1.8		50.0	54.1		ug/L		105	70 - 123
Methyl tert-butyl ether	12		50.0	66.7		ug/L		109	55 - 123
Naphthalene	<0.34		50.0	63.0		ug/L		126	53 - 144
Toluene	0.85		50.0	48.2		ug/L		95	70 - 125
1,2,4-Trimethylbenzene	0.91	J	50.0	55.6		ug/L		109	70 - 123
1,3,5-Trimethylbenzene	0.70	J	50.0	55.4		ug/L		109	70 - 123
Xylenes, Total	1.4		100	98.5		ug/L		97	70 - 125

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

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*108*		*72 - 124*
Dibromofluoromethane (Surr)	*106*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*
Toluene-d8 (Surr)	*97*		*75 - 120*

Lab Sample ID: 500-172380-14 MSD
Matrix: Water
Analysis Batch: 513765

Client Sample ID: MW-12P
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	180		50.0	233	E	ug/L		104	70 - 120	1	20
Ethylbenzene	1.8		50.0	55.5		ug/L		107	70 - 123	3	20
Methyl tert-butyl ether	12		50.0	66.5		ug/L		108	55 - 123	0	20
Naphthalene	<0.34		50.0	63.2		ug/L		126	53 - 144	0	20
Toluene	0.85		50.0	49.2		ug/L		97	70 - 125	2	20
1,2,4-Trimethylbenzene	0.91	J	50.0	56.2		ug/L		111	70 - 123	1	20
1,3,5-Trimethylbenzene	0.70	J	50.0	55.4		ug/L		109	70 - 123	0	20
Xylenes, Total	1.4		100	101		ug/L		100	70 - 125	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*107*		*72 - 124*
Dibromofluoromethane (Surr)	*106*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*
Toluene-d8 (Surr)	*96*		*75 - 120*

Lab Sample ID: MB 500-513772/7
Matrix: Water
Analysis Batch: 513772

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			11/06/19 10:38	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 10:38	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 10:38	1
Naphthalene	0.756	J	1.0	0.34	ug/L			11/06/19 10:38	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 10:38	1
1,2,4-Trimethylbenzene	0.631	J	1.0	0.36	ug/L			11/06/19 10:38	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 10:38	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 10:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*96*		*72 - 124*		*11/06/19 10:38*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 120*		*11/06/19 10:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 126*		*11/06/19 10:38*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*11/06/19 10:38*	*1*

Lab Sample ID: LCS 500-513772/4
Matrix: Water
Analysis Batch: 513772

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	49.4		ug/L		99	70 - 120		

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

Lab Sample ID: LCS 500-513772/4
Matrix: Water
Analysis Batch: 513772

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	50.7		ug/L		101	70 - 123
Methyl tert-butyl ether	50.0	58.7		ug/L		117	55 - 123
Naphthalene	50.0	46.0		ug/L		92	53 - 144
Toluene	50.0	51.9		ug/L		104	70 - 125
1,2,4-Trimethylbenzene	50.0	45.0		ug/L		90	70 - 123
1,3,5-Trimethylbenzene	50.0	43.8		ug/L		88	70 - 123
Xylenes, Total	100	108		ug/L		108	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*
Dibromofluoromethane (Surr)	*105*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*

Lab Sample ID: MB 500-513783/6
Matrix: Water
Analysis Batch: 513783

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			11/06/19 10:53	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 10:53	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 10:53	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 10:53	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 10:53	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 10:53	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 10:53	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 10:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*72 - 124*		*11/06/19 10:53*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 120*		*11/06/19 10:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*75 - 126*		*11/06/19 10:53*	*1*
Toluene-d8 (Surr)	*105*		*75 - 120*		*11/06/19 10:53*	*1*

Lab Sample ID: LCS 500-513783/18
Matrix: Water
Analysis Batch: 513783

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	54.1		ug/L		108	70 - 120
Ethylbenzene	50.0	54.6		ug/L		109	70 - 123
Methyl tert-butyl ether	50.0	55.1		ug/L		110	55 - 123
Naphthalene	50.0	47.2		ug/L		94	53 - 144
Toluene	50.0	53.9		ug/L		108	70 - 125
1,2,4-Trimethylbenzene	50.0	52.6		ug/L		105	70 - 123
1,3,5-Trimethylbenzene	50.0	53.2		ug/L		106	70 - 123
Xylenes, Total	100	113		ug/L		113	70 - 125

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

Lab Sample ID: LCS 500-513783/18
Matrix: Water
Analysis Batch: 513783

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*
Dibromofluoromethane (Surr)	*102*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 126*
Toluene-d8 (Surr)	*104*		*75 - 120*

Lab Sample ID: 500-172380-19 MS
Matrix: Water
Analysis Batch: 513783

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	0.94	F1	50.0	62.4	F1	ug/L		123	70 - 120
Ethylbenzene	<0.18		50.0	57.8		ug/L		116	70 - 123
Methyl tert-butyl ether	1.0	F1	50.0	68.0	F1	ug/L		134	55 - 123
Naphthalene	<0.34		50.0	55.4		ug/L		111	53 - 144
Toluene	<0.15		50.0	58.8		ug/L		118	70 - 125
1,2,4-Trimethylbenzene	<0.36		50.0	55.7		ug/L		111	70 - 123
1,3,5-Trimethylbenzene	<0.25		50.0	55.6		ug/L		111	70 - 123
Xylenes, Total	<0.22		100	124		ug/L		124	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*102*		*72 - 124*
Dibromofluoromethane (Surr)	*111*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*124*		*75 - 126*
Toluene-d8 (Surr)	*103*		*75 - 120*

Lab Sample ID: 500-172380-19 MSD
Matrix: Water
Analysis Batch: 513783

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	0.94	F1	50.0	62.4	F1	ug/L		123	70 - 120	0	20
Ethylbenzene	<0.18		50.0	57.9		ug/L		116	70 - 123	0	20
Methyl tert-butyl ether	1.0	F1	50.0	70.9	F1	ug/L		140	55 - 123	4	20
Naphthalene	<0.34		50.0	50.8		ug/L		102	53 - 144	9	20
Toluene	<0.15		50.0	59.0		ug/L		118	70 - 125	0	20
1,2,4-Trimethylbenzene	<0.36		50.0	55.5		ug/L		111	70 - 123	0	20
1,3,5-Trimethylbenzene	<0.25		50.0	54.0		ug/L		108	70 - 123	3	20
Xylenes, Total	<0.22		100	121		ug/L		121	70 - 125	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*
Dibromofluoromethane (Surr)	*112*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*124*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*

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

Lab Sample ID: MB 500-513946/6
Matrix: Water
Analysis Batch: 513946

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			11/06/19 21:32	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/06/19 21:32	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			11/06/19 21:32	1
Naphthalene	<0.34		1.0	0.34	ug/L			11/06/19 21:32	1
Toluene	<0.15		0.50	0.15	ug/L			11/06/19 21:32	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			11/06/19 21:32	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			11/06/19 21:32	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/06/19 21:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*72 - 124*		*11/06/19 21:32*	*1*
Dibromofluoromethane (Surr)	*88*		*75 - 120*		*11/06/19 21:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 126*		*11/06/19 21:32*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*11/06/19 21:32*	*1*

Lab Sample ID: LCS 500-513946/4
Matrix: Water
Analysis Batch: 513946

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	43.6		ug/L		87	70 - 120
Ethylbenzene	50.0	46.2		ug/L		92	70 - 123
Methyl tert-butyl ether	50.0	39.6		ug/L		79	55 - 123
Naphthalene	50.0	43.5		ug/L		87	53 - 144
Toluene	50.0	45.0		ug/L		90	70 - 125
1,2,4-Trimethylbenzene	50.0	43.6		ug/L		87	70 - 123
1,3,5-Trimethylbenzene	50.0	44.5		ug/L		89	70 - 123
Xylenes, Total	100	85.9		ug/L		86	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*72 - 124*
Dibromofluoromethane (Surr)	*94*		*75 - 120*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-1
Date Collected: 10/23/19 11:00
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 12:57	STW	TAL CHI

Client Sample ID: MW-2P
Date Collected: 10/23/19 09:30
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	513765	11/06/19 13:24	STW	TAL CHI
Total/NA	Analysis	8260B	DL	200	513765	11/06/19 14:19	STW	TAL CHI

Client Sample ID: MW-3D
Date Collected: 10/23/19 10:00
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 15:14	STW	TAL CHI

Client Sample ID: MW-4
Date Collected: 10/23/19 10:30
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	513765	11/06/19 15:42	STW	TAL CHI
Total/NA	Analysis	8260B	DL	50	513772	11/06/19 18:32	EMA	TAL CHI

Client Sample ID: MW-4P
Date Collected: 10/23/19 10:45
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	10	513765	11/06/19 16:09	STW	TAL CHI
Total/NA	Analysis	8260B		1	513772	11/06/19 19:00	EMA	TAL CHI

Client Sample ID: MW-6
Date Collected: 10/23/19 12:50
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 17:03	STW	TAL CHI

Client Sample ID: MW-6P
Date Collected: 10/23/19 12:40
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 17:31	STW	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-6D
Lab Sample ID: 500-172380-8
Date Collected: 10/23/19 12:30
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 17:58	STW	TAL CHI

Client Sample ID: MW-7
Lab Sample ID: 500-172380-9
Date Collected: 10/23/19 11:30
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 18:25	STW	TAL CHI

Client Sample ID: MW-8P
Lab Sample ID: 500-172380-10
Date Collected: 10/23/19 11:15
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 18:52	STW	TAL CHI
Total/NA	Analysis	8260B	DL	10	513946	11/06/19 21:58	EMA	TAL CHI

Client Sample ID: MW-9
Lab Sample ID: 500-172380-11
Date Collected: 10/23/19 09:15
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 19:20	STW	TAL CHI

Client Sample ID: MW-10
Lab Sample ID: 500-172380-12
Date Collected: 10/23/19 09:00
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 19:47	STW	TAL CHI

Client Sample ID: MW-11
Lab Sample ID: 500-172380-13
Date Collected: 10/23/19 12:00
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 20:15	STW	TAL CHI

Client Sample ID: MW-12P
Lab Sample ID: 500-172380-14
Date Collected: 10/23/19 12:15
Matrix: Water
Date Received: 10/25/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513765	11/06/19 20:42	STW	TAL CHI

Lab Chronicle

Client: Cedar Corporation
Project/Site: Olson Corners

Job ID: 500-172380-1

Client Sample ID: MW-12D
Date Collected: 10/23/19 11:45
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513783	11/06/19 17:40	EMA	TAL CHI

Client Sample ID: MW-13
Date Collected: 10/23/19 13:05
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513783	11/06/19 18:04	EMA	TAL CHI

Client Sample ID: MW-13D
Date Collected: 10/23/19 13:10
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513783	11/06/19 18:28	EMA	TAL CHI

Client Sample ID: Webster
Date Collected: 10/23/19 10:15
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513783	11/06/19 18:52	EMA	TAL CHI

Client Sample ID: Witkowski
Date Collected: 10/23/19 13:00
Date Received: 10/25/19 09:00

Lab Sample ID: 500-172380-19
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	513783	11/06/19 19:16	EMA	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: 500-172380-1

Laboratory: Eurofins TestAmerica, Chicago

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

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 6048
Phone: 708.534.5200 Fax: 708.534.5

500-172380 COC

Report To (optional)
Contact: Mitch Evenson + Anna Beckman
Company:
Address:
Address:
Phone:
Fax:
E-Mail:

Bill To (optional)
Contact:
Company:
Address:
Address:
Phone:
Fax:
PO#/Reference#

Chain of Custody Record

Lab Job #: 500-172380

Chain of Custody Number:

Page 1 of 2

Temperature °C of Cooler: 1.9

Client: Cedar Corp
Client Project #:
Project Name: Olson Corners
Project Location/State: Hannibal, WI
Lab Project #:
Sampler: AMB
Lab PM: Sandie Fredrick

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	PVOC's + Naphthalene	Comments
1		MW-1	10/23	1100	3	W	X	
2		MW-2P	↓	0930	↓	↓	↓	
3		MW-3D	↓	1000	↓	↓	↓	
4		MW-4	↓	1030	↓	↓	↓	
5		MW-4P	↓	1045	↓	↓	↓	
6		MW-6	↓	1250	↓	↓	↓	
7		MW-6P	↓	1240	↓	↓	↓	
8		MW-6D	↓	1230	↓	↓	↓	
9		MW-7	↓	1130	↓	↓	↓	
10		MW-8P	↓	1115	↓	↓	↓	

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days ______ Other
Requested Due Date ________

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	10/24/19	0730	[signature]	TA-CHI	10/25/19	0900

Lab Courier:
Shipped: FedEx
Hand Delivered:

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments: PECFA Pricing

Lab Comments:

TAL-4124-500 (1209)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: 500-172380

Chain of Custody Number:

Page 2 of 2

Temperature °C of Cooler:

(optional) Report To	(optional) Bill To
Contact: Mitch Evenson & Anna Beckman	Contact:
Company:	Company:
Address:	Address:
Address:	Address:
Phone:	Phone:
Fax:	Fax:
E-Mail:	PO#/Reference#

Client	Client Project #	Preservative
Cedar Corp		
Project Name		Parameter
Olson Comers		
Project Location/State	Lab Project #	
Hannibal, WI		
Sampler	Lab PM	
AMB	Sandie Fredrick	

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	PFOCS + Naphthalene	Comments
11		mw-9	10/23	0915	3	W	X	
12		mw-10		0900				
13		mw-11		1200				
14		mw-12P		1215				
15		mw-12D		1145				
16		mw-13		1305				
17		mw-13D		1310				
18		Webster		1015				
19		Witkowski		1300				

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

Sample Disposal
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Anna Beckman	Cedar	10/24/19	0730	[illegible]	TA-ORL	10/25/19	0900
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped Fed Ex
Hand Delivered

Matrix Key
WW – Wastewater
W – Water
S – Soil
SL – Sludge
MS – Miscellaneous
OL – Oil
A – Air
SE – Sediment
SO – Soil
L – Leachate
WI – Wipe
DW – Drinking Water
O – Other

Client Comments
PFCFA Pricing

Lab Comments:

Login Sample Receipt Checklist

Client: Cedar Corporation

Job Number: 500-172380-1

Login Number: 172380
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	