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BARR

February 26, 2021

Mr. John Sager
Wisconsin Department of Natural Resources
1701 North 4th Street
Superior, WI 54880

Re: 2020 Remediation Progress Report for Murphy Oil Tank 40 Release Site
Superior Refining Company LLC Refinery, Superior, WI
WDNR BRRTS# 02-16-222712
Facility ID: 816009590

Dear John:

On behalf of Superior Refining Company LLC (SRC), Barr Engineering Co. (Barr) is submitting this remediation progress report for the Murphy Oil Tank 40 Basin release site (Tank 40) at the SRC refinery in Superior, Wisconsin. Periodic site progress reporting to the Wisconsin Department of Natural Resources (WDNR) is required pursuant to ss. NR 700.11(1) and 724.13(3), Wisconsin Administrative Code. This report summarizes monitoring activities conducted at the site in 2020.

1.0 Facility and Site Background Information

Figure 1 shows the location of Tank 40 within the refinery, the approximate property boundary of the refinery, and the area surrounding the refinery. Figure 2 presents the site layout of Tank 40 which is located in the SW ¼ of the SW ¼ of Section 25, Township 49 North, Range 14 West, Superior Township of Douglas County, Wisconsin.

The closest surface water to Tank 40 is Newton Creek, located approximately 2,000 feet east of the Tank 40 basin (Figure 1). The Tank 40 basin is located in the central area of the refinery which is relatively flat. The basin's ground surface is unpaved and is underlain by native clay. The average depth to groundwater in the Tank 40 monitoring wells is 3 to 4 feet below ground surface (bgs) depending on time of year. The regional groundwater flow direction below the refinery and across the Tank 40 site is toward the east (Figure 2).

As presented in the April 2014 Gannett Fleming, Inc. (GF) *Final Memorandum of Agreement, Site Investigation and Remedial Action* Plan (GF, 2014), the hydraulic conductivity of the native clay underlying the refinery is on the order of 1×10^{-7} centimeters per second (cm/sec). Assuming a horizontal hydraulic gradient of 0.003 feet per foot eastward and an effective porosity of 0.06, the estimated horizontal groundwater flow velocity at the refinery is approximately 0.01 foot per year (ft/yr) (GF, 2014).

In October 2011, Calumet Superior LLC (Calumet) acquired the refinery from Murphy Oil. In November 2017, Husky Superior Refining Holding Corp. (Husky Superior) purchased Calumet and changed its legal name to Superior Refining Company LLC. In January 2021, Husky and Cenovus Energy Inc. (Cenovus) merged to become Cenovus, however the legal name of the refinery will remain unchanged.

2.0 Tank 40 Basin Release Site Investigation and Remediation Summary

On October 17, 1998, approximately 2,300 gallons of "straight-run" gasoline were released in the Tank 40 basin. Murphy Oil notified the WDNR of the release in a letter dated December 2, 1998. At the time of the spill, the diked area was full of storm water, and the released gasoline floated on top of the storm water within the diked area. A vacuum truck was used to recover storm water and residual product from the diked area. These liquids were placed in Murphy Oil's No. 1 American Petroleum Institute (API) oil/water separator for recovery of the gasoline. As a safety precaution, the affected area was washed with water, and the wash water also was removed with a vacuum truck and placed in the API separator. Following the release and immediate response actions, multiple phases of investigation were completed including soil borings and the installation of monitoring wells, monitoring points, test pits, and recovery sumps. Currently, long-term groundwater monitoring is being conducted at the site as well as product gauging and passive recovery. This report presents monitoring and product gauging data for 2020.

As described in previous reports, measurable product has been encountered in the monitoring wells associated with the Tank 40 basin on multiple occasions. Free product was initially encountered in the basin in July 2000. Since then, the monitoring network in the Tank 40 basin (monitoring wells MW-1/T40, MW-2/T40, and MW-4/T40 through MW-7/T40; monitoring points MP-1/T40 through MP-3/T40, and test pit sump TP-1/T40; and an interceptor trench with a sump TS-1/T40) have been routinely monitored for the presence of product (Figure 2). Field notes for 2020 indicate that, periodically, monitoring point MP-2/T40 was dry and that a gauging measurement could not be obtained. If present, product was removed and sent through the refinery's No. 1 API oil/water separator. Separated oil was stored for use at the refinery and the water was treated at the on-site wastewater treatment plant (WWTP). Monitoring well MW-3/T40 was abandoned in July 2007 (GF, 2019).

Research conducted by the API and published in a 2004 document titled, "*API Interactive LNAPL Guide, Version 2.0*", found that periodic manual removal of product is most appropriate for low permeability aquifers (hydraulic conductivity < 1×10^{-5} cm/sec). The hydraulic conductivity of the native clay underlying the refinery is on the order of 1×10^{-7} cm/sec, as described in the previous section of this letter report (GF, 2014).

Based on the recommendations included in the API Interactive LNAPL Guide document, product has been manually bailed when observed in a monitoring well. The API Interactive LNAPL Guide also states that product preferentially accumulates in wells when the potentiometric surface is low. This occurs because, as the potentiometric surface drops, product that remains above the water level will drain downward into the well. As the potentiometric surface rises, the product becomes submerged and trapped in the soil pores and subsequently will not accumulate in the well. To take advantage of this apparent pattern, the wells located in the basin were purged dry following each depth to product or groundwater measurement event to promote the accumulation of product. Recovered product and purged water are separated and stored or sent through the refinery's No. 1 API oil/water separator and on-site WWTP as described above (GF, 2019).

Based on the consistent and relatively widespread presence of product in the basin between July 2000 and July 2003, an interceptor trench was installed in August 2003 (GF, 2019). The 100-foot long interceptor trench was installed near the downgradient edge of apparent free product. Each end of the 8-

to 8.5-foot-deep trench slopes toward its middle, and a 6-inch diameter recovery trench sump (TS-1/T40) was installed in the middle of the trench (Figure 2). Since the native clay surrounding this trench has a low permeability, the interceptor trench fills relatively slowly (GF, 2019).

Between June 2004 and April 2010, recovery trench sump TS-1/T40 was periodically pumped, and approximately 187,000 gallons of gasoline-contaminated groundwater were recovered. The pumped water was treated in the refinery's No. 1 API separator/WWTP. The goal was to keep the water level in the trench relatively low to promote the flow of petroleum-contaminated groundwater and product into the trench. Since the trench was installed in August 2003, no measurable product, only petroleum-contaminated groundwater, has accumulated in TS-1/T40. As a result, no further pumping of the recovery trench sump is currently planned unless product accumulates in TS-1/T40, as described in the Future Work section of this report.

3.0 Remedial and Monitoring Activities in 2020

Year-round access to wells, monitoring points, and sumps at the refinery is not practical because of relatively shallow groundwater, cold weather, and snow. When conditions allow access, water and product levels are monitored monthly. If product is encountered, the product is removed and sent through the refinery's No. 1 API oil/water separator. Separated oil is stored for use at the refinery and the water is treated at the on-site WWTP.

Monitoring wells and recovery sump TS-1/T40 are gauged, purged and sampled in spring and fall (typically April /May and September/October). Monitoring wells, monitoring points and sumps are routinely checked for the presence of product and, if encountered, the product is removed from the well, point, or sump by bailing.

Since the most recent remediation progress report was submitted to the WDNR on November 26, 2019 (GF, 2019), work at Tank 40 has included the gauging of water and product levels in associated site monitoring wells, monitoring points, test pit sump, and recovery trench sump and the collection of groundwater samples from select locations. Monitoring and sampling activities conducted in 2020 are summarized in Table 1.

3.1 Product Recovery

During the reporting period, measurable product was not encountered in the monitoring wells, monitoring points, test pit sump, or recovery trench sump. As established in the 2019 report (GF, 2019), if free product is not observed during the April/May gauging event, the wells, points, and sumps are then checked quarterly (rather than monthly) through the October sampling event.

SRC will continue to check for free product, but for all practical purposes, free product likely has been recovered to the extent practical from the Tank 40 basin.

3.2 Groundwater Sampling and Results

Groundwater samples were collected by Barr and Insight Environmental (Insight) field staff at the site in May and October 2020. Each well was purged dry twice and allowed to recover for at least 14 days between purge events and prior to the collection of the samples. Routine sampling of monitoring wells MW-1/T40, MW-2/T40, and MW-4/T40 through MW-7/T40 was conducted on May 27, 2020 and October

6, 2020. The collection of groundwater samples from recovery trench sump TS-1/T40 was inadvertently omitted during the 2020 groundwater sampling events; sampling of TS-1/T40 will be resumed in 2021. Field staff used a new one-time-use polyethylene disposable bailer with new nylon rope to collect each groundwater sample. The May 2020 groundwater samples were sent to Pace Analytical (Pace) in Green Bay, Wisconsin (Wisconsin laboratory certification #405132750) and the October 2020 samples were sent to Pace in Minneapolis, Minnesota (Wisconsin laboratory certification #999407970); samples were analyzed for petroleum volatile organic compounds (PVOCs) using Method 8260B. The PVOC analyte list consisted of benzene, toluene, ethylbenzene, and xylenes (BTEX); 1,2,4- and 1,3,5-trimethylbenzene (TMB); and methyl-tert-butyl ether (MTBE).

Table 2 presents the analytical results of the groundwater samples compared to the NR 140 Preventative Action Limits (PAL) and Enforcement Standards (ES). The TMB results presented on Table 2 are a sum of the concentrations of 1,2,4-TMB and 1,3,5-TMB. As shown in Table 2:

- Samples from the six monitored wells collected in May and October 2020 contained one or more PVOCs at concentrations equal to or greater than NR 140 ESs.
- Historically, samples collected from the monitoring wells and recovery trench sump contained one or more PVOC compounds at a concentration at or above its applicable NR 140 ES.
- Because of the removal of accumulated free product over the years, PVOC concentrations in the wells have been stable or decreasing. Figure 3 presents trend analysis plots for benzene concentrations in groundwater samples from MW-1/T40, MW-4/T40, MW-5/T40, MW-6/T40, and MW-7/T40. Note that the plotted data for each well only includes the time period since: a) free product was most recently removed; and b) samples were collected at least once per year. The best-fit exponential trend lines were generated using a scatter plot chart. As shown on Figure 3, dissolved-phase benzene concentrations in the wells have followed a general downward trend.

Attachment A provides copies of the laboratory reports and chain of custody records for the groundwater samples collected in 2020.

Historically, a groundwater contour map for the Tank 40 release site has not been prepared because groundwater levels in the wells either are influenced by local surface/melt water in the spring or typically do not have sufficient time to reach static levels after they are purged dry later in the year. Consequently, a groundwater contour map representing static conditions for the Tank 40 site has not been created. However, the regional groundwater flow direction in the vicinity of the Tank 40 site is to the east (GF, 2014) (Figure 2).

4.0 Future Work

SRC's work plan for 2021 is as follows:

- Assess the condition of monitoring point MP-2/T40 which was dry or potentially obstructed during the fall 2020 gauging event.
- Continue to check for, and if present, manually bail product monthly (as conditions allow) from the six monitoring wells (MW-1/T40, MW-2/T40, and MW-4/T40 through MW-7/T40), three monitoring points (MP-1/T40 through MP-3/T40), test pit sump (TP-1/T40) and recovery trench sump (TS-1/T40). If, however, product is not observed during the spring gauging event, as was

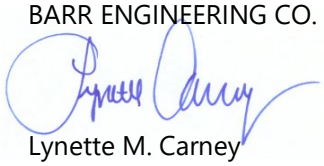
the case in 2019 and 2020, these wells, point, and sumps will only be checked quarterly. If product is observed in TS-1/T40, the recovery trench sump will be pumped out using an on-site vacuum truck. Any purged product/water will continue to be separated and stored or sent through the refinery's No. 1 API oil/water separator and on-site WWTP.

- Collect biannual (spring and fall) groundwater samples from monitoring wells and the recovery trench sump TS-1/T40 when free product is not observed, and have the samples analyzed for PVOCs by a Wisconsin-certified laboratory using EPA Method 8260B. Each monitoring well (but not TS-1/T40) will be purged dry twice and allowed to recover for at least 14 days prior to the collection of samples.
- Report the results of groundwater sample analysis, as well as the results of the recovery of product, in a remediation progress report to the WDNR by the end of January 2022. If product is not encountered in any of the wells in 2021, and decreasing trends in contaminant concentrations continue, a site closure request may be prepared for WDNR review and approval.

Feel free to contact Matt Turner at SRC and/or me if you have any comments, questions, or need additional information.

Sincerely,

BARR ENGINEERING CO.



Lynette M. Carney
Project Manager

cc: Matt Turner (SRC)

Tables

Table 1 2020 Fluid Level Monitoring Data
Table 2 Groundwater Analytical Results for GRO and Detected VOCs

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Figure 1 Site Location Map
Figure 2 Tank 40 Area Site Layout
Figure 3 Benzene Groundwater Concentrations vs. Time,
MW-1/T40, MW-4/T40, MW-5/T40, MW-6/T40, and MW-7/T40

Attachments

Attachment A Pace Analytical Laboratory Reports

References

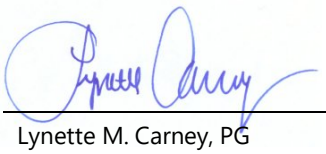
Gannett Fleming, Inc. (GF), 2014. *Final Memorandum of Agreement, Site Investigation and Remedial Action Plan, Superior Refinery, Superior, Wisconsin, WDNR BRRTS# 02-16-559511*. April 2014.

GF, 2019. *2019 Remediation Progress Report for Tank 40 Release Site, Superior Refining Company LLC Refinery, Superior, WI, WDNR BRRTS# 02-16-222712 and Facility ID: 816009590*. November 26, 2019.

Wisconsin Department of Natural Resources, 2020. *Reminder to Include Evaluation of Emerging Contaminants in Site Investigation, Murphy Oil – Tank #40, 2407 Stinson Ave, BRRTS# 02-16-222712*. Letter to Husky Energy dated August 17, 2020.

CERTIFICATIONS

"I, Lynette M. Carney, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code; and that, to the best of my knowledge, all of the information contained in this document is correct, and the document was prepared in compliance with all applicable requirements in Chapters NR 700 to 726, Wis. Adm. Code."



Lynette M. Carney, PG
Reg #: 1138

2/26/2021
Date

Tables

Superior Refining Company LLC
Superior, Wisconsin
Table 1
2020 Fluid Level Monitoring Data for the October 1998 Tank 40 Release Site (1)

Date	MP-1/T40		MP-2/T40		MP-3/T40		MW-1/T40		MW-2/T40		MW-4/T40		MW-5/T40		MW-6/T40		MW-7/T40		TP-1/T40		TS-1/T40		Comments/ Footnotes
	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	
	Depth to Fluid from Top of Casing (feet)																						
04/28/20	--	5.21	--	6.85	nm	nm	--	4.20	--	3.32	--	4.60	--	3.61	--	3.76	--	4.11	--	4.92	--	3.33	(2)
05/05/20	nm	nm	nm	nm	--	6.99	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	(2)
05/12/20	--	4.32	--	6.27	--	7.46	--	4.98	--	3.29	--	5.31	--	4.20	--	4.35	--	4.02	--	6.31	--	4.15	(2)
05/27/20	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	(3)
07/16/20	--	6.09	nm	nm	--	8.62	--	5.98	--	4.73	--	6.19	--	4.63	--	4.86	--	5.42	--	5.69	--	4.93	(4)
09/10/20	--	5.87	--	6.64	--	7.38	--	5.83	--	3.87	--	5.98	--	4.08	--	3.79	--	4.54	--	5.74	--	4.59	(2)
09/22/20	--	6.25	nm	nm	--	8.06	--	8.00	--	7.10	--	7.12	--	6.92	--	7.05	--	7.18	--	6.28	--	4.95	(2)
10/06/20	--	6.55	nm	nm	--	8.28	--	8.70	--	7.39	--	8.37	--	7.49	--	8.20	--	8.04	--	6.25	--	5.00	(3)

NOTES:

DTP = Depth to product.

DTW = Depth to water.

nm = Not measured.

-- = Not applicable/no free product.

FOOTNOTES:

(1) Table does not include data from MW-5/T40 when that well was gauged for Environmental Repair Program (ERP) monitoring.

(2) Bailed the monitoring wells (MWs) dry in preparation for sampling.

(3) Sampled the MWs (see Table 2 for summary of analytical results).

(4) Free product check

Superior Refining Company LLC
Superior, Wisconsin
Table 2
Groundwater Analytical Results for GRO and Detected VOCs - October 1998 Tank 40 Release Site

Well ID / Date	Substance Concentration (µg/ℓ) and Results Qualifier (if any)								
	GRO	**Benzene**	**Ethylbenzene**	**Toluene**	**Xylenes**	**TMBs**	**MTBE**	**Isopropyl-benzene**	**n-Propyl-benzene**
NR 140 PAL	NS	*0.5*	*140*	*160*	*400*	*96*	*12*	NS	NS
NR 140 ES	NS	**5**	**700**	**800**	**2,000**	**480**	60	NS	NS
MW-1/T40									
10/6/1999	8180	***445***	*206*	***961***	***2850***	***525***	< 6.0	36.2	< 15.0
12/9/1999	8860	***433***	*293*	*402*	***3170***	***2677***	< 6.0	na	na
3/9/2000	15000	***1700***	***720***	***1400***	***5800***	***1170***	< 16	na	na
6/14/2000	21000	***2400***	*570*	***2100***	***6900***	***1620***	< 24	na	na
9/12/2000	32000	***2100***	***850***	***1000***	***5500***	***1180***	< 24	na	na
3/21/2001	20000	***2700***	***890***	***860***	***7100***	***1520***	< 24	na	na
3/6/2002	10000	***2000***	*500*	140	***5200***	***1200***	< 10	na	na
9/12/2002	14000	***1600***	***710***	32	***4210***	***1170***	< 4.3	na	na
3/12/2003	FP	FP	FP	FP	FP	FP	FP	FP	FP
9/30/2004	23000	***3200***	***1400***	***2800***	***6700***	***1280***	< 9.0	na	na
5/26/2005	25100	***3340***	***1600***	***2620***	***8370***	***1705***	< 30.0	na	na
11/9/2005	18200	***3170***	***1350***	***1780***	***8560***	***1605***	< 30.0	na	na
5/10/2006	20500	***3750***	***1290***	***1500***	***8190***	***1674***	< 15.0	na	na
11/16/2006	25800	***2730***	***1670***	***2200***	***7900***	***1557***	< 30.0	na	na
5/23/2007	16700	***2260***	***706***	*756*	***5350***	***1385***	< 15.0	na	na
11/15/2007	22500	***2100***	***1220***	*621*	***6740***	***1897***	< 60.0	na	na
5/27/2008	22400	***3410***	***1270***	*763*	***7700***	***1614***	< 60.0	na	na
11/24/2008	16600	***1990***	***882***	*401*	***5760***	***1543***	< 30.0	na	na
5/27/2009	19700	***3340***	***1510***	*361*	***7870***	***1703***	< 30.0	na	na
11/23/2009	8720	***1040***	*377*	66.0	***3264***	***791***	< 6.00	na	na
5/19/2010	10400	***1460***	*642*	44.8 J	***3644***	***845***	< 15.0	na	na
10/21/2010	15000	***2040***	***817***	23.8 J	***5391***	***1396***	< 15.0	na	na
6/16/2011	na	***1640***	***742***	< 20.0	***4067***	***837***	< 25.0	na	na
10/25/2011	na	***1720***	*684*	< 20.0	***4646***	***1198***	< 25.0	na	na
5/16/2012	na	***2030***	***868***	< 13.4	***5088***	***1377***	< 12.2	na	na
8/21/2013	na	***2110***	***1050***	< 8.8	***5499***	***1769***	< 9.9	na	na
6/24/2014	na	***466***	83.9	< 5.0	*1797.3*	***779***	< 1.7	na	na
10/21/2014	na	***438***	6.1	< 2.5	***2406***	***901***	< 0.87	na	na
6/23/2015	na	***1530***	*480*	< 5.0	***3996***	***1105***	< 1.7	na	na
10/6/2015	na	*0.51* J	0.79 J	1.4	8.51 J	*123.0*	< 0.17	na	na
5/24/2016	na	***2520***	***1030***	< 10.0	***5744***	***1189***	< 3.5	na	na
10/5/2016	na	***163***	7.5 J	< 5.0	*1003.1*	*312.9*	< 1.7	na	na
5/16/2017	na	***1790***	***815***	< 12.5	***5250***	***1252***	< 4.4	na	na
10/25/2017	na	***616***	27.0	< 12.5	***2094.3***	***569***	< 4.4	na	na
6/12/2018	na	***1240***	*405*	< 10.0	***3616.2***	***1106***	< 3.5	na	na
10/9/2018	na	***48.7***	0.79 J	0.86 J	374.3	*183.9*	< 1.2	na	na
5/21/2019	na	***374***	103	0.61 J	*1179.8*	*426*	< 1.2	na	na
10/9/2019	na	***100***	1.2	0.55 J	317.2	*133.5*	< 1.2	na	na
5/27/2020	na	***152*** J-	64.1	< 0.67	311	*125*	< 3.1	na	na
10/6/2020	na	***1460***	*613*	1.8	***4900***	***1544***	< 0.12	na	na
MW-2/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	FP	FP	FP	FP	FP	FP	FP	FP	FP
thru	FP	FP	FP	FP	FP	FP	FP	FP	FP
9/30/2004	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/26/2005	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/9/2005	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/16/2006	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/23/2007	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/15/2007	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/27/2008	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/24/2008	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/27/2009	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/23/2009	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/19/2010	FP	FP	FP	FP	FP	FP	FP	FP	FP

Superior Refining Company LLC
Superior, Wisconsin
Table 2
Groundwater Analytical Results for GRO and Detected VOCs - October 1998 Tank 40 Release Site

Well ID / Date	Substance Concentration (µg/ℓ) and Results Qualifier (if any)								
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	n-Propyl-benzene
NR 140 PAL	NS	*0.5*	*140*	*160*	*400*	*96*	*12*	NS	NS
NR 140 ES	NS	**5**	**700**	**800**	**2,000**	**480**	60	NS	NS
10/21/2010	FP	FP	FP	FP	FP	FP	FP	FP	FP
6/16/2011	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/25/2011	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/16/2012	FP	FP	FP	FP	FP	FP	FP	FP	FP
8/21/2013	na	***13400***	***3190***	***13100***	***12460***	***2599***	< 49.4	na	na
6/24/2014	na	***12000***	***2000***	***10100***	***9370***	***1375***	< 21.8	na	na
10/21/2014	FP	FP	FP	FP	FP	FP	FP	FP	FP
6/23/2015	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/6/2015	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/24/2016	na	***15300***	***1740***	***7970***	***8770***	***1374***	< 17.4	na	na
10/5/2016	na	***6870***	***899***	***4330***	***9840***	***2186***	< 8.7	na	na
5/16/2017	na	***11500***	***1640***	***4730***	***10470***	***1392***	< 17.4	na	na
10/25/2017	FP	FP	FP	FP	FP	FP	FP	FP	FP
6/12/2018	na	***10400***	***1570***	***2080***	***9920***	***1635***	< 21.8	na	na
10/9/2018	na	***8450***	***1280***	***1130***	***9980***	***1349*** J	< 156	na	na
5/21/2019	na	***12100***	***1710***	*661*	***10300***	***1473*** J	< 156	na	na
10/9/2019	na	***10600***	***1670***	*464* J	***8910***	***1445*** J	< 156	na	na
5/27/2020	na	***9940***	***1230***	*166*	***8470***	***1544***	< 125	na	na
10/6/2020	na	***10100***	***1700***	128	***9420***	***1562***	< 1.2	na	na
MW-3/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	FP	FP	FP	FP	FP	FP	FP	FP	FP
3/12/2003	FP	FP	FP	FP	FP	FP	FP	FP	FP
9/30/2004	Well was not available for monitoring due to construction activities and was subseqently abandoned in July 2007								
MW-4/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	42000	***19000***	***1300***	***6200***	***4500***	***760***	< 110	< 82	< 120
3/12/2003	FP	FP	FP	FP	FP	FP	FP	FP	FP
9/30/2004	FP	FP	FP	FP	FP	FP	FP	FP	FP
5/26/2005	64300	***20500***	***2010***	***11900***	***9360***	***1581***	< 150	na	na
11/9/2005	66600	***17000***	***1620***	***9190***	***10710***	***3017***	< 300	na	na
5/10/2006	62000	***24900***	***2020***	***12100***	***9160***	***1780***	< 60.0	na	na
11/16/2006	52100	***20900***	***1450***	***8680***	***7970***	***1462***	< 15.0	na	na
5/23/2007	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/15/2007	50200	***16000***	***1810***	***7720***	***7220***	***1519***	< 75.0	na	na
5/27/2008	62100	***23200***	***2100***	***10400***	***9940***	***2067***	< 75.0	na	na
11/24/2008	51100	***18300***	***1630***	***8000***	***8810***	***2167***	< 75.0	na	na
5/27/2009	50900	***21000***	***1570***	***8410***	***9910***	***1994***	< 60.0	na	na
11/23/2009	46300	***17000***	***1050***	***6290***	***8590***	***1798***	< 30.0	na	na
5/19/2010	47900	***17600***	***1150***	***6350***	***8470***	***1805***	< 60.0	na	na
10/19/2010	53500	***17700***	***1140***	***6180***	***11900***	***3136***	< 75.0	na	na
6/16/2011	na	***18800***	***1120***	***5880***	***7630***	***1446*** J	< 250	na	na
10/25/2011	na	***18600***	***1980***	***6460***	***8360***	***1419*** J	< 250	na	na
5/16/2012	na	***17100***	***1220***	***4910***	***8640***	***2058***	< 61.0	na	na
8/21/2013	na	***16800***	***1630***	***3070***	***9200***	***2428***	< 49.9	na	na
6/24/2014	na	***15700***	***949***	***1490***	***7660***	***1616***	< 34.8	na	na
10/21/2014	na	***10400***	*537*	*790*	***6830***	***1510***	< 17.4	na	na
6/23/2015	na	***8260***	*516*	*277*	***5180***	***1437***	< 17.4	na	na
10/6/2015	na	***6500***	109	< 50	***4530***	***1103***	< 17.4	na	na
5/24/2016	na	***14600***	***836***	< 50	***7240***	***1550***	< 17.4	na	na
10/5/2016	na	***1890***	< 10.0	< 10.0	***2293***	***778***	< 3.5	na	na
5/16/2017	na	***10200***	***807***	< 50	***7120***	***1285***	< 17.4	na	na
10/25/2017	na	***5890***	138	< 50	***6500***	***1459***	< 17.4	na	na
6/12/2018	na	***1640***	39.3	< 10.0	*1282*	*377.6*	< 3.5	na	na
10/9/2018	na	***3750***	28.4	< 3.4	***4780***	***1096***	< 24.9	na	na
5/21/2019	na	***3950***	*185*	< 3.4	***2421***	***562***	< 24.9	na	na

Superior Refining Company LLC
Superior, Wisconsin
Table 2
Groundwater Analytical Results for GRO and Detected VOCs - October 1998 Tank 40 Release Site

Well ID / Date	Substance Concentration (µg/ℓ) and Results Qualifier (if any)								
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	n-Propyl-benzene
NR 140 PAL	NS	*0.5*	*140*	*160*	*400*	*96*	*12*	NS	NS
NR 140 ES	NS	**5**	**700**	**800**	**2,000**	**480**	60	NS	NS
10/9/2019	na	***4910***	*214*	5.3 J	***3710***	***1061***	< 24.9	na	na
5/27/2020	na	***2770***	94.6	< 10.8	*1770*	***525.6*** a	< 49.8	na	na
10/6/2020	na	***10200***	***887***	2.5	***6680***	***1792***	< 0.12	na	na
MW-5/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	< 50	< 0.25	< 0.53	< 0.84	< 1.83	< 1.33	< 0.87	< 0.66	< 0.95
3/12/2003	100	*3.9*	1.4 J	< 0.68	6.0 J	4.12	< 0.43	na	na
9/30/2004	18000	***980***	***1900***	10.0 J	***5800***	***1170***	4.2 J	na	na
5/26/2005	18700	***482***	***1930***	< 60	***7750***	***1558***	< 60	na	na
11/9/2005	11500	***372***	***1550***	< 30.0	***5430***	***1066***	< 30.0	na	na
5/10/2006	10500	***357***	***1400***	< 3.00	***5200***	***855***	< 3.00	na	na
11/16/2006	14900	***270***	***1820***	< 15.0	***6310***	***1381***	< 15.0	na	na
5/23/2007	16700	***279***	***1900***	< 6.00	***7070***	***1611***	< 6.00	na	na
11/15/2007	9840	***148***	*495*	< 6.00	***2588***	***1059***	< 6.00	na	na
5/27/2008	10400	***254***	***833***	28.7	***3194***	***1006***	< 6.00	na	na
11/24/2008	11000	***167***	***1020***	24.8	***3288***	***1052***	*23.2* J	na	na
5/27/2009	5010	***177***	*324*	33.8 J	*1132*	*427*	< 15.0	na	na
11/23/2009	9990	***191***	***888***	21.2 J	***2725***	***821***	< 6.00	na	na
5/19/2010	8730	***160***	*638*	< 7.40	***2170***	***805***	< 6.00	na	na
10/19/2010	9980	***173***	***833***	< 7.40	***2663***	***880***	*14.6* J	na	na
6/16/2011	na	***205***	*607*	< 8.00	*1835*	***576***	< 10.0	na	na
10/25/2011	na	***185***	***778***	< 8.00	***2331***	***1142***	< 10.0	na	na
5/16/2012	na	***220***	*579*	< 3.4	*1566*	***492***	< 3.0	na	na
8/21/2013	na	***310***	***825***	< 4.4	*1601.2*	***736***	< 4.9	na	na
6/24/2014	na	***135***	***756***	< 2.5	*1839.5*	***673***	< 0.87	na	na
10/21/2014	na	***63.1***	*208*	< 1.2	*611.0*	*256.7*	< 0.44	na	na
6/23/2015	na	*3.0*	11.2	< 0.50	< 28.9	10.7	< 0.17	na	na
10/6/2015	na	< 0.50	< 0.50	0.70 J	1.60 J	1.01 J	< 0.17	na	na
5/24/2016	na	***50.3***	*152*	< 1.0	*479.7* J	*165.9*	< 0.35	na	na
10/5/2016	na	< 0.50	< 0.50	< 0.50	< 1.50	< 1.00	< 0.17	na	na
5/16/2017	na	***43.6***	*259*	< 1.2	*668.5* J	*247.7*	< 0.44	na	na
10/25/2017	na	< 0.50	< 0.50	< 0.50	< 1.50	< 1.00	< 0.17	na	na
6/12/2018	na	*3.3*	16.6	< 0.50	< 76.40	33.9	< 0.17	na	na
10/9/2018	na	***9.6***	30.4	< 0.17	< 115.26	81.9	< 1.2	na	na
5/21/2019	na	***62.2***	*218*	< 0.17	*859.99* J	*353.8*	< 1.2	na	na
10/9/2019	na	***6.7***	8.2	< 0.17	172.44 J	*120.7*	< 1.2	na	na
5/27/2020	na	***47.9***	*261*	< 0.27	*643*	*272.1*	< 1.2	na	na
10/6/2020	na	***56.9***	*424*	< 0.12	*913*	*443*	< 0.12	na	na
MW-6/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	< 50	***6.8***	< 0.53	< 0.84	< 1.83	< 1.33	< 0.87	< 0.66	< 0.95
3/12/2003	370	***170***	8	0.85 J	18.2	6.2	< 0.43	na	na
11/15/2007	4440	***1500***	*396*	< 6.00	*545.3*	*108.1*	< 6.00	na	na
5/27/2008	5420	***2190***	*572*	< 6.00	*666.3*	*157.9*	< 6.00	na	na
11/24/2008	6570	***1840***	***808***	< 6.00	*1092*	*275.2*	*26.2* J	na	na
5/27/2009	6070	***2590***	***866***	< 7.40	*1074*	*257.4*	*24.7* J	na	na
11/23/2009	3900	***1110***	*421*	< 3.70	*691*	*134.5*	< 3.00	na	na
5/19/2010	4470	***1520***	*503*	< 7.40	*635.8*	*169.9*	< 6.00	na	na
10/21/2010	2630	***1110***	*274*	< 7.40	225.4	62.7 J	*12.5* J	na	na
6/16/2011	na	***2010***	*615*	< 8.00	*668.1*	*165.8*	< 10.0	na	na
10/25/2011	na	***584***	100	< 8.00	63.63 J	37.9 J	< 10.0	na	na
5/16/2012	na	***1040***	*249*	< 6.7	140.1	72.2	< 6.1	na	na
8/21/2013	na	***1510***	*607*	< 4.4	373	*183.1* J	< 4.9	na	na
6/24/2014	na	***1600***	*539*	< 12.5	< 374.5	< 49.6	< 4.4	na	na
10/21/2014	na	***233***	56.1	< 1.0	< 81.3	36.1 J	< 0.35	na	na
6/23/2015	na	***1290***	*507*	< 5.0	*552.0*	*138.6*	< 1.7	na	na

Superior Refining Company LLC
Superior, Wisconsin
Table 2
Groundwater Analytical Results for GRO and Detected VOCs - October 1998 Tank 40 Release Site

Well ID / Date	Substance Concentration (µg/ℓ) and Results Qualifier (if any)								
	GRO	**Benzene**	**Ethylbenzene**	**Toluene**	**Xylenes**	**TMBs**	**MTBE**	**Isopropyl-benzene**	**n-Propyl-benzene**
NR 140 PAL	NS	*0.5*	*140*	*160*	*400*	*96*	*12*	NS	NS
NR 140 ES	NS	**5**	**700**	**800**	**2,000**	**480**	60	NS	NS
10/6/2015	na	***123***	8.8	< 0.50	< 9.3	< 5.3	< 0.17	na	na
5/24/2016	na	***649***	*209*	< 2.0	< 245.0	69.7	< 0.70	na	na
10/5/2016	na	***12.3***	< 0.50	< 0.50	< 1.50	< 1.00	< 0.17	na	na
5/16/2017	na	***607***	*342*	< 2.0	*475.2* J	*109.6*	< 0.70	na	na
10/25/2017	na	*0.63* J	< 0.50	< 0.50	< 1.50	< 1.80	< 0.17	na	na
6/12/2018	na	***1180***	*662*	< 0.50	*824.3*	*278.3*	< 0.17	na	na
10/9/2018	na	< 0.25	< 0.22	< 0.17	< 0.73	< 1.71	< 1.2	na	na
5/21/2019	na	***347***	*195*	< 0.17	< 249.26	75.2	< 1.2	na	na
10/9/2019	na	***9.4***	< 0.22	< 0.17	< 0.73	< 1.71	< 1.2	na	na
5/27/2020	na	***730***	*459*	< 1.3	*470*	*156.9*	< 6.2	na	na
10/6/2020	na	***222***	2.6	< 0.24	< 0.57	1.82 a	< 0.23	na	na
MW-7/T40									
3/6/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/12/2002	46000	***12000***	***3100***	***13000***	***9700***	***1410***	< 87	150 J	220 J
3/12/2003	48000	***10000***	***2800***	***11000***	***8900***	***1540***	< 22	na	na
11/15/2007	56300	***8940***	***2190***	***12100***	***9870***	***2167***	< 60.0	na	na
5/27/2008	112000	***11100***	***3180***	***15500***	***18370***	***6110***	< 60.0	na	na
11/24/2008	38800	***6620***	***1280***	***7970***	***9270***	***2402***	< 60.0	na	na
5/27/2009	51000	***9480***	***2010***	***10800***	***11120***	***2227***	< 60.0	na	na
11/23/2009	37000	***6640***	***1090***	***7000***	***9020***	***1922***	< 30.0	na	na
5/19/2010	33300	***6050***	***814***	***5380***	***7580***	***1869***	< 60.0	na	na
10/21/2010	248000	***7900***	***4560***	***10400***	***34300***	***17700***	< 60.0	na	na
6/16/2011	na	***6110***	*511*	***4430***	***5060***	***896***	< 100	na	na
10/25/2011	na	***5490***	***1750***	***5590***	***9310***	***2175***	< 100	na	na
5/16/2012	na	***5090***	***1570***	***4220***	***11330***	***6170***	< 24.4	na	na
8/21/2013	na	***5400***	***1700***	***2400***	***9450***	***2424***	< 9.9	na	na
6/24/2014	na	***4680***	***893***	***1010***	***6090***	***1043***	< 8.7	na	na
10/21/2014	na	***2870***	*651*	*266*	***4740***	***881***	< 8.7	na	na
6/23/2015	na	***3660***	***733***	*167*	***4890***	***920***	< 7.0	na	na
10/6/2015	na	***2150***	*513*	39.3 J	***3410***	***607***	< 7.0	na	na
5/24/2016	na	***2710***	*351*	< 10.0	***2415***	*452*	< 3.5	na	na
10/5/2016	na	***506***	71.0	5.2	*1148*	*280.3*	< 0.87	na	na
5/16/2017	na	***2670***	*528*	25.8	***3234***	***541***	< 3.5	na	na
10/25/2017	na	***1220***	113	< 10.0	***2101***	***565***	< 3.5	na	na
6/12/2018	na	***934***	71.4	< 10.0	*1141*	*279.7*	< 3.5	na	na
10/9/2018	na	***275***	33.3	1.9 J	376.3	*120.2*	< 2.5	na	na
5/21/2019	na	***802***	*189*	4.4 J	*809*	*187.0*	< 2.5	na	na
10/9/2019	na	***4850***	***1200***	5.6 J	***4262***	***1091***	< 12.5	na	na
5/27/2020	na	***220***	54.4	0.48 J	162	55.5	< 1.2	na	na
10/6/2020	na	***4610***	***1280***	2.6	***5030***	***1351***	< 0.12	na	na
TS-1/T40 (recovery sump installed in a groundwater interceptor trench)									
9/30/2004	4300	***140***	*480*	6.7	*529*	***530***	0.94 J	na	na
5/26/2005	1510	***30.4***	< 2.50	105	*519*	*208.4*	< 1.50	na	na
11/9/2005	3120	***125***	*312*	< 15.0	318.9	***666***	< 15.0	na	na
11/16/2006	1020	***139***	61.8	< 0.300	44.08	*224.8*	< 0.300	na	na
11/15/2007	3790	***348***	*681*	< 3.00	*773*	*350.9*	< 3.00	na	na
5/27/2008	4140	***275***	*555*	15.1	*549*	***645.4***	< 3.00	na	na
11/24/2008	1020	***80.1***	*158*	7.28 J	137.2	*178.2*	< 3.00	na	na
5/27/2009	655	***103***	15.1	< 0.370	7.40	13.74	1.68 J	na	na
11/23/2009	462	***67***	20.5	4.64	6.78	17.916	< 0.300	na	na
5/19/2010	803	***127***	83.8	< 0.370	33.07	76.9	1.61 J	na	na
10/21/2010	< 50.0	< 0.310	< 0.500	< 0.370	< 1.390	< 0.84	< 0.300	na	na
6/16/2011	na	***54.9***	84.0	< 0.40	67.32	62.29	< 0.50	na	na
10/25/2011	na	***393***	*152*	< 4.00	84.1	*147.0*	< 5.00	na	na
5/16/2012	na	***229***	103	< 1.7	59.2	35.6	< 1.5	na	na
8/21/2013	na	***41.2***	12.2	< 0.44	4.6	14.6 J	< 0.49	na	na

Superior Refining Company LLC
Superior, Wisconsin
Table 2
Groundwater Analytical Results for GRO and Detected VOCs - October 1998 Tank 40 Release Site

Well ID / Date	Substance Concentration (µg/ℓ) and Results Qualifier (if any)								
	GRO	**Benzene**	**Ethylbenzene**	**Toluene**	**Xylenes**	**TMBs**	**MTBE**	**Isopropyl-benzene**	**n-Propyl-benzene**
NR 140 PAL	NS	*0.5*	*140*	*160*	*400*	*96*	*12*	NS	NS
NR 140 ES	NS	**5**	**700**	**800**	**2,000**	**480**	60	NS	NS
10/21/2014	na	< 0.50	< 0.50	< 0.50	< 1.50	< 1.00	< 0.17	na	na
6/23/2015	na	***34.9***	1.9	< 0.50	< 1.50	2.29 J	< 0.17	na	na
10/6/2015	na	*4.6*	1.1	< 0.50	< 1.50	10.9	< 0.17	na	na
5/24/2016	na	***73.4***	78.2	< 0.50	< 32.60	64.0	< 0.17	na	na
10/5/2016	na	*1.6*	< 0.50	< 0.50	< 1.50	3.0	< 0.17	na	na
5/16/2017	na	*0.67* J	1.0	< 0.50	< 1.50	3.2	< 0.17	na	na
10/25/2017	na	*2.2*	1.0	< 0.50	1.80 J	6.5	< 0.17	na	na
6/12/2018	na	***20.9***	2.2	< 0.50	2.00 J	6.6	< 0.17	na	na
10/9/2018	na	*2.1*	< 0.22	< 0.17	< 0.73	< 1.71	< 1.2	na	na
5/21/2019	na	***10.1***	2.5	< 0.17	< 1.00 J	3.5 J	< 1.2	na	na
10/9/2019	na	*0.64* J	< 0.22	< 0.17	< 0.73	< 1.71	< 1.2	na	na
5/27/2020	Recovery sump not sampled.								
10/6/2020	Recovery sump not sampled.								

NOTES:

Concentrations are in micrograms per liter (µg/ℓ).

Detected concentrations at or above an applicable NR 140 PAL are in **bold** font; those at or above an NR 140 ES are in *italicized* font.

Any non-detect concentration included was added at the detection limit for both xylenes and TMBs.

Prior to 2020, duplicate sample results were averaged for statistical analysis/plotting, per December 2013 Interstate Technology & Regulatory Council guidance.

Initial round of samples collected from each well were analyzed for VOCs, all subsequent samples analyzed for GRO/PVOCs or PVOCs.

Between Sept. 2004 and May 2007, MW-3/T40, MW-6/T40, and MW-7/T40 were temporarily buried as part of the expansion of an access road.

a = Estimated value, calculated using some or all values that are estimates.

FP = Free product encountered; sample not collected.

GRO = Gasoline range organics.

J (Pre 2020) = Estimated concentration below laboratory quantitation level.

J (Post 2020) = Estimated detected value. Either certain QC criteria were not met or the concentration is between the laboratory's detection and quanitation limits.

J- = The result is an estimated quantity and may be biased low.

MTBE = Methyl tertiary butyl ether.

na = Not analyzed.

NI = Not installed.

NR 140 ES = Wisconsin Administrative Code NR 140 Enforcement Standard; 7/1/2015.

NR 140 PAL = Wisconsin Administrative Code NR 140 Preventive Action Limit; 7/1/2015.

NS = No standard.

TMBs = Sum of 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene.

Figures

Tank 40

Newton Creek

Nemadji River

Douglas County

Site Location

Approximate SRC Property Boundaries for Contiguous Operations

Approximate Fenceline Boundaries for Refining-Related Activities

0 750 1,500

Feet

SITE LOCATION
Superior Refining Company LLC (SRC)
Superior, WI

FIGURE 1

Barr Footer: ArcGIS 10.7.1, 2020-09-30 09:20 File: I:\Client\Husky_Energy\Superior_Refinery\Maps\Groundwater_Monitoring\Tank 40\Figure 1 Site Location.mxd User: EMA

Monitoring Point (July 2001)

Test Pit Sump (July 2000)

Monitoring Well

Twin Ports Geoprobe Soil Sample Location (November 1998)

Interceptor Trench Installed on August 27, 2003

Interceptor Trench Sump TS-1/T40 Location Installed August 27, 2003

General Direction of Groundwater Flow

Notes:
1. Gray shaded well and geoprobe boring locations have been abandoned.
2. Each monitoring point is 7 feet deep and consists of 4" diameter PVC with 3 feet of slotted PVC screen.
3. The test pit sump (TP-1/T40) is 8 feet deep and consists of 6" diameter PVC with 4 feet of slotted PVC screen.
4. The interceptor trench sump (TS-1/T40) is 9.5 feet deep and consists of 5" diameter PVC with 5 feet of slotted PVC.

Source: Gannett Fleming. Sample locations are based on field measurements made by Gannett Fleming and are approximate. Locations were not surveyed.

N

0 10 20

Feet

1 inch = 20 feet

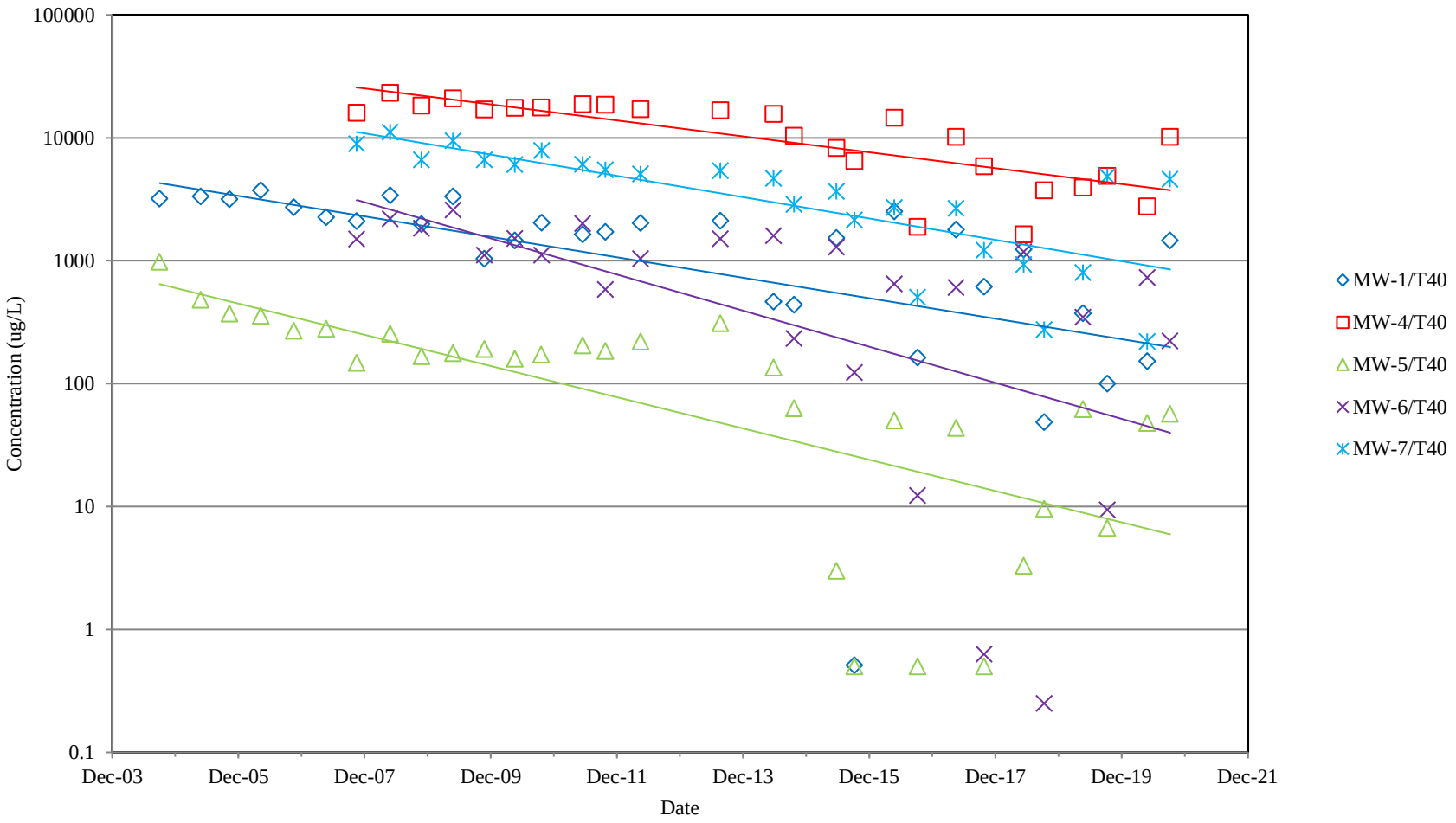
TANK 40 SITE LAYOUT & MONITORING LOCATIONS
Superior Refining Company LLC (SRC)
Superior, WI

FIGURE 2

BARR

Barr Footer: ArcGIS 10.7.1, 2021-01-27 08:44 File: I:\Client\Husky_Energy\Superior_Refinery\Maps\Groundwater_Monitoring\Tank 40\Figure 2 Site Layout and Monitoring Locations-Tank 40.mxd User: EMA

FIGURE 3



Note: Best-fit exponential trend lines generated using Excel and non-detect concentrations (if any) plotted at detection limit.

BENZENE GROUNDWATER CONCENTRATIONS TANK 40 BASIN

SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN

Attachments

Attachment A

Pace Analytical Laboratory Reports

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

June 26, 2020

Jim Taraldsen
Barr Engineering Company
325 S Lake Ave
Duluth, MN 55802

RE: Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Dear Jim Taraldsen:

Enclosed are the analytical results for sample(s) received by the laboratory on May 28, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

This report was revised on June 26, 2020, to include naphthalene on all samples.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amanda Albrecht
amanda.albrecht@pacelabs.com
(612)607-6382
Project Manager

Enclosures

cc: BarrDM, Barr Engineering Company
Data Management, Barr Engineering
Accounts Payable, Barr Engineering

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Pace Analytical Services Green Bay
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(612)607-1700

SAMPLE SUMMARY

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10519565001	**MW-1/T40**	Water	05/27/20 12:48	05/28/20 18:45
10519565002	**MW-2/T40**	Water	05/27/20 12:54	05/28/20 18:45
10519565003	**MW-4/T40**	Water	05/27/20 12:59	05/28/20 18:45
10519565004	**MW-5/T40**	Water	05/27/20 13:05	05/28/20 18:45
10519565005	**MW-6/T40**	Water	05/27/20 13:08	05/28/20 18:45
10519565006	**MW-7/T40**	Water	05/27/20 14:01	05/28/20 18:45
10519565007	**Trip Blank**	Water	05/27/20 00:00	05/28/20 18:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10519565001	**MW-1/T40**	EPA 8260	HNW	11	PASI-G
10519565002	**MW-2/T40**	EPA 8260	HNW	11	PASI-G
10519565003	**MW-4/T40**	EPA 8260	HNW	11	PASI-G
10519565004	**MW-5/T40**	EPA 8260	HNW	11	PASI-G
10519565005	**MW-6/T40**	EPA 8260	HNW	11	PASI-G
10519565006	**MW-7/T40**	EPA 8260	HNW	11	PASI-G
10519565007	**Trip Blank**	EPA 8260	HNW	11	PASI-G

PASI-G = Pace Analytical Services - Green Bay

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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-1/T40 **Lab ID: 10519565001** Collected: 05/27/20 12:48 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
Benzene	**152**	ug/L	2.5	0.62	2.5		06/02/20 08:12	71-43-2	M1
Ethylbenzene	**64.1**	ug/L	2.7	0.80	2.5		06/02/20 08:12	100-41-4	
Methyl-tert-butyl ether	**<3.1**	ug/L	10.4	3.1	2.5		06/02/20 08:12	1634-04-4	
Naphthalene	**<2.9**	ug/L	12.5	2.9	2.5		06/02/20 08:12	91-20-3	
Toluene	**<0.67**	ug/L	2.2	0.67	2.5		06/02/20 08:12	108-88-3	
1,2,4-Trimethylbenzene	**92.8**	ug/L	7.0	2.1	2.5		06/02/20 08:12	95-63-6	
1,3,5-Trimethylbenzene	**32.2**	ug/L	7.3	2.2	2.5		06/02/20 08:12	108-67-8	
Xylene (Total)	**311**	ug/L	7.5	3.8	2.5		06/02/20 08:12	1330-20-7	MS
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		2.5		06/02/20 08:12	1868-53-7	
Toluene-d8 (S)	100	%	70-130		2.5		06/02/20 08:12	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130		2.5		06/02/20 08:12	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-2/T40 **Lab ID: 10519565002** Collected: 05/27/20 12:54 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**9940**	ug/L	100	24.6	100		06/02/20 11:04	71-43-2	
Ethylbenzene	**1230**	ug/L	106	31.9	100		06/02/20 11:04	100-41-4	
Methyl-tert-butyl ether	**<125**	ug/L	415	125	100		06/02/20 11:04	1634-04-4	
Naphthalene	**<118**	ug/L	500	118	100		06/02/20 11:04	91-20-3	
Toluene	**166**	ug/L	89.8	26.9	100		06/02/20 11:04	108-88-3	
1,2,4-Trimethylbenzene	**1200**	ug/L	280	84.1	100		06/02/20 11:04	95-63-6	
1,3,5-Trimethylbenzene	**344**	ug/L	291	87.3	100		06/02/20 11:04	108-67-8	
Xylene (Total)	**8470**	ug/L	300	150	100		06/02/20 11:04	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		100		06/02/20 11:04	1868-53-7	
Toluene-d8 (S)	99	%	70-130		100		06/02/20 11:04	2037-26-5	
4-Bromofluorobenzene (S)	88	%	70-130		100		06/02/20 11:04	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-4/T40 **Lab ID: 10519565003** Collected: 05/27/20 12:59 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**2770**	ug/L	40.0	9.9	40		06/02/20 11:26	71-43-2	
Ethylbenzene	**94.6**	ug/L	42.5	12.7	40		06/02/20 11:26	100-41-4	
Methyl-tert-butyl ether	**<49.8**	ug/L	166	49.8	40		06/02/20 11:26	1634-04-4	
Naphthalene	**<47.0**	ug/L	200	47.0	40		06/02/20 11:26	91-20-3	
Toluene	**<10.8**	ug/L	35.9	10.8	40		06/02/20 11:26	108-88-3	
1,2,4-Trimethylbenzene	**436**	ug/L	112	33.6	40		06/02/20 11:26	95-63-6	
1,3,5-Trimethylbenzene	**89.6J**	ug/L	116	34.9	40		06/02/20 11:26	108-67-8	
Xylene (Total)	**1770**	ug/L	120	60.0	40		06/02/20 11:26	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		40		06/02/20 11:26	1868-53-7	
Toluene-d8 (S)	101	%	70-130		40		06/02/20 11:26	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		40		06/02/20 11:26	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-5/T40 **Lab ID: 10519565004** Collected: 05/27/20 13:05 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**47.9**	ug/L	1.0	0.25	1		06/02/20 08:55	71-43-2	
Ethylbenzene	**261**	ug/L	10.6	3.2	10		06/02/20 16:04	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		06/02/20 08:55	1634-04-4	
Naphthalene	**4.5J**	ug/L	5.0	1.2	1		06/02/20 08:55	91-20-3	
Toluene	**<0.27**	ug/L	0.90	0.27	1		06/02/20 08:55	108-88-3	
1,2,4-Trimethylbenzene	**212**	ug/L	28.0	8.4	10		06/02/20 16:04	95-63-6	
1,3,5-Trimethylbenzene	**60.1**	ug/L	2.9	0.87	1		06/02/20 08:55	108-67-8	
Xylene (Total)	**643**	ug/L	30.0	15.0	10		06/02/20 16:04	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	92	%	70-130		1		06/02/20 08:55	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		06/02/20 08:55	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		1		06/02/20 08:55	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-6/T40 **Lab ID: 10519565005** Collected: 05/27/20 13:08 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**730**	ug/L	5.0	1.2	5		06/02/20 11:47	71-43-2	
Ethylbenzene	**459**	ug/L	5.3	1.6	5		06/02/20 11:47	100-41-4	
Methyl-tert-butyl ether	**<6.2**	ug/L	20.8	6.2	5		06/02/20 11:47	1634-04-4	
Naphthalene	**<5.9**	ug/L	25.0	5.9	5		06/02/20 11:47	91-20-3	
Toluene	**<1.3**	ug/L	4.5	1.3	5		06/02/20 11:47	108-88-3	
1,2,4-Trimethylbenzene	**129**	ug/L	14.0	4.2	5		06/02/20 11:47	95-63-6	
1,3,5-Trimethylbenzene	**27.9**	ug/L	14.6	4.4	5		06/02/20 11:47	108-67-8	
Xylene (Total)	**470**	ug/L	15.0	7.5	5		06/02/20 11:47	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		5		06/02/20 11:47	1868-53-7	
Toluene-d8 (S)	101	%	70-130		5		06/02/20 11:47	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		5		06/02/20 11:47	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: MW-7/T40 **Lab ID: 10519565006** Collected: 05/27/20 14:01 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**220**	ug/L	1.0	0.25	1		06/02/20 13:56	71-43-2	
Ethylbenzene	**54.4**	ug/L	1.1	0.32	1		06/02/20 13:56	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		06/02/20 13:56	1634-04-4	
Naphthalene	**1.3J**	ug/L	5.0	1.2	1		06/02/20 13:56	91-20-3	
Toluene	**0.48J**	ug/L	0.90	0.27	1		06/02/20 13:56	108-88-3	
1,2,4-Trimethylbenzene	**47.0**	ug/L	2.8	0.84	1		06/02/20 13:56	95-63-6	
1,3,5-Trimethylbenzene	**8.5**	ug/L	2.9	0.87	1		06/02/20 13:56	108-67-8	
Xylene (Total)	**162**	ug/L	3.0	1.5	1		06/02/20 13:56	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		1		06/02/20 13:56	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		06/02/20 13:56	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		06/02/20 13:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Sample: Trip Blank **Lab ID: 10519565007** Collected: 05/27/20 00:00 Received: 05/28/20 18:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
Benzene	**<0.25**	ug/L	1.0	0.25	1		06/02/20 15:21	71-43-2	
Ethylbenzene	**<0.32**	ug/L	1.1	0.32	1		06/02/20 15:21	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	4.2	1.2	1		06/02/20 15:21	1634-04-4	
Naphthalene	**<1.2**	ug/L	5.0	1.2	1		06/02/20 15:21	91-20-3	
Toluene	**<0.27**	ug/L	0.90	0.27	1		06/02/20 15:21	108-88-3	
1,2,4-Trimethylbenzene	**<0.84**	ug/L	2.8	0.84	1		06/02/20 15:21	95-63-6	
1,3,5-Trimethylbenzene	**<0.87**	ug/L	2.9	0.87	1		06/02/20 15:21	108-67-8	
Xylene (Total)	**<1.5**	ug/L	3.0	1.5	1		06/02/20 15:21	1330-20-7	
Surrogates									
Dibromofluoromethane (S)	93	%	70-130		1		06/02/20 15:21	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		06/02/20 15:21	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130		1		06/02/20 15:21	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

QC Batch: 356259
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV UST-WATER
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 10519565001, 10519565002, 10519565003, 10519565004, 10519565005, 10519565006, 10519565007

METHOD BLANK: 2060736 Matrix: Water
Associated Lab Samples: 10519565001, 10519565002, 10519565003, 10519565004, 10519565005, 10519565006, 10519565007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	06/02/20 06:47	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	06/02/20 06:47	
Benzene	ug/L	<0.25	1.0	06/02/20 06:47	
Ethylbenzene	ug/L	<0.32	1.1	06/02/20 06:47	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	06/02/20 06:47	
Naphthalene	ug/L	<1.2	5.0	06/02/20 06:47	
Toluene	ug/L	<0.27	0.90	06/02/20 06:47	
Xylene (Total)	ug/L	<1.5	3.0	06/02/20 06:47	
4-Bromofluorobenzene (S)	%	85	70-130	06/02/20 06:47	
Dibromofluoromethane (S)	%	92	70-130	06/02/20 06:47	
Toluene-d8 (S)	%	99	70-130	06/02/20 06:47	

LABORATORY CONTROL SAMPLE: 2060737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	46.0	92	70-130	
Ethylbenzene	ug/L	50	49.3	99	80-120	
Methyl-tert-butyl ether	ug/L	50	54.7	109	61-129	
Toluene	ug/L	50	46.5	93	80-120	
Xylene (Total)	ug/L	150	149	99	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Dibromofluoromethane (S)	%			93	70-130	
Toluene-d8 (S)	%			96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2061045 2061046

Parameter	Units	10519565001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	152	50	50	183	154	62	3	70-136	18	20	M1
Ethylbenzene	ug/L	64.1	50	50	116	104	104	80	80-120	11	20	
Methyl-tert-butyl ether	ug/L	<3.1	50	50	57.8	54.7	116	109	61-136	6	20	
Toluene	ug/L	<0.67	50	50	49.6	49.5	98	98	80-120	0	20	
Xylene (Total)	ug/L	311	150	150	473	407	108	64	70-130	15	20	MS
4-Bromofluorobenzene (S)	%						104	102	70-130			
Dibromofluoromethane (S)	%						94	94	70-130			
Toluene-d8 (S)	%						99	99	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161494.00 200 202 SRC GW-Revised Report
Pace Project No.: 10519565

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10519565001	**MW-1/T40**	EPA 8260	356259		
10519565002	**MW-2/T40**	EPA 8260	356259		
10519565003	**MW-4/T40**	EPA 8260	356259		
10519565004	**MW-5/T40**	EPA 8260	356259		
10519565005	**MW-6/T40**	EPA 8260	356259		
10519565006	**MW-7/T40**	EPA 8260	356259		
10519565007	**Trip Blank**	EPA 8260	356259		

160281780

Barr Engineering Co. Chain of Custody

BARR ☐ Ann Arbor ☒ Duluth ☐ Hibbing ☐ Minneapolis
☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☒ WI ☐ MN ☐ SD Other: ____

COC Number: 58463
COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: Barr
Address: 325 S. Lake Ave. Duluth MN	Address:
Name: Lynette Carney	Name:
email: lcarney@barr.com	email:
Copy to: datamgt@barr.com	P.O. —
Project Name: SRC GW sampling Tank 40	Barr Project No: 49161494.00 200 202

Matrix Code: GW = Groundwater, SW = Surface Water, WW = Waste Water, DW = Drinking Water, S = Soil/Solid, SD = Sediment, O = Other

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, I = Ascorbic Acid, J = NH_4Cl, K = Zn Acetate, O = Other

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	Analysis Requested: Water 1B PVOCs	% Solids	Preservative Code	Field Filtered Y/N
1.	mw-1/T40				05/27/2020	1248	GW	N	3	X			001
2.	mw-2/T40				"	1254		N	3	X			002
3.	mw-4/T40					1259		N	3	X			003
4.	mw-5/T40					1305		N	3	X			004
5.	mw-6/T40					1308		N	3	X			005
6.	mw-7/T40					1401		N	3	X			006
7.	Trip Blank					—	—	N	2	X			007
8.													
9.													
10.													

BARR USE ONLY		Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
Sampled by:	KMJB		(Y) N	5/28/20	1015	Pelacide/Pace	5/28/20	10:50
Barr Proj. Manager:	LML	Relinquished by: Pelacide/Pace	(Y) N	5/28/20	10:50	Received by:	5/28/20	1845
Barr DQ Manager:	JET	Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:				Air Bill Number:		
Lab Name:	Pace	Lab WO:	Temperature on Receipt (°C): /			Custody Seal Intact? ☒ Y ☐ N ☐ None		
Lab Location:	Pace Minneapolis							

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush ____ (mm/dd/yyyy)

Distribution - White-Original: Accompanies Shipment to Laboratory; Yellow Copy: Include in Field Documents; Pink Copy: Send to Data Management Administrators.

W&T Co 5/30/20 0830 Pace 5/30/20 0830

60208580

Barr Engineering Co. Chain of Custody

WO# 10519565

BARR ☐ Ann Arbor ☒ Duluth ☐ Hibbing ☐ Minneapolis ☐ Bismarck ☐ Grand Rapids ☐ Jefferson City ☐ Salt Lake City

Sample Origination State: ☐ KS ☐ MO ☐ UT ☐ MI ☐ ND ☒ WI ☐ MN ☐ SD Other:

COC 1 of 1

REPORT TO	INVOICE TO
Company: Barr Engineering Co.	Company: Barr
Address: 325 S. Lake Ave. Duluth MN	Address:
Name: Lynette Carney	Name:
email: lcarney@barr.com	email:
Copy to: datamgt@barr.com	P.O. —
Project Name: SRC GW Sampling Tank 40	Barr Project No: 49161494.00 200 202

Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	Water	PVOCs	% Solids	Preservative Code	Field Filtered Y/N	
1. MW-1/T40	—			05/27/2020	1248	GW	N	3		X				001
2. MW-2/T40	—			"	1254		N	3		X				002
3. MW-4/T40	—				1259		N	3		X				003
4. MW-5/T40	—				1305		N	3		X				004
5. MW-6/T40	—				1308		N	3		X				005
6. MW-7/T40	—				1401		N	3		X				006
7. Trip Blank	—				—	—	N	2		X				007
8.														
9.														
10.														

Matrix Code:	Preservative Code:
GW = Groundwater	A = None
SW = Surface Water	B = HCl
WW = Waste Water	C = HNO_3
DW = Drinking Water	D = H_2SO_4
S = Soil/Solid	E = NaOH
SD = Sediment	F = MeOH
O = Other	G = $NaHSO_4$
	H = $Na_2S_2O_3$
	I = Ascorbic Acid
	J = NH_4Cl
	K = Zn Acetate
	O = Other

BARR USE ONLY

Sampled by: KMJB
Barr Proj. Manager: LMC
Barr DQ Manager: JET
Lab Name: PACE
Lab Location: Pace Minneapolis

Relinquished by: [signature] On Ice? (Y) N Date 5/28/20 Time 1045 Received by: Pace Date 5/28/20 Time 10:50 0.6C

Relinquished by: Pace On Ice? (Y) N Date 5/28/20 Time 10:50 Received by: [signature] Pace Date 5/28/20 Time 1945 1.4C (5)

Samples Shipped VIA: ☐ Courier ☐ Federal Express ☐ Sampler ☐ Other:

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush _____ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

H:\RLG\STDFORMS\Chain of Custody Form 2015 RLG Rev. 01/02/18

Distribution - White-Original: Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Pink Copy:** Send to Data Management Administrators.

Chain of Custody

4020858O

Pace Analytical®
www.pacelabs.com

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: WI
Cert. Needed: ☒ Yes ☐ No

Workorder: 10519565 **Workorder Name:** 49161494.00 200 202 SRC GW

Owner Received Date: 5/28/2020 **Results Requested By:** 6/12/2020

Report To	Subcontract To
Amanda Albrecht Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone (612)607-6382	Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL (VG9H)	PVOCs by 8260B	LAB USE ONLY
1	MW-1/T40	PS	5/27/2020 12:48	10519565001	Water	3	X	001
2	MW-2/T40	PS	5/27/2020 12:54	10519565002	Water	3	X	002
3	MW-4/T40	PS	5/27/2020 12:59	10519565003	Water	3	X	003
4	MW-5/T40	PS	5/27/2020 13:05	10519565004	Water	3	X	004
5	MW-6/T40	PS	5/27/2020 13:08	10519565005	Water	3	X	005
6	MW-7/T40	PS	5/27/2020 14:01	10519565006	Water	3	X	006
7	Trip Blank	PS	5/27/2020 00:00	10519565007	Water	2	X	007

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] Pace	5/29/20 1345		
2	Walter	5/30/20 0830	[signature] Pace	5/30/20 0830
3				

Comments

PVOCs:
BTEX, MTBE, 124-TMB, 135-TMB, naphthalene

Cooler Temperature on Receipt ___ / °C | **Custody Seal** (Y) or N | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Client Name: Pace IMN

Sample Preservation Receipt Form

Project # 10208580

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when completed:

Date/ Time:

Pace Lab #	Glass								Plastic					Vials						Jars				General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN							
001																	3																2.5 / 5 / 10
002																	3																2.5 / 5 / 10
003																	3																2.5 / 5 / 10
004																	3																2.5 / 5 / 10
005																	3																2.5 / 5 / 10
006																	3																2.5 / 5 / 10
007																	2																2.5 / 5 / 10
008																																	2.5 / 5 / 10
009																																	2.5 / 5 / 10
010																																	2.5 / 5 / 10
011																																	2.5 / 5 / 10
012																																	2.5 / 5 / 10
013																																	2.5 / 5 / 10
014																																	2.5 / 5 / 10
015																																	2.5 / 5 / 10
016																																	2.5 / 5 / 10
017																																	2.5 / 5 / 10
018																																	2.5 / 5 / 10
019																																	2.5 / 5 / 10
020																																	2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☐N/A ***If yes look in headspace column**

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #: WO#: 40208580

40208580

Client Name: Pace MN

Courier: ☐ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☒ Waltco ☐ Client ☐ Pace Other:

Tracking #: 2451434-2

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer Used SR - 86 **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 0 /Corr: 1

Person examining contents:

Temp Blank Present: ☒ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no Date: 5/30/20 /Initials: MM

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Labeled By Initials: SMW

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☐No ☒N/A	4. JKW 5/30/20 MM
Samples Arrived within Hold Time:	☒Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☒No	6.
Rush Turn Around Time Requested:	☐Yes ☒No	7.
Sufficient Volume: For Analysis: ☒Yes ☐No MS/MSD: ☐Yes ☒No ☐N/A		8.
Correct Containers Used:	☒Yes ☐No	9.
-Pace Containers Used:	☐Yes ☐No ☒N/A	
-Pace IR Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☒Yes ☐No ☐N/A	12.
Trip Blank Present:	☒Yes ☐No ☐N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logir

Pace Container Order #647919

40208580

Addresses

Order By :		Ship To :		Return To:	
Company	Barr Engineering	Company	HOLD FOR CLIENT	Company	Pace Analytical Minnesota
Contact	Taraldsen, James	Contact	Taraldsen, James	Contact	Albrecht, Amanda
Email	jtaraldsen@barr.com	Email	jtaraldsen@barr.com	Email	amanda.albrecht@pacelabs.com
Address	325 South Lake Avenue	Address	4730 Oneota Street	Address	1700 Elm Street
Address 2	Suite 700	Address 2		Address 2	Suite 200
City	Duluth	City	Duluth	City	Minneapolis
State	MN Zip 55802	State	MN Zip 55807	State	MN Zip 55414
Phone	218-529-7138	Phone	(218) 529-7138	Phone	(612)607-6382

Info

Project Name	SRC GW sampling Tank 40	**Due Date**	05/20/2020	**Profile**	38604, line 6	**Quote**	00074987
Project Manager	Albrecht, Amanda	**Return Date**		**Carrier**	Pace Courier	**Location**	WI

Trip Blanks

- [X] Include Trip Blanks

Bottle Labels

- [ ] Blank
- [X] Pre-Printed No Sample IDs
- [ ] Pre-Printed With Sample IDs

Bottles

- [ ] Boxed Cases
- [ ] Individually Wrapped
- [X] Grouped By Sample ID/Matrix

Return Shipping Labels

- [ ] No Shipper
- [X] With Shipper

COC Options

- [ ] Number of Blanks
- [ ] Pre-Printed

Misc

- [ ] Sampling Instructions
- [X] Custody Seal
- [X] Temp. Blanks
- [X] Coolers
- [ ] Syringes
- [ ] Extra Bubble Wrap
- [ ] Short Hold/Rush Stickers
- [ ] DI Water Liter(s)
- [ ] USDA Regulated Soils

# of Samples	Matrix	Test	Container	Total	# of	Lot #	Notes
6	WT	PVOC	3-40mL glass vial w/ HCl	18	0	040620-3CYR	
1	WT	Trip BLANK	2-40mL HCL w/custody seal	2	0	257472	

Hazard Shipping Placard In Place : YES

*Sample receiving hours are Mon-Fri 7:30am-7:00pm and Sat 9:00am-1:00pm unless special arrangements are made with your project manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage/disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

LAB USE:

Ship Date :	05/19/2020
Prepared By:	TDB
Verified By:	

Sample

CLIENT USE (Optional):

Date Rec'd:	
Received By:	
Verified By:	

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

October 21, 2020

Jim Taraldsen
Barr Engineering Company
325 S Lake Ave
Duluth, MN 55802

RE: Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Dear Jim Taraldsen:

Enclosed are the analytical results for sample(s) received by the laboratory on October 06, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amanda J Albrecht

Amanda Albrecht
amanda.albrecht@pacelabs.com
(612)607-6382
Project Manager

Enclosures

cc: BarrDM, Barr Engineering Company
Data Management, Barr Engineering
Accounts Payable, Barr Engineering

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Pace Analytical Services - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab
A2LA Certification #: 2926.01*
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009*
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014*
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605*
Georgia Certification #: 959
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086*
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064*
Maryland Certification #: 322
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137*
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240*
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081*
New Jersey Certification #: MN002
New York Certification #: 11647*
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507*
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001*
Pennsylvania Certification #: 68-00563*
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192*
Utah Certification #: MN00064*
Vermont Certification #: VT-027053137
Virginia Certification #: 460163*
Washington Certification #: C486*
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01
USDA Permit #: P330-19-00208
*Please Note: Applicable air certifications are denoted with an asterisk (*).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10534492001	**MW-5 / T40**	Water	10/06/20 08:05	10/06/20 19:30
10534492002	**MW-2 / T40**	Water	10/06/20 08:10	10/06/20 19:30
10534492003	**MW-6 / T40**	Water	10/06/20 08:13	10/06/20 19:30
10534492004	**MW-7 / T40**	Water	10/06/20 08:17	10/06/20 19:30
10534492005	**MW-1 / T40**	Water	10/06/20 08:20	10/06/20 19:30
10534492006	**MW-4 / T40**	Water	10/06/20 08:25	10/06/20 19:30
10534492007	**Trip Blank**	Water	10/06/20 00:00	10/06/20 19:30

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10534492001	**MW-5 / T40**	EPA 8260B	AEZ	10	PASI-M
10534492002	**MW-2 / T40**	EPA 8260B	LT1	10	PASI-M
10534492003	**MW-6 / T40**	EPA 8260B	LT1	10	PASI-M
10534492004	**MW-7 / T40**	EPA 8260B	AEZ	10	PASI-M
10534492005	**MW-1 / T40**	EPA 8260B	AEZ	10	PASI-M
10534492006	**MW-4 / T40**	EPA 8260B	AEZ	10	PASI-M
10534492007	**Trip Blank**	EPA 8260B	AEZ	10	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-5 / T40 **Lab ID: 10534492001** Collected: 10/06/20 08:05 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**56.9**	ug/L	0.40	0.12	1		10/14/20 00:17	71-43-2	
Ethylbenzene	**424**	ug/L	1.2	0.37	5		10/19/20 17:26	100-41-4	
Methyl-tert-butyl ether	**<0.12**	ug/L	0.39	0.12	1		10/14/20 00:17	1634-04-4	
Toluene	**<0.12**	ug/L	0.41	0.12	1		10/14/20 00:17	108-88-3	
1,2,4-Trimethylbenzene	**361**	ug/L	2.9	0.86	5		10/19/20 17:26	95-63-6	
1,3,5-Trimethylbenzene	**82.4**	ug/L	0.41	0.12	1		10/14/20 00:17	108-67-8	
Xylene (Total)	**913**	ug/L	4.8	1.4	5		10/19/20 17:26	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	106	%.	75-125		1		10/14/20 00:17	17060-07-0	
Toluene-d8 (S)	109	%.	75-125		1		10/14/20 00:17	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125		1		10/14/20 00:17	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-2 / T40 **Lab ID: 10534492002** Collected: 10/06/20 08:10 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**10100**	ug/L	40.0	12.0	100		10/15/20 20:23	71-43-2	
Ethylbenzene	**1700**	ug/L	2.5	0.75	10		10/15/20 20:59	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/L	3.9	1.2	10		10/15/20 20:59	1634-04-4	
Toluene	**128**	ug/L	4.1	1.2	10		10/15/20 20:59	108-88-3	
1,2,4-Trimethylbenzene	**1230**	ug/L	5.7	1.7	10		10/15/20 20:59	95-63-6	
1,3,5-Trimethylbenzene	**332**	ug/L	4.1	1.2	10		10/15/20 20:59	108-67-8	
Xylene (Total)	**9420**	ug/L	95.6	28.7	100		10/15/20 20:23	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	75-125		10		10/15/20 20:59	17060-07-0	
Toluene-d8 (S)	103	%.	75-125		10		10/15/20 20:59	2037-26-5	
4-Bromofluorobenzene (S)	111	%.	75-125		10		10/15/20 20:59	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-6 / T40 **Lab ID: 10534492003** Collected: 10/06/20 08:13 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**222**	ug/L	0.80	0.24	2		10/15/20 19:47	71-43-2	
Ethylbenzene	**2.6**	ug/L	0.50	0.15	2		10/15/20 19:47	100-41-4	
Methyl-tert-butyl ether	**<0.23**	ug/L	0.77	0.23	2		10/15/20 19:47	1634-04-4	
Toluene	**<0.24**	ug/L	0.81	0.24	2		10/15/20 19:47	108-88-3	
1,2,4-Trimethylbenzene	**1.5**	ug/L	1.1	0.34	2		10/15/20 19:47	95-63-6	B
1,3,5-Trimethylbenzene	**0.32J**	ug/L	0.83	0.25	2		10/15/20 19:47	108-67-8	
Xylene (Total)	**<0.57**	ug/L	1.9	0.57	2		10/15/20 19:47	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		2		10/15/20 19:47	17060-07-0	
Toluene-d8 (S)	102	%.	75-125		2		10/15/20 19:47	2037-26-5	
4-Bromofluorobenzene (S)	110	%.	75-125		2		10/15/20 19:47	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-7 / T40 **Lab ID: 10534492004** Collected: 10/06/20 08:17 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**4610**	ug/L	10	3.0	25		10/19/20 15:43	71-43-2	
Ethylbenzene	**1280**	ug/L	2.5	0.75	10		10/19/20 17:43	100-41-4	
Methyl-tert-butyl ether	**<0.12**	ug/L	0.39	0.12	1		10/14/20 00:53	1634-04-4	
Toluene	**2.6**	ug/L	0.41	0.12	1		10/14/20 00:53	108-88-3	
1,2,4-Trimethylbenzene	**1040**	ug/L	5.7	1.7	10		10/19/20 17:43	95-63-6	
1,3,5-Trimethylbenzene	**311**	ug/L	4.1	1.2	10		10/19/20 17:43	108-67-8	
Xylene (Total)	**5030**	ug/L	9.6	2.9	10		10/19/20 17:43	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		10/14/20 00:53	17060-07-0	
Toluene-d8 (S)	109	%.	75-125		1		10/14/20 00:53	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125		1		10/14/20 00:53	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-1 / T40 **Lab ID: 10534492005** Collected: 10/06/20 08:20 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**1460**	ug/L	4.0	1.2	10		10/19/20 18:21	71-43-2	
Ethylbenzene	**613**	ug/L	2.5	0.75	10		10/19/20 18:21	100-41-4	
Methyl-tert-butyl ether	**<0.12**	ug/L	0.39	0.12	1		10/14/20 01:11	1634-04-4	
Toluene	**1.8**	ug/L	0.41	0.12	1		10/14/20 01:11	108-88-3	
1,2,4-Trimethylbenzene	**1170**	ug/L	5.7	1.7	10		10/19/20 18:21	95-63-6	
1,3,5-Trimethylbenzene	**374**	ug/L	4.1	1.2	10		10/19/20 18:21	108-67-8	
Xylene (Total)	**4900**	ug/L	9.6	2.9	10		10/19/20 18:21	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%.	75-125		1		10/14/20 01:11	17060-07-0	
Toluene-d8 (S)	112	%.	75-125		1		10/14/20 01:11	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125		1		10/14/20 01:11	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: MW-4 / T40 **Lab ID: 10534492006** Collected: 10/06/20 08:25 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**10200**	ug/L	20.0	6.0	50		10/19/20 17:09	71-43-2	
Ethylbenzene	**887**	ug/L	5.0	1.5	20		10/19/20 19:29	100-41-4	
Methyl-tert-butyl ether	**<0.12**	ug/L	0.39	0.12	1		10/14/20 01:29	1634-04-4	
Toluene	**2.5**	ug/L	0.41	0.12	1		10/14/20 01:29	108-88-3	
1,2,4-Trimethylbenzene	**1440**	ug/L	11.5	3.4	20		10/19/20 19:29	95-63-6	
1,3,5-Trimethylbenzene	**352**	ug/L	8.3	2.5	20		10/19/20 19:29	108-67-8	
Xylene (Total)	**6680**	ug/L	19.1	5.7	20		10/19/20 19:29	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	91	%.	75-125		1		10/14/20 01:29	17060-07-0	
Toluene-d8 (S)	111	%.	75-125		1		10/14/20 01:29	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125		1		10/14/20 01:29	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Sample: Trip Blank **Lab ID: 10534492007** Collected: 10/06/20 00:00 Received: 10/06/20 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B Pace Analytical Services - Minneapolis								
Benzene	**<0.12**	ug/L	0.40	0.12	1		10/13/20 23:24	71-43-2	
Ethylbenzene	**<0.075**	ug/L	0.25	0.075	1		10/13/20 23:24	100-41-4	
Methyl-tert-butyl ether	**<0.12**	ug/L	0.39	0.12	1		10/13/20 23:24	1634-04-4	
Toluene	**<0.12**	ug/L	0.41	0.12	1		10/13/20 23:24	108-88-3	
1,2,4-Trimethylbenzene	**<0.17**	ug/L	0.57	0.17	1		10/13/20 23:24	95-63-6	
1,3,5-Trimethylbenzene	**<0.12**	ug/L	0.41	0.12	1		10/13/20 23:24	108-67-8	
Xylene (Total)	**<0.29**	ug/L	0.96	0.29	1		10/13/20 23:24	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	107	%.	75-125		1		10/13/20 23:24	17060-07-0	
Toluene-d8 (S)	104	%.	75-125		1		10/13/20 23:24	2037-26-5	
4-Bromofluorobenzene (S)	107	%.	75-125		1		10/13/20 23:24	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

QC Batch: 704174 | Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B | Analysis Description: 8260B MSV UST-WATER
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10534492001, 10534492004, 10534492005, 10534492006, 10534492007

METHOD BLANK: 3762013 Matrix: Water
Associated Lab Samples: 10534492001, 10534492004, 10534492005, 10534492006, 10534492007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.17	0.57	10/13/20 22:49	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.41	10/13/20 22:49	
Benzene	ug/L	<0.12	0.40	10/13/20 22:49	
Ethylbenzene	ug/L	<0.075	0.25	10/13/20 22:49	
Methyl-tert-butyl ether	ug/L	<0.12	0.39	10/13/20 22:49	
Toluene	ug/L	<0.12	0.41	10/13/20 22:49	
Xylene (Total)	ug/L	<0.29	0.96	10/13/20 22:49	
1,2-Dichloroethane-d4 (S)	%.	107	75-125	10/13/20 22:49	
4-Bromofluorobenzene (S)	%.	103	75-125	10/13/20 22:49	
Toluene-d8 (S)	%.	104	75-125	10/13/20 22:49	

LABORATORY CONTROL SAMPLE: 3762014

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.0	105	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.3	107	75-125	
Benzene	ug/L	20	20.1	101	75-125	
Ethylbenzene	ug/L	20	20.3	102	75-125	
Methyl-tert-butyl ether	ug/L	20	19.8	99	69-125	
Toluene	ug/L	20	19.5	98	75-125	
Xylene (Total)	ug/L	60	60.1	100	75-125	
1,2-Dichloroethane-d4 (S)	%.			107	75-125	
4-Bromofluorobenzene (S)	%.			99	75-125	
Toluene-d8 (S)	%.			103	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3763812 3763813

Parameter	Units	10535493001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	1.8	20	20	20.3	19.1	93	87	56-139	6	30	
1,3,5-Trimethylbenzene	ug/L	0.40J	20	20	19.0	17.8	93	87	63-132	7	30	
Benzene	ug/L	271	20	20	308	276	186	29	63-125	11	30	E,P6
Ethylbenzene	ug/L	2.8	20	20	20.9	18.9	90	81	66-128	10	30	
Methyl-tert-butyl ether	ug/L	<0.12	20	20	16.2	15.4	81	77	60-125	5	30	
Toluene	ug/L	<0.12	20	20	17.6	15.6	88	78	64-125	12	30	
Xylene (Total)	ug/L	2.5	60	60	56.4	51.1	90	81	64-131	10	30	
1,2-Dichloroethane-d4 (S)	%.						108	104	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3763812 3763813

Parameter	Units	10535493001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Bromofluorobenzene (S)	%.						99	98	75-125			
Toluene-d8 (S)	%.						104	102	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

QC Batch: 704748
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260B MSV UST-WATER
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10534492002, 10534492003

METHOD BLANK: 3764938 Matrix: Water
Associated Lab Samples: 10534492002, 10534492003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	0.19J	0.57	10/15/20 14:08	
1,3,5-Trimethylbenzene	ug/L	<0.12	0.41	10/15/20 14:08	
Benzene	ug/L	<0.12	0.40	10/15/20 14:08	
Ethylbenzene	ug/L	<0.075	0.25	10/15/20 14:08	
Methyl-tert-butyl ether	ug/L	<0.12	0.39	10/15/20 14:08	
Toluene	ug/L	0.14J	0.41	10/15/20 14:08	
Xylene (Total)	ug/L	<0.29	0.96	10/15/20 14:08	
1,2-Dichloroethane-d4 (S)	%.	99	75-125	10/15/20 14:08	
4-Bromofluorobenzene (S)	%.	109	75-125	10/15/20 14:08	
Toluene-d8 (S)	%.	100	75-125	10/15/20 14:08	

LABORATORY CONTROL SAMPLE: 3764939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	17.7	89	75-125	
1,3,5-Trimethylbenzene	ug/L	20	17.2	86	75-125	
Benzene	ug/L	20	16.3	82	75-125	
Ethylbenzene	ug/L	20	17.2	86	75-125	
Methyl-tert-butyl ether	ug/L	20	17.5	88	69-125	
Toluene	ug/L	20	17.9	89	75-125	
Xylene (Total)	ug/L	60	52.1	87	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	75-125	
4-Bromofluorobenzene (S)	%.			109	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3764949 3764950

Parameter	Units	10535402002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.8	18.3	88	90	56-139	3	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.8	18.2	88	89	63-132	2	30	
Benzene	ug/L	ND	20	20	15.7	15.2	78	76	63-125	3	30	
Ethylbenzene	ug/L	ND	20	20	16.5	17.6	82	88	66-128	7	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	16.7	16.7	83	84	60-125	0	30	
Toluene	ug/L	ND	20	20	16.9	16.9	84	84	64-125	0	30	
Xylene (Total)	ug/L	ND	60	60	49.8	51.2	83	85	64-131	3	30	
1,2-Dichloroethane-d4 (S)	%.						100	100	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(612)607-1700

QUALITY CONTROL DATA

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3764949 3764950

Parameter	Units	10535402002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Bromofluorobenzene (S)	%.						112	111	75-125			
Toluene-d8 (S)	%.						100	101	75-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(612)607-1700

QUALIFIERS

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Pace Analytical Services, LLC
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(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161494.00 200 203 SRC GW T40
Pace Project No.: 10534492

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10534492001	**MW-5 / T40**	EPA 8260B	704174		
10534492002	**MW-2 / T40**	EPA 8260B	704748		
10534492003	**MW-6 / T40**	EPA 8260B	704748		
10534492004	**MW-7 / T40**	EPA 8260B	704174		
10534492005	**MW-1 / T40**	EPA 8260B	704174		
10534492006	**MW-4 / T40**	EPA 8260B	704174		
10534492007	**Trip Blank**	EPA 8260B	704174		

Barr Engineering Co. Chain of Custody

Sample Origination State: ☐ CO ☐ MI ☐ MN ☐ MO ☐ ND ☐ TX ☐ UT ☒ WI ☐ Other: ______

COC Number: № 587980

COC 1 of 1

REPORT TO		INVOICE TO	
Company:	Barr Engineering Co.	Company:	Barr
Address:	325 S. Lake Ave.	Address:	↓
Address:	Duluth, MN 55802	Address:	
Name:	Lynette Carney	Name:	
email:	lcarney@barr.com	email:	
Copy to:	BarrDM@barr.com	P.O.	—
Project Name:	SRC GW sampling Tank 40	Barr Project No:	49161494.00 200 203

Analysis Requested: Water: VOCs; Soil: % Solids

Matrix Code: GW = Groundwater; SW = Surface Water; WW = Waste Water; DW = Drinking Water; S = Soil/Solid; SD = Sediment; O = Other

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; I = Ascorbic Acid; J = Zn Acetate; K = Other

Preservative Code: B (VOCs)

Field Filtered Y/N: — (VOCs)

	Location	Sample Depth Start	Stop	Unit (m./ft. or in.)	Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y/N	Total Number Of Containers	VOCs	Lab
1.	MW-5/T40	—	—	—	10/06/2020	0805	GW	N	3	X	001
2.	MW-2/T40	—	—	—	↓	0810	↓	N	3	X	002
3.	MW-6/T40	—	—	—	↓	0813	↓	N	3	X	003
4.	MW-7/T40	—	—	—	↓	0817	↓	N	3	X	004
5.	MW-1/T40	—	—	—	↓	0820	↓	N	3	X	005
6.	MW-4/T40	—	—	—	↓	0825	↓	N	3	X	006
7.	Trip Blank	—	—	—	↓	—	—	N	2	X	007
8.											
9.											
10.											

WO# : 10534492

10534492

BARR USE ONLY	
Sampled by:	KMJ3
Barr Proj. Manager:	LMC
Barr DQ Manager:	JET
Lab Name:	Pace
Lab Location:	Minneapolis

Relinquished by:	On Ice?	Date	Time	Received by:	Date	Time
[signature]	Y	10/6/20	1308	[signature]	10/6/20	1308
[signature]	Y	10/6/20	1400	[signature] PACE	10/6/20	1936

Samples Shipped VIA: ☐ Ground Courier ☐ Air Carrier ☐ Sampler ☐ Other: ______

Air Bill Number:

Requested Due Date: ☒ Standard Turn Around Time ☐ Rush ______ (mm/dd/yyyy)

Lab WO: Temperature on Receipt (°C): Custody Seal Intact? ☐ Y ☐ N ☐ None

Distribution - **White-Original:** Accompanies Shipment to Laboratory; **Yellow Copy:** Include in Field Documents; **Scan and email:** a copy to BarrDM@barr.com for tracking and filing procedures

H:RLG\STDFORMS\Chain of Custody Form 2015 RLG Rev. 01/30/2020

Pace Analytical®	Document Name: **Sample Condition Upon Receipt (SCUR) - MN**	Document Revised: 12Aug2020 **Page 1 of 1**
	Document No.: **ENV-FRM-MIN4-0150 Rev.01**	Pace Analytical Services - **Minneapolis**

Sample Condition Upon Receipt

Client Name: Barr

Project #: WO#: 10534492

PM: AA1 Due Date: 10/14/20

CLIENT: BARR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☒ Pace ☐ SpeeDee ☐ Commercial

Tracking Number: _____ See Exceptions ☐ ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☒ Yes ☐ No

Thermometer: ☐ T1(0461) ☒ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☒ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 4.2 °C **Average Corrected Temp (no temp blank only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: NA **Cooler Temp Corrected w/temp blank:** 4.2 °C

USDA Regulated Soil: (☒ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** CM 10/6/20

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☒ No		6.
Sufficient Volume?	☒ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☒ Yes ☒ Yes	☐ No ☐ No		8.
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☒ Water ☐ Soil ☐ Oil ☐ Other _____	☒ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ **ENV-FRM-MIN4-0142**
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☒ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☒ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ **ENV-FRM-MIN4-0142**
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☒ N/A	13. **See Exception** ☐ **ENV-FRM-MIN4-0140**
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☐ N/A	
Trip Blank Present?	☒ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☒ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 273599 (W)

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 10/9/20

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: RVE