



**Gannett Fleming**

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December 4, 2019

File #34265.003

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

Re: 2019 Remediation Progress Report for Tank 68 Release Site  
Superior Refining Company LLC Refinery, Superior, WI  
WDNR BRRTS# 02-16-526812 and Facility ID: 816009590

Dear John:

On behalf of Superior Refining Company LLC (SRC), Gannett Fleming, Inc. (GF) is submitting this remediation progress report for the Murphy Oil (Murphy) Tank Basin 68 site (WDNR BRRTS# 02-16-526812) at the SRC refinery in Superior. The report summarizes remedial and monitoring activities conducted at the site in 2019. In addition, it includes background information on the refinery and Tank 68 basin for reference.

Periodic reporting of remediation site progress to the Wisconsin Department of Natural Resources (WDNR) is required pursuant to ss. NR 700.11(1) and 724.13(3), Wisconsin Administrative Code. A completed certification page for the report is also attached.

### **Pertinent Site Background and Tank 68 Basin Information**

Figure 1 is a location map showing Tank 68, the refinery, its approximate property boundary, and the area around the refinery and was prepared using the most recent USGS topographic map. The Tank 68 basin is in the SW  $\frac{1}{4}$  of the SW  $\frac{1}{4}$  of Section 25, Township 49 North, Range 14 West, Superior Township of Douglas County.

The land surrounding the Tank 68 basin is also owned by SRC and is part of the refinery. The closest surface water is Newton Creek, located approximately 2,000 feet east of the basin, as shown on Figure 1. The basin is located on relatively level land in the north-central area of the refinery. The basin's ground surface is unpaved. The basin is underlain by native clay, the depth to groundwater is approximately 3 feet below ground surface (bgs), and the regional direction of shallow groundwater flow below the refinery is to the east.

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The hydraulic conductivity of the native clay underlying the refinery is on the order of  $10^{-7}$  centimeters per second. Assuming a horizontal hydraulic gradient of 0.003 and effective porosity of 0.06, the estimated horizontal groundwater flow velocity is approximately 0.01 foot per year (ft/yr). This does not include contaminant retardation.

In October 2011, Calumet Superior LLC (Calumet) acquired the refinery from Murphy. Effective November 8, 2017, Husky Superior Refining Holding Corp (Husky Superior) purchased Calumet and changed its legal name to Superior Refining Company LLC.

### **Tank 68 Basin Site Background**

The Tank 68 basin monitoring network currently includes MW-5/T66, MW-1/T68, MW-2/T68, and MW-4/T68 through MW-6/T68 and monitoring points MP-1/T68 through MP-3/T68, as shown on Figure 2. In 2001, MW-5/T66 was transferred from the Tanks 65/66 release site to the Tank 68 basin site due to the occurrence of free product in MW-5/T66; and test pits TP-2, TP-3, and TP-4 were abandoned. The free product in MW-5/T66 was first observed in January 2000 during a site investigation associated with the Tank 65/66 basins east of Tank 68 and has not been associated with any known release. In 2008, upgradient monitoring well MW-3/T68 was sealed and abandoned. In 2010-2012, test pit sump TP-1/T68 was lost.

Since February 2000, wells in the network have been routinely monitored for the presence of free product, and if present, it is removed and treated in the refinery's No. 1 API oil/water separator/wastewater treatment plant (WWTP). In addition, based on American Petroleum Institute guidelines, wells in the network have been purged dry following routine gauging events to promote the accumulation of product. This occurs because product preferentially accumulates in a well when the potentiometric surface is low (i.e., as the potentiometric surface drops, product that remains above the water level drains 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. The purged water is also treated in the refinery's No. 1 API oil/water separator/WWTP.

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### **Remedial and Monitoring Activities in 2019**

Since the last remediation progress report was submitted to the WDNR on January 30, 2019, work in the Tank 68 basin has included the monitoring and recovery of product from the on-site wells and collection of groundwater samples from select locations.

During the reporting period, measurable product was encountered once in MW-5/T66, as shown in Table 1, which includes fluid level monitoring data for January through December 2019. The apparent thickest of free product observed in MW-5/T66 was measured as 0.01 foot on April 25, 2019. Otherwise, no measurable thickness of product was observed in MP-1/T68 through MP-3/T68 or any of the other five on-site monitoring wells throughout the entire reporting period.

Through December 2019, approximately 102 gallons of product have been recovered from this tank basin, with almost all (i.e., over 97%) of it coming from MW-2/T68, MW-5/T66, and MW-6/T68. During 2019, approximately 0.002 gallon was recovered from MW-5/T66. This is about 0.01% of the total volume recovered from MW-5/T66 to date. GF's April 2014 report includes a 15-page table summarizing the historical volume of product removed from each well for reference.

SRC will continue to check for free product, but for all practical purposes, we believe free product has been recovered to the extent practical from the Tank 68 basin.

Groundwater samples were collected by GF and Insight Environmental field staff at the site during the reporting period in May and October 2019. Each well was purged dry twice and allowed to recover for at least 14 days, prior to the collection of the samples. Monitoring wells MW-1/T68, MW-2/T68, MW-4/T68, MW-5/T66, MW-5/T68, and MW-6/T68 were routinely sampled. Field staff used a new one-time-use polyethylene bailer with new nylon rope to collect each groundwater sample. The groundwater samples were sent to Pace Analytical of Green Bay (Wisconsin laboratory certification #405132750) and analyzed for volatile organic compounds (VOCs).

Table 2 presents the analytical results of the groundwater samples in micrograms per liter ( $\mu\text{g}/\ell$ ). As shown in Table 2:

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- All compounds in the samples collected from upgradient well MW-1/T68 were below applicable NR 140 enforcement standards (ESs) for all VOCs.
- Samples collected from the other five Tank 68 monitoring wells in May and October 2019 contained one or more VOCs at or above applicable NR 140 ESs. However, because of the recovery of product over the years, overall VOC concentrations in the wells have been stable or decreasing. For example, Figure 3 presents trend analysis plots for benzene concentrations in the groundwater at MW-2/T68 and MW-4/T68. If benzene was not detected in a sample collected from a well, then the reported method detection limit (MDL) was plotted for that date. Note that the plotted data for each well only includes the time since free product was most recently removed. In addition, the best-fit exponential trend lines were generated using Excel. As shown on Figure 3, dissolved-phase benzene concentrations have followed a general downward trend in both MW-2/T68 and MW-4/T68. Based on the relatively low groundwater flow velocity of approximately 0.01 ft/yr and decreasing benzene concentrations, results indicate the overall plume remains stable or receding.

Attachment A provides copies of the laboratory reports and chain of custody records for the groundwater samples collected in 2019.

Historically, a groundwater contour map for the Tank 68 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 bailed later in the year. Consequently, a groundwater contour map representing static conditions for the Tank 68 site cannot be created.

### **Future Work**

Year-round access to wells at the refinery is not practical due to relatively shallow groundwater, cold weather, and snow. During time periods when it's warm enough to allow access (i.e., from April/May through October/November), SRG's work plan for 2020 follows:

- Continue to manually bail product from the six existing monitoring wells (MW-5/T66, MW-1/T68, MW-2/T68, and MW-4/T68 through MW-6/T68) and three monitoring points (MP-1/T68 through MP-3/T68) when free product is present.

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- If product is observed, the wells and points will be checked monthly. If product is not observed, the wells and points will be checked quarterly. The purged product/water will continue to be treated in the refinery's No. 1 API oil/water separator/WWTP.
- Collect groundwater samples from those monitoring wells without product biannually, and have the samples analyzed for VOCs by a Wisconsin-certified laboratory using EPA Method 8260. Each monitoring well will be purged dry twice and allowed to recover for at least six days, prior to the collection of the samples.
- Report the results of the groundwater samples, as well as the results of the recovery of product, in our next remediation progress report to the WDNR by the end of January 2021.

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

Sincerely,

GANNETT FLEMING, INC.



Clifford C. Wright, P.E., P.G.  
Project Engineer

CCW/jec

Enc.

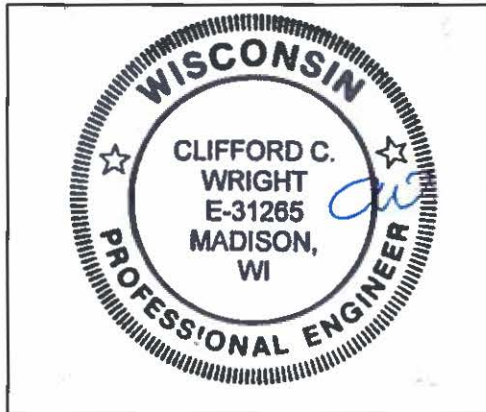
ecc: Matt Turner (SRC)  
Tony Miller and Dennis Kugle (GF)

**ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS**

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

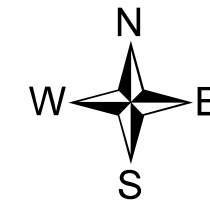
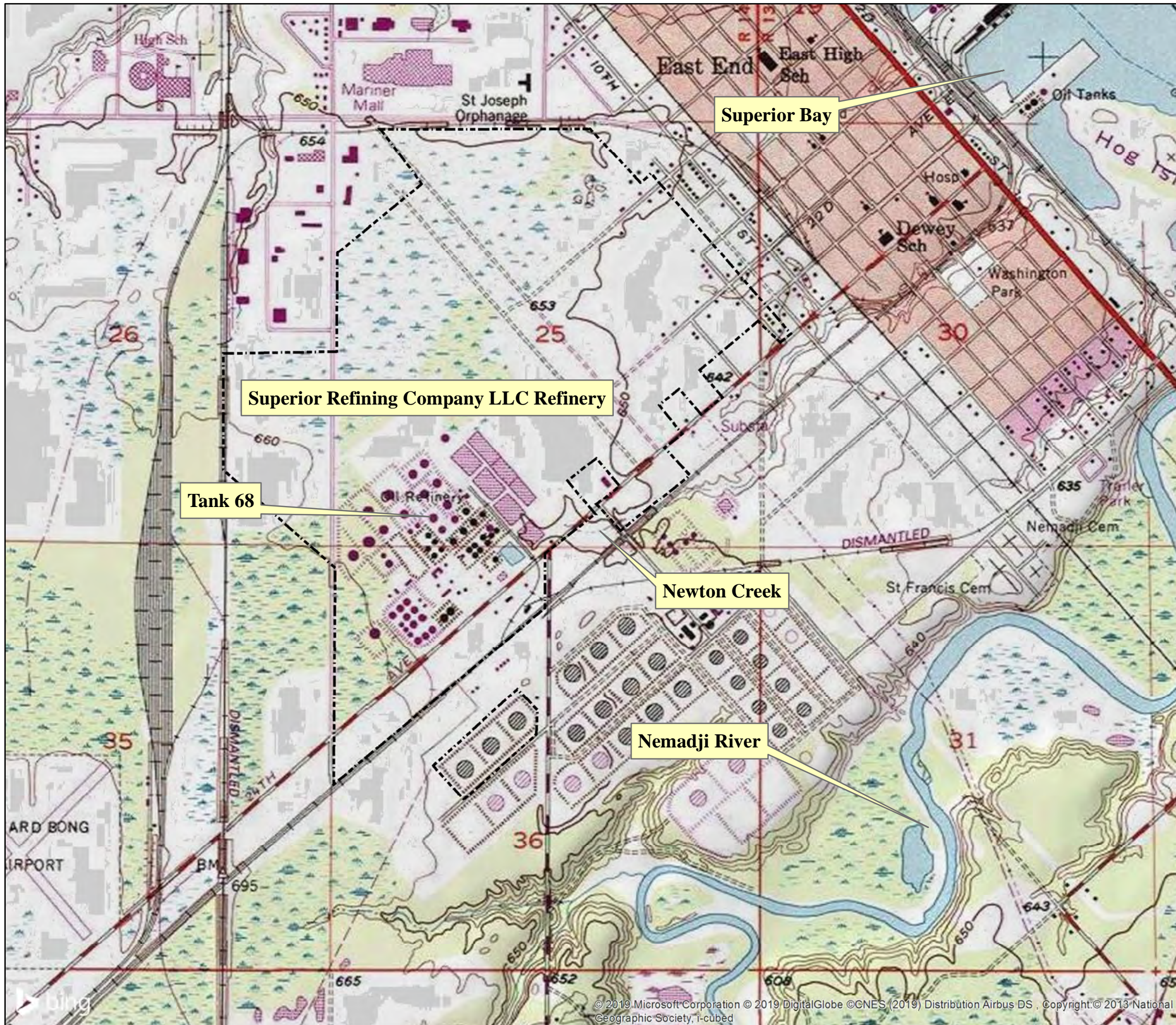
Print Name Clifford C. Wright	Title Project Engineer
Signature <i>Clifford C. Wright</i>	Date 12/4/2019

P.E. Seal for E-31265:



I 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 information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Geologist
Signature <i>Clifford C. Wright</i>	Date 12/4/2019

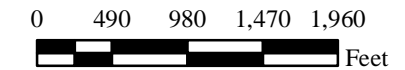



**Legend**

--- Approximate Property Boundary

**Notes:**

1. Contour interval = 10ft.
2. Site datum = mean sea level (MSL).
3. Topographic map obtained from ArcGIS USA Topo Map Service. Service includes seamless, scanned image of USGS topographic maps.



<b>Site Location Map</b>			
SUPERIOR REFINING COMPANY LLC REFINERY SUPERIOR, WISCONSIN			
		Gannett Fleming, Inc. 8040 Excelsior Drive, Suite 303 Madison WI 53717-1338 (608) 836-1500 www.gannettfleming.com	
Project No.	34265.003	Date	11/26/19
Figure	<b>1</b>		

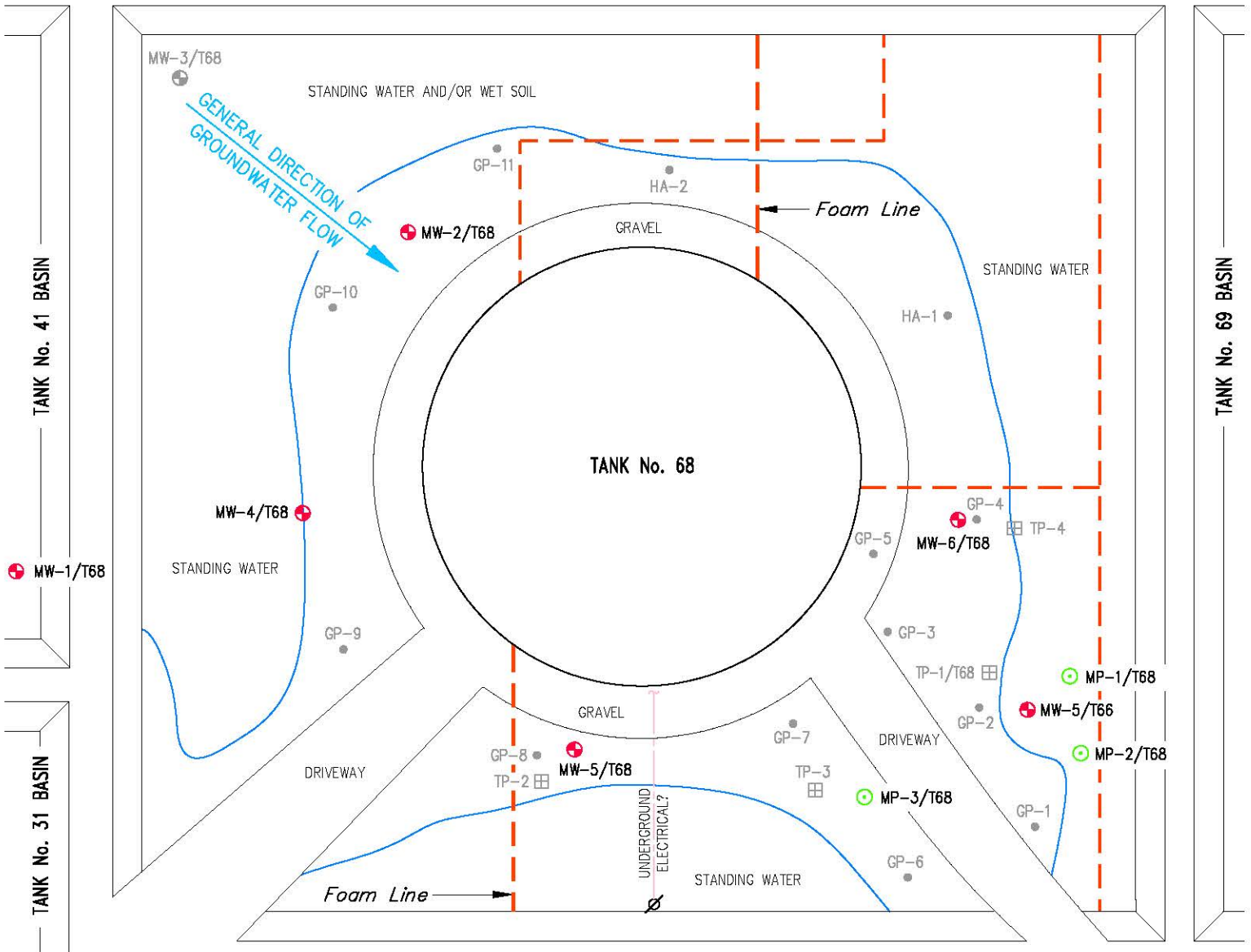


TANK Nos.  
29/30 BASIN

TANK No.  
70 BASIN

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FIGURE 2



**NOTES**

1. Site Layout And Sample Locations Are Based On Field Measurements And Are Approximate; Site Not Surveyed.
2. Each Monitoring Point Is 7 Feet Deep And Consists Of 4"Ø PVC With 3 Feet Of Slotted PVC Screen.
3. Shaded Well, Test Pit, And Geoprobe And Hand Auger Boring Locations Have Been Abandoned.

TANK No. 38 BASIN

TANK No. 66 BASIN



Approximate Scale In Feet

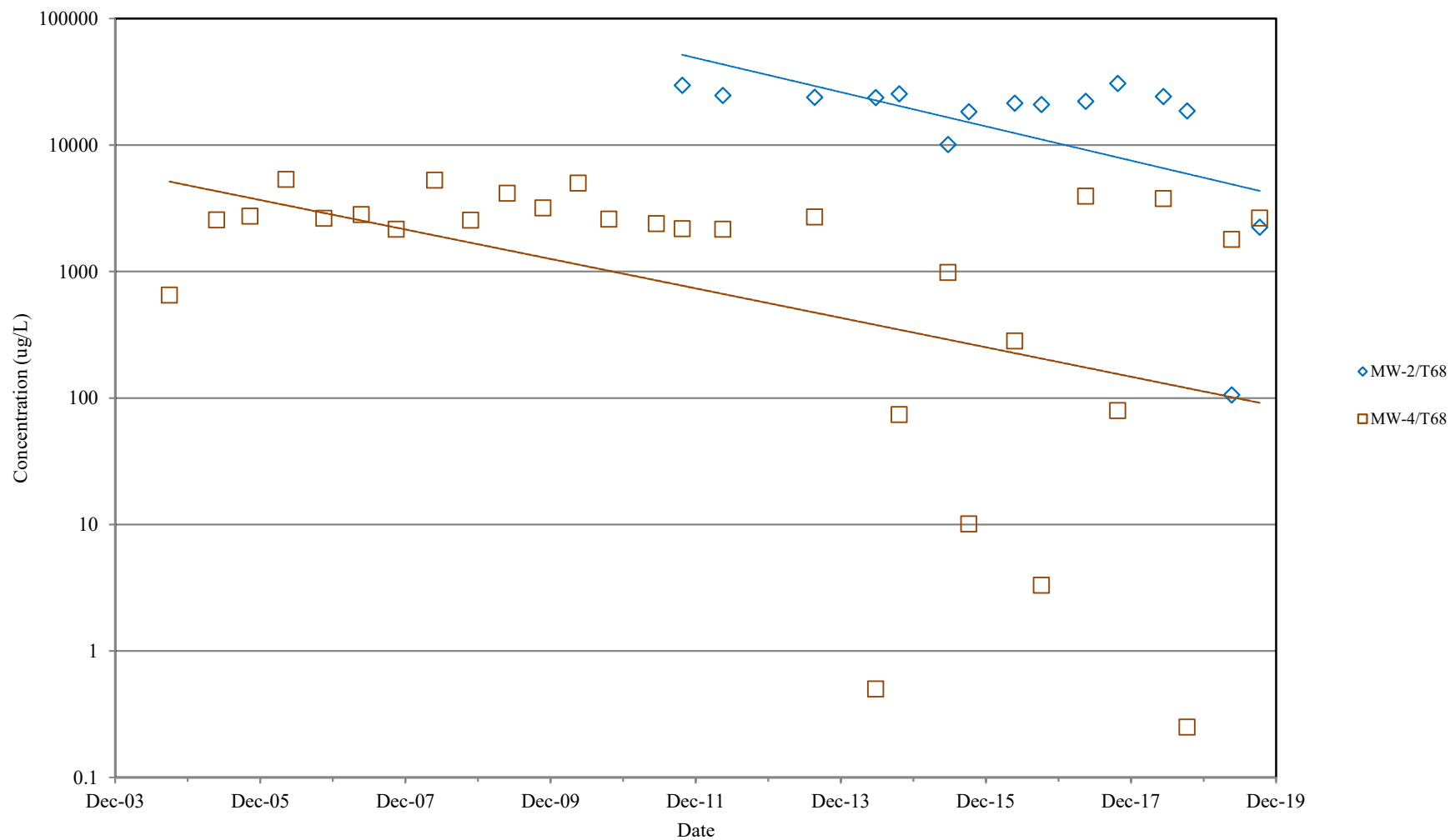
**LEGEND**

- Geoprobe (GP)/Hand Auger (HA) Boring Locations (April/May 2002)
- Monitoring Point (July 2001)
- ▣ Test Pit (June 2000)
- ⊕ Monitoring Well
- - - Aboveground Piping
- ⊘ Utility Pole

**TANK NO. 68  
SITE PLAN**

SUPERIOR REFINING COMPANY LLC  
SUPERIOR, WISCONSIN





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

BENZENE GROUNDWATER CONCENTRATIONS TANK 68 BASIN

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SUPERIOR, WISCONSIN

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SUPERIOR, WISCONSIN

TABLE 1

2019 FLUID LEVEL MONITORING DATA FOR TANK 68 RELEASE SITE

Date	MP-1/T68		MP-2/T68		MP-3/T68		MW-1/T68		MW-2/T68		MW-4/T68		MW-5/T66		MW-5/T68		MW-6/T68		Comments/ Footnotes
	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)																		
04/25/19	--	4.40	--	5.58	--	4.70	--	4.09	--	4.38	--	4.96	3.71	3.72	--	5.59	--	4.04	(1)
05/07/19	--	5.53	--	6.11	--	4.82	--	4.24	--	4.45	--	4.40	--	3.89	--	8.08	--	3.92	(2)
05/21/19	--	5.46	--	6.01	--	4.61	--	3.94	--	4.17	--	3.98	--	3.76	--	8.62	--	3.82	Sampled MWs <sup>(3)</sup>
06/26/19	--	5.71	--	6.25	--	4.90	--	4.63	--	4.35	--	4.51	--	3.71	--	5.94	--	4.09	Checked for FP
09/10/19	--	5.38	--	5.86	--	4.72	--	4.53	--	4.24	--	4.72	--	3.41	--	4.86	--	3.94	(2)
09/24/19	--	5.54	--	6.08	--	4.78	--	4.48	--	4.15	--	6.97	--	3.75	--	7.46	--	8.54	(2)
10/09/19	--	5.53	--	6.11	--	4.76	--	4.51	--	4.44	--	7.01	--	3.85	--	9.25	--	5.82	Sampled MWs <sup>(3)</sup>

NOTES:

DTP = Depth to product.

DTW = Depth to water.

nm = Not measured.

-- = Not applicable/no free product (FP).

FOOTNOTES:

(1) Purged 4 gal from MW-5/T66 to address measured FP and bailed the monitoring wells (MWs) without FP dry in preparation for sampling.

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

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

SUPERIOR REFINING COMPANY LLC  
SUPERIOR, WISCONSIN

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 68 RELEASE SITE<sup>(1)</sup>

Well ID	Substance Concentration (µg/l) and Results Qualifiers (if any)																					
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Naphthalene	Bromobenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloromethane	1,2-Dichloroethane	1,1-Dichloropropene	Isopropyl Ether	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,1,1-Trichloroethane	Tetrachloroethene	Dissolved Lead
NR 140 PAL	NS	0.5	140	160	400	96	12	10	NS	NS	NS	NS	3	0.5	NS	NS	NS	NS	NS	40	0.5	1.5
NR 140 ES	NS	5	700	800	2,000	480	60	100	NS	NS	NS	NS	30	5	NS	NS	NS	NS	NS	200	5	15
MW-1/T68																						
03/06/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
05/17/02	820	<0.43	5.3	7.1	<1.45	13.8	<0.49	<1.4	<0.42	19	4.2	2.7	<0.69	<0.54	<0.30	<0.30	4.6	5.5	5.1	<0.2	<1	na
09/12/02	<50	<0.45	<0.82	<0.68	<2.47	<1.86	<0.43	<0.89	na	na	na	na	na	na	na	na	na	na	na	na	na	na
03/12/03	<50	<0.45	<0.82	<0.68	<2.47	<1.86	<0.43	<0.89	na	na	na	na	na	na	na	na	na	na	na	na	na	na
09/30/04	<50	<0.14	<0.40	<0.36	<1.10	<0.79	<0.36	<0.47	na	na	na	na	na	na	na	na	na	na	na	na	na	na
05/26/05	<50.0	<0.31	<0.5	<0.3	<0.92	<0.71	<0.3	<0.8	<0.41	<0.36	<0.4	<0.4	<0.29	<0.4	na	<0.30	<0.31	<0.5	<0.3	<0.2	<0.3	na
11/09/05	<50.0	<0.31	<0.5	<0.3	<0.92	<0.71	<0.3	<0.8	<0.41	<0.36	<0.4	<0.4	<0.29	<0.4	na	<0.30	<0.31	<0.5	<0.3	<0.2	<0.3	na
05/10/06	<50.0	<0.31	<0.50	<0.30	<0.92	<0.71	<0.30	<0.80	<0.41	<0.36	<0.40	<0.40	<0.29	<0.40	na	<0.30	<0.31	<0.50	<0.30	<0.2	<0.3	na
11/16/06	<50.0	<0.15	<0.10	<0.40	<0.50	<0.30	<0.10	<1.00	<0.10	<0.20	<0.15	<0.15	<0.20	<0.10	0.56 J	<0.30	<0.10	<0.20	<0.10	<0.2	<0.3	na
05/23/07	<50.0	<0.20	<0.10	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.3	na
11/15/07	<50.0	<0.20	<0.10	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.3	na
05/27/08	68	<0.20	<0.10	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.3	na
11/24/08	<50.0	0.42 J	1.55	3.23	10.16	6.97	<0.50	<1.00	<0.20	<0.40	<0.30	<0.30	<0.40	<0.30	<0.50	<0.30	0.16 J	<0.20	<0.10	<0.2	<0.3	na
05/27/09	<50.0	<0.20	<0.20	<0.40	<0.60	<0.40	<0.50	<1.00	<0.30	<0.40	<0.30	<0.30	<0.40	<0.30	<0.80	<0.30	<0.10	<0.40	<0.10	<0.5	<0.3	na
11/23/09	52.6	<2.00	78.0	9.88 J	514	90	<5.00	<10.0	<3.00	<4.00	<3.00	<3.00	<4.00	<3.00	<8.00	na	2.48 J	<4.00	<1.00	<5.00	<0.3	na
05/19/10	<50.0	<0.20	<0.20	<0.40	<0.60	<0.40	<0.50	<1.00	<0.30	<0.40	<0.30	<0.30	<0.40	<0.30	<0.80	<0.30	<0.10	<0.40	<0.10	<0.5	<0.3	na
10/21/10	<50.0	<0.20	<0.20	<0.40	<0.60	<0.40	<0.50	<1.00	<0.30	<0.40	<0.30	<0.30	<0.40	<0.30	<0.80	<0.30	<0.10	<0.40	<0.10	<0.50	0.90 J	na
06/16/11	na	<0.20	<0.20	<0.40	<0.60	<0.40	<0.50	<1.00	<0.30	<0.40	<0.30	<0.30	<0.40	<0.30	<0.80	<0.30	<0.20	<0.40	<0.20	<0.50	<0.30	na
10/25/11	na	<0.20	<0.20	<0.40	<0.60	<0.70	<0.50	<1.00	<0.30	<0.40	<0.30	<0.30	<0.40	<0.30	<0.80	<0.30	<0.20	<0.20	<0.20	<0.50	<0.30	na
05/16/12	na	<0.41	<0.54	<0.67	<2.63	<1.80	<0.61	<0.89	<0.82	<0.93	<0.89	<0.97	<0.24	<0.36	<0.75	na	<0.59	<0.67	<0.81	<0.90	<0.45	na
08/21/13	na	<0.50	<0.50	<0.44	<1.32	<3.07	<0.49	<2.5	<0.48	<0.40	<0.60	<0.42	<0.39	<0.48	<0.51	na	<0.34	<0.40	<0.50	<0.44	<0.47	na
06/24/14	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/21/14	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
06/23/15	na	<0.50	0.57 J	2.3	2.92 J	1.36 JU	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/06/15	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
05/24/16	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/05/16	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
05/16/17	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/25/17	na	<0.50	<0.50	2.3	2.38 J	1.08 JU	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
06/12/18	na	<0.50	<0.50	<0.50	<1.50	<1.00	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/09/18	na	<0.25	<0.22	0.22 J	0.90 JU	2.37 JU	<1.2	<1.2	<0.24	<0.71	<0.85	<0.30	<2.2	<0.28	<0.54	na	<0.39	<0.80	<0.81	<0.24	<0.33	na
05/21/19	na	<0.25	<0.22	0.17 U	0.73 U	1.71 U	<1.2	<1.2	<0.24	<0.71	<0.85	<0.30	<2.2	<0.28	<0.54	na	<0.39	<0.80	<0.81	<0.24	<0.33	na
10/09/19	na	<0.25	0.38 J	0.37 J	4.9	8.9 J	<1.2	1.9 J	<0.24	<0.71	<0.85	<0.30	<2.2	<0.28	<0.54	na	<0.39	<0.80	<0.81	<0.24	<0.33	na
MW-2/T68																						
05/17/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/12/02	120,000	32,000	3,000	38,000	17,400	3,170	<170	280 J	<150	<130	<120	<190	<54	2,800	<160	<300	<130	<120	320 J	<200	<300	na
03/12/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	121,000	25,200	1,810	29,300	20,850	5,570	<300	1,810	<410	<360	<400	<400	<290	<600	na	<300	<310	<500	<300	<200	<300	na
11/09/05	85,300	25,800	1,530	27,000	15,700	2,476	<300	<800	<410	<360	<400	<400	<290	2,520	na	<300	<310	<500	<300	<200	<300	na
05/10/06	88,800	29,700	1,300	25,600	14,830	3,529	<150	<400	<205	<180	<200	<200	<145	2,680	na	<300	<155	<250	<150	<200	<300	na
11/16/06	95,800	29,100	1,570	26,300	16,440	3,212	<100	<1,000	<100	<200	<150	<150	<200	2,370	544 J	<300	<100	<200	<100	<200	<300	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 68 RELEASE SITE<sup>(1)</sup>

Well ID	Substance Concentration (µg/l) and Results Qualifiers (if any)																					
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Naphthalene	Bromobenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloromethane	1,2-Dichloroethane	1,1-Dichloropropene	Isopropyl Ether	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,1,1-Trichloroethane	Tetrachloroethene	Dissolved Lead
NR 140 PAL	NS	0.5	140	160	400	96	12	10	NS	NS	NS	NS	3	0.5	NS	NS	NS	NS	NS	40	0.5	1.5
NR 140 ES	NS	5	700	800	2,000	480	60	100	NS	NS	NS	NS	30	5	NS	NS	NS	NS	NS	200	5	15
05/23/07	124,000	30,000	2,440	34,700	18,820	5,500	<200	<1,000	<200	<200	<200	<200	<300	<200	<300	<300	103	<200	<100	<200	<300	na
11/15/07	98,100	22,500	2,090	24,800	19,190	5,040	<200	6,390	<200	<200	<200	<200	<300	2,020	<300	<300	<100	<200	<100	<200	<300	na
05/27/08	103,000	24,900	1,880	29,000	17,380	4,150	<500	<1,000	<200	<400	<300	<300	<400	1,710	<500	<300	<100	<200	<100	<200	<300	na
11/24/08	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/09	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/23/09	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/19/10	124,000	39,800	2,790	44,100	18,080	4,660	<500	<1,000	<300	<400	<300	<300	<400	<300	<500	<300	<100	<200	<100	<500	<300	na
10/21/10	245,000	32,300	4,380	41,200	37,800	12,330	<500	1,180 J	<300	<400	<300	<300	<400	1,510	<800	<300	266 J	<400	<200	<500	<300	na
06/16/11	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/25/11	na	29,600	2,760	34,800	18,150	3,670	<100	451 J	<60.0	<80.0	<60.0	<60.0	<80.0	<60.0	<160	na	111 J	<80.0	<40.0	<100	<60.0	na
05/16/12	na	24,600	1,950	29,200	16,780	2,906	<76.2	324 J	<102	<116	<111	<121	<30.0	1,700	<93.8	na	<73.8	<83.8	149	<112	<56.2	na
08/21/13	na	23,800	2,290	28,300	20,740	5,310	<98.7	604 J	<96.7	121 J	<121	<84.9	<77.5	930	<101	na	92.3 J	<79.4	277	<94.4	<88.6	na
06/24/14	na	23,700	892	21,300	16,270	2,757	<43.6	<625	<57.5	<125	<547	<45.1	<125	1,220	<110	na	<35.8	<125	<125	<125	<125	na
10/21/14	na	25,400	975	24,700	15,820	2,149	<34.8	<500	<46.0	<100	<437	<36.1	<100	1,180	<88.2	na	<28.7	<100	<100	<100	<100	na
06/23/15	na	10,100	203	11,500	17,270	3,140	<34.8	<500	<46.0	<100	<437	<36.1	<100	355	<88.2	na	<28.7	<100	<100	<100	<100	na
10/06/15	na	18,300	995	18,500	15,000	2,627	<34.8	<500	<46.0	<100	<437	<36.1	<100	894	<88.2	na	<28.7	<100	<100	<100	<100	na
05/24/16	na	21,400	1,370	22,200	16,160	2,663	<34.8	<500	<46.0	<100	<437	<36.1	<100	1,260	<88.2	na	48.3 J	<100	104 J	<100	<100	na
10/05/16	na	20,900	1,350	20,300	15,370	2,673	<34.8	<500	<46.0	<100	<437	<36.1	<100	1,150	<88.2	na	45.3 J	<100	105 J	<100	<100	na
05/16/17	na	22,100	933	19,200	15,400	3,192	<34.8	<500	<46.0	<100	<437	<36.1	<100	1,420	<88.2	na	<28.7	<100	<100	<100	<100	na
10/25/17	na	30,600	1,170	24,500	19,550	3,122	<43.6	<625	<57.5	<125	<547	<45.1	<125	1,610	<110	na	<35.8	<125	<125	<125	<125	na
06/12/18	na	24,200	1,550	25,500	19,050	2,703	<34.8	<500	<46.0	<100	<437	<36.1	<100	1,240	<88.2	na	32.8 J	<100	<100	<100	<100	na
10/09/18	na	18,600	1,120	16,100	15,370	3,389	<249	292 J	<48.2	<142	<170	<60.8	<438	1,520	<108	na	<78.6	<160	<162	<49.0	<65.3	na
05/21/19	na	106	3.6	105	999	434	<1.2	23.8	<0.24	<0.71	19.3	<0.30	<2.2	8.0	<0.54	na	<0.39	<0.80	<0.81	<0.24	<0.33	na
10/09/19	na	2,240	17.8 J	1,330	5,060	1,601	<49.8	98.3 J	<9.6	<28.3	<33.9	<12.2	<87.6	287	<21.6	na	<15.7	<32.0	<32.4	<9.8	<13.1	na
MW-3/T68																						
03/12/03	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	<50	<0.41	<0.54	<0.67	<2.63	<1.8	<0.61	<0.74	<0.82	<0.93	<0.89	<0.97	<0.24	<0.36	<0.75	<0.30	<0.59	<0.67	<0.81	<0.2	<0.45	na
05/26/05	96.8	15.6	0.636 J	0.44 J	1.25 J	4.78 J	<0.3	1.38 J	<0.8	1.61	<0.4	<0.4	<0.29	<0.4	na	<0.30	<0.31	<0.5	<0.3	<0.2	<0.45	na
11/09/05	<50.0	<0.31	<0.5	<0.3	<0.92	<0.71	<0.3	<0.8	<0.41	<0.36	<0.4	<0.4	<1.00	<0.4	na	<0.30	<0.31	<0.5	<0.3	<0.2	<0.45	na
05/10/06	<50.0	9.77	<0.50	<0.30	1.93 J	3.09 J	<0.30	<0.80	<0.41	<0.36	<0.40	<0.40	<0.29	<0.40	na	<0.30	<0.60	<0.50	<0.30	<0.2	<0.71	na
11/16/06	<50.0	<0.15	<0.10	<0.40	<0.50	<0.30	<0.10	<1.00	<0.10	<0.20	<0.15	<0.15	<0.20	<0.10	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.10	na
05/23/07	<50.0	<0.20	0.10 J	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.30	na
11/15/07	<50.0	<0.20	<0.10	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.30	na
05/27/08	<50.0	<0.20	<0.10	<0.40	<0.60	<0.40	<0.20	<1.00	<0.20	<0.20	<0.20	<0.20	<0.30	<0.20	<0.30	<0.30	<0.10	<0.20	<0.10	<0.2	<0.30	na
11/24/08	Filled and sealed																					
MW-4/T68																						
03/12/03	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	5,500	650	260	49	1,090	560	<3.0	38	<4.1	<4.6	<4.4	<4.8	<1.2	<1.8	<3.8	<30.0	17	15	24	<20.0	<30.0	na
05/26/05	12,800	2,560	402	44.3	2,857	1,522	<30.0	132	<41.0	<36.0	<40.0	<40.0	<29.0	<40.0	na	<30.0	37.3	<50.0	<30.0	<20.0	<30.0	na
11/09/05	12,100	2,730	650	59.9	3,555	1,439	<15.0	114	<20.5	<18.0	<20.0	<20.0	<14.5	<20.0	na	<30.0	47	<25.0	51.8	<20.0	<30.0	na
05/10/06	15,700	5,350	462	125	4,280	1,622	<30.0	154 J	<41.0	166	<40.0	<40.0	<29.0	<40.0	na	<30.0	<31.0	<50.0	<30.0	<20.0	<30.0	na
11/16/06	15,300	2,630	567	74.9	4,360	2,580	<5.00	212	<5.00	<10.0	<7.50	<7.50	13.6 J	<5.00	<15.0	<30.0	26	11.4 J	<5.00	<20.0	<30.0	na
05/23/07	12,200	2,810	247	52.8	2,314	626	<10.0	118 J	<10.0	<10.0	<10.0	<10.0	<15.0	56.2	<15.0	<30.0	7.83	17.7	<5.00	<20.0	<30.0	na
11/15/07	11,700	2,160	241	<40.0	2,410	1,760	<20.0	164 J	<20.0	<20.0	<20.0	<20.0	<30.0	<20.0	<30.0	<30.0	11.8	<20.0	<10.0	<20.0	<30.0	na
05/27/08	14,600	5,270	554 J	<400	3,156	1,071	<500	<1,000	<200	<400	<300	<300	<400	<300	<500	<300	<100	<200	<100	<200	<300	na
11/24/08	12,100	2,540	399	43.7 J	2,153	1,425	<50.0	157 J	<20.0	<40.0	<30.0	<30.0	<40.0	62.8 J	<50.0	42.5 J	26.5 J	<20.0	<10.0	20 J	<30.0	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 68 RELEASE SITE<sup>(1)</sup>

Well ID	Substance Concentration (µg/l) and Results Qualifiers (if any)																					
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Naphthalene	Bromobenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloromethane	1,2-Dichloroethane	1,1-Dichloropropene	Isopropyl Ether	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,1,1-Trichloroethane	Tetrachloroethene	Dissolved Lead
NR 140 PAL	NS	0.5	140	160	400	96	12	10	NS	NS	NS	NS	3	0.5	NS	NS	NS	NS	NS	40	0.5	1.5
NR 140 ES	NS	5	700	800	2,000	480	60	100	NS	NS	NS	NS	30	5	NS	NS	NS	NS	NS	200	5	15
05/27/09	11,100	4,150	335	52.8 J	2,153	1,023	<50.0	104 J	<30.0	<40.0	<30.0	<30.0	<40.0	115	<40.0	<30.0	<10.0	<40.0	<10.0	<50.0	<30.0	na
11/23/09	9,880	3,180	236	136	2,090	784	<50.0	404	<30.0	<40.0	<30.0	<30.0	<40.0	84.3 J	<80.0	na	<10.0	<40.0	<10.0	<50.0	<30.0	na
05/19/10	9,710	4,990	243	<40.0	1,669	839	<50.0	<100	<30.0	<40.0	<30.0	<30.0	<40.0	118	<40.0	<30.0	<10.0	<40.0	<10.0	<50.0	<30.0	na
10/21/10	12,400	2,590	368	<40.0	2,045	1,790	<50.0	153 J	<30.0	<40.0	<30.0	<30.0	<40.0	57.6 J	<80.0	<30.0	<20.0	<40.0	<20.0	<50.0	<30.0	na
06/16/11	na	2,390	172	<40.0	1,096.4 J	535	<50.0	<100	<30.0	<40.0	<30.0	<30.0	<40.0	<30.0	<80.0	na	<20.0	<40.0	<20.0	<50.0	<30.0	na
10/25/11	na	2,180	247	45.2 J	1,234.3 J	857	<50.0	<100	<30.0	<40.0	<30.0	<30.0	<40.0	51.3	<80.0	na	<20.0	<40.0	<20.0	<50.0	<30.0	na
05/16/12	na	2,150	297	13.0	1,054.5	793	<6.1	72.4	<8.2	<9.3	<8.9	<9.7	<2.4	<3.6	<7.5	na	8.0 J	7.0 J	14.4	<9.0	<4.5	na
08/21/13	na	2,690	548	11.4 J	1,157.6 J	799.6 J	<9.9	94.1 J	<9.7	8.5 J	<12.1	<8.5	<7.8	<9.5	<10.1	na	16.2 J	8.4 J	36.3	<8.9	<9.4	na
06/24/14	na	0.50 U	<0.50	<0.50	<1.50	<1.0	<0.23	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/21/14	na	73.8	19.8	<0.50	111.97 J	85.4	<0.17	3.3 J	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
06/23/15	na	982	178	15.8	450.6 J	475.5	<1.7	<25.0	<2.3	<5.0	<21.9	<1.8	<5.0	<1.7	<4.4	na	4.6 J	<5.0	7.5 J	<5.0	<5.0	na
10/06/15	na	10.1	1.5	<0.50	2.7	2.6	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
05/24/16	na	282	30.6	2.2 J	88.0 J	148.6	<0.44	<6.2	<0.58	<1.2	<5.5	<0.45	<1.2	<0.42	<1.1	na	0.69 J	<1.2	<1.2	<1.2	<1.2	na
10/05/16	na	3.3	0.83 J	0.99 J	4.1	3.2	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.17	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
05/16/17	na	3,930	602	<20.0	1,600	674.5	<7.0	<100	<9.2	<20.0	<87.4	<7.2	<20.0	<6.7	<17.6	na	10.4 J	<20.0	<20.0	<20.0	<30.0	na
10/25/17	na	79.6	9.7	3.6	30.6	40.6	<0.44	<6.2	<0.58	<1.2	8.3 J	<0.45	<1.2	<0.42	<1.1	na	0.43 J	<1.2	2.1 J	<1.2	<1.2	na
06/12/18	na	3,770	531	<25.0	1,305 U	597.7 J	<8.7	<125	<11.5	<25.0	<109	<9.0	<25.0	<8.4	<22.1	na	<7.2	<25.0	<25.0	<25.0	<25.0	na
10/09/18	na	0.25 U	<0.22	<0.17	0.73 U	1.71 U	<1.2	<1.2	<0.24	<0.71	<0.85	<0.30	<2.2	<0.28	<0.54	na	<0.39	<0.80	<0.81	<0.24	<0.33	na
05/21/19	na	1,790	278	4.9 J	552.6 U	376.0 J	<12.5	13.1 J	<2.4	<7.1	<8.5	<3.0	<21.9	<2.8	<5.4	na	8.4 J	<8.0	17.9 J	<2.4	<3.3	na
10/09/19	na	2,640	420	4.8 J	441.6 U	661.1	<12.5	<11.8	<2.4	<7.1	<8.5	<3.0	<21.9	64.6	<5.4	na	13.1 J	<8.0	30.5 J	<2.4	<3.3	na
MW-5/T66																						
11/25/98	100	<0.30	1.9	6.7	32	10.4	<0.20	<1.1	<0.20	2	<0.20	<0.30	<0.90	<0.20	na	<0.30	<0.20	<0.20	0.3	<0.20	<0.60	na
12/17/98	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	<1
04/06/99	997	44	8.06	33.1	195	109	<0.3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.41
06/01/99	3,810	55.4	65.7	170	909	554	<3.0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.75
09/09/99	31,300	1,920	1,970	5,190	9,590	2,554	<15	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.23
12/10/99	74,600	7,480	3,070	19,800	15,270	2,786	<60	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.38
03/06/02	44,000	3,300	3,100	13,000	18,000	4,800	<25	820	na	na	na	na	na	na	na	na	na	na	na	na	na	na
07/11/02	na	2,100	1,700	8,700	13,400	2,900	<49	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
09/12/02	44,000	2,200	2,800	10,000	14,500	2,960	<22	310	na	na	na	na	na	na	na	na	na	na	na	na	na	na
03/12/03	48,000	3,400	3,100	9,900	15,600	3,220	<22	340	na	na	na	na	na	na	na	na	na	na	na	na	na	na
09/30/04	77,000	13,000	3,600	23,000	17,200	3,350	<72	520	na	na	na	na	na	na	na	na	na	na	na	na	na	na
05/26/05	72,800	20,700	1,250	23,400	9,990	1,974	<300	<800	<410	<360	<400	<400	<290	<400	na	<300	<310	<500	<300	<200	<300	na
11/09/05	53,100	8,980	2,580	19,700	17,840	2,731	<60.0	270	<82.0	<72.0	<80.0	<80.0	<58.0	<80.0	na	<30.0	68.3	<100	190	<200	<300	na
05/10/06	72,700	8,620	3,660	19,400	18,340	4,340	<150	667 J	<205	549	<200	<200	<145	<200	na	<300	<155	<250	602	<200	<300	na
11/16/06	17,300	672	425	1,740	4,040	1,852	<5.00	89.6 J	102	199	<7.50	<7.50	<10.0	15.4 J	<15.0	<30.0	17.7 J	11.5 J	<5.00	<20.0	<30.0	na
05/23/07	29,800	2,620	1,160	5,200	6,840 J	2,360	<10.0	174	<10.0	<10.0	<10.0	<10.0	19.7 J	52.0	<15.0	<30.0	32.3	<10.0	<5.00	<20.0	<30.0	na
11/15/07	27,000	2,440	1,270	4,790	8,180	2,540	<20.0	221 J	<20.0	<20.0	<20.0	<20.0	<30.0	<20.0	<30.0	<30.0	34.2	<20.0	<10.0	<20.0	<30.0	na
05/27/08	39,500	4,210	2,180	8,750	12,350	2,360	<500	<1,000	<200	<400	<300	<300	<400	<300	<500	<300	<100	<200	<100	<200	<300	na
11/24/08	19,300	2,010	1,270	4,340	8,540	1,841	<50.0	223 J	<20.0	230	<30.0	<30.0	<40.0	<30.0	<50.0	<30.0	33.9 J	<20.0	<10.0	<20.0	<30.0	na
05/29/09	27,500	2,710	1,570	3,590	10,550	3,160	<500	<1,000	<300	<400	<300	<300	<400	<300	<800	<300	<100	<400	<100	<500	<300	na
11/23/09	20,100	1,870	926	1,050	6,910	2,760	<50.0	391	<30.0	<40.0	<30.0	<30.0	<40.0	43.6 J	<80.0	na	31.6	<40.0	<10.0	<50.0	<300	na
05/19/10	25,400	2,980	1,480	4,190	9,050	3,000	<500	<1,000	<300	<400	<300	<300	<400	<300	<800	<300	<100	<400	<100	<500	<300	na
10/21/10	21,800	1,630	913	2,090	6,670	1,431	<50.0	211 J	<30.0	<40.0	<30.0	<30.0	<40.0	34.9 J	<80.0	<30.0	21.3 J	<40.0	<20.0	<500	<30.0	na
06/16/11	na	2,940	1,520	2,470	9,480	2,161 J	<250	<500	<150	<200	<150	<150	<200	<150	<400	na	<100	<200	<100	<250	<150	na
10/25/11	na	3,020	820	1,110	7,280	1,745 J	<250	<500	<150	<200	<150	<150	<200	<150	<400	na	<100	<200	<100	<250	<150	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 68 RELEASE SITE<sup>(1)</sup>

Well ID	Substance Concentration (µg/l) and Results Qualifiers (if any)																					
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Naphthalene	Bromobenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloromethane	1,2-Dichloroethane	1,1-Dichloropropene	Isopropyl Ether	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,1,1-Trichloroethane	Tetrachloroethene	Dissolved Lead
NR 140 PAL	NS	0.5	140	160	400	96	12	10	NS	NS	NS	NS	3	0.5	NS	NS	NS	NS	NS	40	0.5	1.5
NR 140 ES	NS	5	700	800	2,000	480	60	100	NS	NS	NS	NS	30	5	NS	NS	NS	NS	NS	200	5	15
05/16/12	na	3,220	2,550	2,690	13,910	2,828	<15.2	317	<20.5	<23.2	<22.2	<24.2	<6.0	<9.0	<18.8	na	54.1	<16.8	210	<22.5	<11.2	na
08/21/13	na	3,860	2,540	1,760	15,230	3,450	<19.7	404	<19.3	56.9	<24.2	<17.0	<15.5	<19.1	<20.3	na	66.4	16.8 J	244	<17.7	<18.9	na
06/24/14	na	6.0	0.80 J	2.5	64.5	19.4	<0.17	<2.5	<0.23	<0.50	<2.2	<0.18	<0.50	<0.16	<0.44	na	<0.14	<0.50	<0.50	<0.50	<0.50	na
10/21/14	na	2,050	1,230	423	9,030	1,486	<3.5	172	<4.6	<10.0	<43.7	<3.6	<10.0	<3.4	<8.8	na	11.5 J	<10.0	43.5	<10.0	<10.0	na
06/23/15	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/06/15	na	11,800	2,080	20,900	16,670	4,585	<34.8	510 J	<46.0	<100	<437	<36.1	<100	<33.6	<88.2	na	74.7 J	<100	316	<100	<100	na
05/24/16	na	10,600	3,330	17,000	19,360	4,719	<34.8	<500	<46.0	<100	<437	<36.1	<100	<33.6	<88.2	na	118 J	<100	419	<100	<100	na
10/05/16	na	9,090	2,700	15,900	16,800	3,241	<34.8	<500	<46.0	<100	<437	<36.1	<100	<33.6	<88.2	na	65.2 J	<100	222	<100	<100	na
05/16/17	na	10,600	2,950	16,300	18,730	2,902	<34.8	<500	<46.0	<100	<437	<36.1	<100	<33.6	<88.2	na	74.4 J	<100	209	<100	<100	na
10/25/17	na	8,790	2,300	15,400	17,250	2,364	<21.8	<312	<28.8	<62.5	<273	<22.5	<62.5	<21.0	<55.1	na	66.4 J	<62.5	167	<62.5	<62.5	na
06/12/18	na	5,630	2,240	8,760	16,810	3,243	<8.7	276	<11.5	<25.0	<109	<9.0	<25.0	<8.4	<22.1	na	40.9 J	<25.0	147	<25.0	<25.0	na
10/09/18	na	4,180	2,030	10,800	17,330	4,662	<62.3	549	<12.1	<35.4	<42.4	<15.2	<109	<14.0	<27.0	na	71.6 J	<40.0	263	<12.2	<16.3	na
05/21/19	na	2,810	1,410	7,130	13,160	3,625	<62.3	382	<12.1	<35.4	<42.4	<15.2	<109	<14.0	<27.0	na	37.0 J	<40.0	108 J	<12.2	<16.3	na
10/09/19	na	4,260	1,680	9,810	14,770	3,279	<62.3	358	<12.1	<35.4	<42.4	<15.2	<109	112	<27.0	na	35.9 J	<40.0	106 J	<12.2	<16.3	na
MW-5/T68																						
03/12/03	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	57,000	14,000	460	15,000	9,100	1,810	<61	330	<82	<93	<89	<97	<24	<36	<75	<300	<59	<67	<81	<200	<300	na
05/26/05	66,600	10,500	2,240	17,000	17,060	4,084	<150	431	<205	513	<200	<200	<145	<300	na	<300	<155	<250	305	<200	<300	na
11/09/05	40,100	9,710	450	10,100	9,990	1,682	<150	<400	<205	<180	<200	<200	<145	<200	na	<300	<155	<250	<150	<200	<300	na
05/10/06	45,600	13,300	422	12,300	9,700	1,881	<60.0	241 J	<82.0	<72.0	<80.0	<80.0	<58.0	<80.0	na	<300	<62.0	<100	<60.0	<200	<300	na
11/16/06	37,300	5,410	922	6,820	10,380	3,260	<10.0	265 J	75	<20.0	<15.0	19.9 J	<20.0	109	65.6 J	<300	30.1 J	<20.0	<10.0	<200	<300	na
05/23/07	103,000	21,200	2,730	33,800	16,520	4,590	<200	<1,000	<200	<200	<200	<200	<300	<200	<300	<300	<100	<200	<100	<200	<300	na
11/15/07	121,000	7,580	1,240	13,500	7,180	2,007	<200	<1,000	<200	<200	<200	<200	<300	<200	<300	<300	<100	<200	<100	<200	<300	na
05/27/08	120,000	22,600	3,310	45,700	20,390	3,327	<500	<1,000	<200	<400	<300	<300	<400	<300	<500	<300	<100	<200	<100	<200	<300	na
11/24/08	109,000	6,950	1,590	14,200	7,780	1,377	<500	<1,000	<200	<400	<300	<300	<400	<300	<500	<300	<100	<200	<100	<200	<300	na
05/27/09	110,000	19,000	4,030	45,700	21,860	6,040	<500	<1,000	<300	<400	<300	<300	<400	585 J	<800	<300	134 J	<400	<100	<500	<300	na
11/23/09	106,000	13,200	3,630	30,600	20,610	6,280	<50.0	783	<30.0	<40.0	<30.0	<30.0	<40.0	315	<80.0	na	111	<40.0	<10.0	<50.0	<300	na
05/19/10	103,000	18,400	3,640	42,200	21,540	6,560	<500	<1,000	<300	<400	<300	<300	<400	<300	<800	<300	134 J	<400	<100	<500	<300	na
10/21/10	98,000	14,900	3,730	36,800	24,540	6,240	<500	1,070 J	<300	<400	<300	<300	<400	339 J	<400	<300	<200	<400	<200	<500	<300	na
06/16/11	na	12,200	2,760	33,100	16,950	3,324 J	<500	<1,000	<300	<400	<300	<300	<400	<300	<800	na	<200	<400	<200	<500	<300	na
10/25/11	na	12,600	2,250	27,800	18,100	4,288 J	<500	<1,000	<300	<400	<300	<300	<400	322 J	<800	na	<200	<400	<200	<500	<300	na
05/16/12	na	12,700	2,610	28,200	17,680	3,480	<76.2	476 J	<102	<116	<111	<121	<30.0	<45.0	<93.8	na	<73.8	<83.8	214	<112	<56.2	na
08/21/13	na	16,000	2,390	27,800	16,160	4,261	<98.7	584 J	<96.7	<79.9	<121	<84.9	<77.5	<95.3	<101	na	71.0	<79.4	273	<88.6	<94.4	na
06/24/14	na	14,600	2,700	26,900	17,940	1,208	<43.6	<625	<57.5	<125	<547	<45.1	<125	<41.9	<110	na	57.5 J	<125	193 J	<125	<125	na
10/21/14	na	23,300	4,140	48,700	33,400	5,250	<34.8	617 J	<46.0	<100	<437	<36.1	<100	<33.5	<88.2	na	<28.7	<100	260	<100	<100	na
06/23/15	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/06/15	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/24/16	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/05/16	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/16/17	na	25,600	3,200	42,700	23,200	3,821	<109	<1560	<144	623 J	<1370	<113	<312	<105	<276	na	<89.6	<312	<312	<312	<312	na
10/25/17	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
06/12/18	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/09/18	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/21/19	na	27,400	2,730	41,600	24,450	3,480	<311	432 J	<60.3	<177	<212	<76.0	<547	<70.0	<135	na	<98.2	<200	<203	<61.2	<81.6	na
10/09/19	na	25,400	2,480	39,500	21,620	4,555	<311	717 J	<60.3	<177	<212	<76.0	<547	697	<135	na	<98.2	<200	258 J	<61.2	<81.6	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 68 RELEASE SITE<sup>(1)</sup>

Well ID	Substance Concentration (µg/l) and Results Qualifiers (if any)																					
	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	TMBs	MTBE	Naphthalene	Bromobenzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloromethane	1,2-Dichloroethane	1,1-Dichloropropene	Isopropyl Ether	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,1,1-Trichloroethane	Tetrachloroethene	Dissolved Lead
NR 140 PAL	NS	0.5	140	160	400	96	12	10	NS	NS	NS	NS	3	0.5	NS	NS	NS	NS	NS	40	0.5	1.5
NR 140 ES	NS	5	700	800	2,000	480	60	100	NS	NS	NS	NS	30	5	NS	NS	NS	NS	NS	200	5	15
MW-6/T68																						
03/12/03	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
thru	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
06/16/11	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/25/11	na	24,000	2,160	25,200	16,320	3,830	<100	243 J	<60.0	<80.0	<60.0	<60.0	<80.0	<60.0	<80.0	na	61.3 J	<80.0	<40.0	<100	<60.0	na
05/16/12	na	27,900	2,270	31,200	19,370	3,059	<122	436 J	<164	<186	<178	<194	<48.0	293	<150	na	<118	<134	<162	<180	<90.0	na
08/21/13	na	26,100	3,940	32,700	33,400	11,180	<98.7	852 J	<96.7	439	<121	<84.9	<77.5	<95.3	<101	na	193 J	124 J	741	<88.6	<94.4	na
06/24/14	na	26,000	1,780	25,700	19,390	3,017	<43.6	<625	<57.5	<125	<547	<45.1	<125	336	<110	na	<35.8	<125	127 J	<125	<125	na
10/21/14	na	47,200	2,160	47,700	43,200	6,080	<34.8	543 J	<46.0	<100	<437	<36.1	<100	<33.5	<88.2	na	<28.7	<100	121 J	<100	<100	na
06/23/15	na	5,710	26.3 J	3,900	20,110	4,263	<8.7	383	<11.5	<25.0	<109	<9.0	<25.0	<8.4	<22.1	na	<7.2	<25.0	<25.0	<25.0	<25.0	na
10/06/15	na	6,000	43.0 J	3,010	18,150	4,307	<8.7	342	<11.5	<25.0	<109	<9.0	<25.0	43.5 J	<22.1	na	<7.2	<25.0	<25.0	<25.0	<25.0	na
05/24/16	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP
10/05/16	na	5,070	45.5 J	1,560	14,320	4,065	<8.7	334	<11.5	<25.0	<109	<9.0	<25.0	37.5 J	<22.1	na	<7.2	<25.0	<25.0	<25.0	<25.0	na
05/16/17	na	21,000	1,170	19,600	20,980	3,928	<17.4	273 J	<23.0	<50.0	<219	<18.0	<50.0	240	<44.1	na	30.8 J	<50.0	81.8 J	<50.0	<50.0	na
10/25/17	na	17,500	576	12,500	16,570	3,569	<21.8	<312	<28.8	<62.5	<273	<22.5	<62.5	225	<55.1	na	<17.9	<62.5	<62.5	<62.5	<62.5	na
06/12/18	na	23,300	2,100	25,200	22,650	3,555	<8.7	290	<11.5	<25.0	<109	<9.0	<25.0	209	<22.1	na	37.1 J	<25.0	111	<25.0	<25.0	na
10/09/18	na	20,600	1,700	19,300	19,490	3,735	<311	421 J	<60.3	<177	<212	<76.0	<547	<70.0	<135	na	<98.2	<200	<203	<61.2	<81.6	na
05/21/19	na	22,600	1,550	20,400	20,360	3,487	<311	297 J	<60.3	<177	<212	<76.0	<547	236 J	<135	na	<98.2	<200	<203	<61.2	<81.6	na
10/09/19	na	20,300	1,300	17,700	17,400	3,428	<311	391 J	<60.3	<177	<212	<76.0	<547	743	<135	na	<98.2	<200	<203	<61.2	<81.6	na

NOTES:  
 Results are in micrograms per liter (µg/l). Detected concentrations at or above an applicable NR 140 PAL are in red font and italicized; those at or above an NR 140 ES are in red font and bold.  
 DP = Discontinuous product globules, well not sampled.  
 FP = Free product, well not sampled.  
 GRO = Gasoline range organics.  
 J = Estimated concentration, concentration below the laboratory's level of quantitation.  
 MTBE = Methyl tert butyl ether.  
 na = Not analyzed.  
 NI = Not installed.  
 NR 140 ES = Wisconsin Administrative Code NR 140 Enforcement Standard.  
 NR 140 PAL = Wisconsin Administrative Code NR 140 Preventive Action Limit.  
 NS = No standard.  
 TMBs = Trimethylbenzenes.  
 U = Compound not detected at or above the limit of detection.

FOOTNOTE:  
 (1) In addition, 244 µg/l of 1,3-dichloropropane was detected in the sample collected from MW-5/T66 on 10/25/17. However, 1,3-dichloropropane has no NR 140 PAL or NR 140 ES. Consequently, Table 2 was not revised to include all 1,3-dichloropropane data.

**ATTACHMENT A**

**LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS FOR GROUNDWATER  
SAMPLES COLLECTED IN MAY AND OCTOEBER 2019**



June 04, 2019

**Project #34265.003**  
**T40/T50/T68/T70 GW Data**  
**Reviewed by CCW**  
**6/5/19**

Clifford Wright  
Gannett Fleming  
8040 Excelsior Drive, Ste 303  
Madison, WI 53717

RE: Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40188098

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on May 22, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Milewsky  
dan.milewsky@pacelabs.com  
(920)469-2436  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

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### Green Bay Certification IDs

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

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Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

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Federal Fish & Wildlife Permit #: LE51774A-0

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40188098001	MW-1/T40	Water	05/21/19 08:50	05/22/19 08:20
40188098002	MW-2/T40	Water	05/21/19 08:35	05/22/19 08:20
40188098003	MW-4/T40	Water	05/21/19 08:55	05/22/19 08:20
40188098004	MW-5/T40	Water	05/21/19 08:30	05/22/19 08:20
40188098005	MW-6/T40	Water	05/21/19 08:40	05/22/19 08:20
40188098006	MW-7/T40	Water	05/21/19 08:45	05/22/19 08:20
40188098007	TS-1/T40	Water	05/21/19 08:25	05/22/19 08:20
40188098008	MW-1/T68	Water	05/21/19 09:00	05/22/19 08:20
40188098009	MW-2/T68	Water	05/21/19 09:30	05/22/19 08:20
40188098010	MW-4/T68	Water	05/21/19 09:25	05/22/19 08:20
40188098011	MW-5/T66	Water	05/21/19 09:15	05/22/19 08:20
40188098012	MW-5/T68	Water	05/21/19 09:10	05/22/19 08:20
40188098013	MW-6/T68	Water	05/21/19 09:20	05/22/19 08:20
40188098014	MW-2R/T70	Water	05/21/19 09:45	05/22/19 08:20
40188098015	MW-3/T70	Water	05/21/19 10:00	05/22/19 08:20
40188098016	MW-4/T70	Water	05/21/19 10:05	05/22/19 08:20
40188098017	MW-5/T70	Water	05/21/19 09:50	05/22/19 08:20
40188098018	MW-6/T70	Water	05/21/19 09:55	05/22/19 08:20
40188098019	MW-4/T50	Water	05/21/19 08:10	05/22/19 08:20
40188098020	MW-5/T50	Water	05/21/19 08:05	05/22/19 08:20
40188098021	MW-6/T50	Water	05/21/19 08:15	05/22/19 08:20
40188098022	TRIP BLANK	Water	05/21/19 00:00	05/22/19 08:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40188098

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40188098001	MW-1/T40	EPA 8260	HNW	11	PASI-G
40188098002	MW-2/T40	EPA 8260	HNW	11	PASI-G
40188098003	MW-4/T40	EPA 8260	HNW	11	PASI-G
40188098004	MW-5/T40	EPA 8260	HNW	11	PASI-G
40188098005	MW-6/T40	EPA 8260	HNW	11	PASI-G
40188098006	MW-7/T40	EPA 8260	HNW	11	PASI-G
40188098007	TS-1/T40	EPA 8260	HNW	11	PASI-G
40188098008	MW-1/T68	EPA 8260	HNW	63	PASI-G
40188098009	MW-2/T68	EPA 8260	SMT	63	PASI-G
40188098010	MW-4/T68	EPA 8260	SMT	63	PASI-G
40188098011	MW-5/T66	EPA 8260	HNW	63	PASI-G
40188098012	MW-5/T68	EPA 8260	HNW	63	PASI-G
40188098013	MW-6/T68	EPA 8260	HNW	63	PASI-G
40188098014	MW-2R/T70	EPA 8260	HNW	12	PASI-G
40188098015	MW-3/T70	EPA 8260	HNW	12	PASI-G
40188098016	MW-4/T70	EPA 8260	LAP	12	PASI-G
40188098017	MW-5/T70	EPA 8260	LAP	12	PASI-G
40188098018	MW-6/T70	EPA 8260	LAP	12	PASI-G
40188098019	MW-4/T50	EPA 8021	ALD	10	PASI-G
40188098020	MW-5/T50	EPA 8021	ALD	10	PASI-G
40188098021	MW-6/T50	EPA 8021	ALD	10	PASI-G
40188098022	TRIP BLANK	EPA 8260	SMT	63	PASI-G

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### SUMMARY OF DETECTION

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40188098007</b>	<b>TS-1/T40</b>					
EPA 8260	1,2,4-Trimethylbenzene	2.3J	ug/L	2.8	05/28/19 11:44	
EPA 8260	1,3,5-Trimethylbenzene	1.2J	ug/L	2.9	05/28/19 11:44	
EPA 8260	Benzene	10.1	ug/L	1.0	05/28/19 11:44	
EPA 8260	Ethylbenzene	2.5	ug/L	1.0	05/28/19 11:44	
EPA 8260	m&p-Xylene	0.74J	ug/L	2.0	05/28/19 11:44	
<b>40188098009</b>	<b>MW-2/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	288	ug/L	2.8	05/31/19 13:18	
EPA 8260	1,2-Dichloroethane	8.0	ug/L	1.0	05/31/19 13:18	
EPA 8260	1,3,5-Trimethylbenzene	146	ug/L	2.9	05/31/19 13:18	
EPA 8260	Benzene	106	ug/L	1.0	05/31/19 13:18	
EPA 8260	Ethylbenzene	3.6	ug/L	1.0	05/31/19 13:18	
EPA 8260	Naphthalene	23.8	ug/L	5.0	05/31/19 13:18	
EPA 8260	Toluene	105	ug/L	5.0	05/31/19 13:18	
EPA 8260	m&p-Xylene	512	ug/L	2.0	05/31/19 13:18	
EPA 8260	o-Xylene	487	ug/L	2.5	06/03/19 14:46	pH
EPA 8260	sec-Butylbenzene	19.3	ug/L	5.0	05/31/19 13:18	
<b>40188098010</b>	<b>MW-4/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	351	ug/L	28.0	05/31/19 15:09	
EPA 8260	1,3,5-Trimethylbenzene	25.0J	ug/L	29.1	05/31/19 15:09	
EPA 8260	Benzene	1790	ug/L	10.0	05/31/19 15:09	
EPA 8260	Ethylbenzene	278	ug/L	10.0	05/31/19 15:09	
EPA 8260	Isopropylbenzene (Cumene)	8.4J	ug/L	50.0	05/31/19 15:09	
EPA 8260	Naphthalene	13.1J	ug/L	50.0	05/31/19 15:09	
EPA 8260	Toluene	4.9J	ug/L	50.0	05/31/19 15:09	
EPA 8260	m&p-Xylene	550	ug/L	20.0	05/31/19 15:09	
EPA 8260	n-Propylbenzene	17.9J	ug/L	50.0	05/31/19 15:09	
<b>40188098011</b>	<b>MW-5/T66</b>					
EPA 8260	1,2,4-Trimethylbenzene	2780	ug/L	140	05/30/19 18:35	
EPA 8260	1,3,5-Trimethylbenzene	845	ug/L	146	05/30/19 18:35	
EPA 8260	Benzene	2810	ug/L	50.0	05/30/19 18:35	
EPA 8260	Ethylbenzene	1410	ug/L	50.0	05/30/19 18:35	
EPA 8260	Isopropylbenzene (Cumene)	37.0J	ug/L	250	05/30/19 18:35	
EPA 8260	Naphthalene	382	ug/L	250	05/30/19 18:35	
EPA 8260	Toluene	7130	ug/L	250	05/30/19 18:35	
EPA 8260	m&p-Xylene	9400	ug/L	100	05/30/19 18:35	
EPA 8260	n-Propylbenzene	108J	ug/L	250	05/30/19 18:35	
EPA 8260	o-Xylene	3760	ug/L	50.0	05/30/19 18:35	
<b>40188098012</b>	<b>MW-5/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	2750	ug/L	700	05/30/19 18:58	
EPA 8260	1,3,5-Trimethylbenzene	730	ug/L	728	05/30/19 18:58	
EPA 8260	Benzene	27400	ug/L	250	05/30/19 18:58	
EPA 8260	Ethylbenzene	2730	ug/L	250	05/30/19 18:58	
EPA 8260	Naphthalene	432J	ug/L	1250	05/30/19 18:58	
EPA 8260	Toluene	41600	ug/L	1250	05/30/19 18:58	
EPA 8260	m&p-Xylene	17100	ug/L	500	05/30/19 18:58	

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### SUMMARY OF DETECTION

Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40188098

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40188098012</b>	<b>MW-5/T68</b>					
EPA 8260	o-Xylene	7350	ug/L	250	05/30/19 18:58	
<b>40188098013</b>	<b>MW-6/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	2720	ug/L	700	05/30/19 19:20	
EPA 8260	1,2-Dichloroethane	236J	ug/L	250	05/30/19 19:20	
EPA 8260	1,3,5-Trimethylbenzene	767	ug/L	728	05/30/19 19:20	
EPA 8260	Benzene	22600	ug/L	250	05/30/19 19:20	
EPA 8260	Ethylbenzene	1550	ug/L	250	05/30/19 19:20	
EPA 8260	Naphthalene	297J	ug/L	1250	05/30/19 19:20	
EPA 8260	Toluene	20400	ug/L	1250	05/30/19 19:20	
EPA 8260	m&p-Xylene	13700	ug/L	500	05/30/19 19:20	
EPA 8260	o-Xylene	6660	ug/L	250	05/30/19 19:20	
<b>40188098014</b>	<b>MW-2R/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	4720	ug/L	560	05/24/19 10:38	
EPA 8260	1,3,5-Trimethylbenzene	1270	ug/L	582	05/24/19 10:38	
EPA 8260	Benzene	5650	ug/L	200	05/24/19 10:38	
EPA 8260	Ethylbenzene	875	ug/L	200	05/24/19 10:38	
EPA 8260	Naphthalene	766J	ug/L	1000	05/24/19 10:38	
EPA 8260	Toluene	9910	ug/L	1000	05/24/19 10:38	
EPA 8260	m&p-Xylene	13900	ug/L	400	05/24/19 10:38	
EPA 8260	o-Xylene	5820	ug/L	200	05/24/19 10:38	
<b>40188098015</b>	<b>MW-3/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	78.5	ug/L	2.8	05/25/19 02:07	
EPA 8260	1,3,5-Trimethylbenzene	26.4	ug/L	2.9	05/25/19 02:07	
EPA 8260	Benzene	270	ug/L	5.0	05/28/19 11:23	
EPA 8260	Ethylbenzene	22.2	ug/L	1.0	05/25/19 02:07	
EPA 8260	Naphthalene	15.7	ug/L	5.0	05/25/19 02:07	
EPA 8260	Toluene	7.1	ug/L	5.0	05/25/19 02:07	
EPA 8260	m&p-Xylene	190	ug/L	2.0	05/25/19 02:07	
EPA 8260	o-Xylene	75.8	ug/L	1.0	05/25/19 02:07	
<b>40188098016</b>	<b>MW-4/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	3340	ug/L	560	05/29/19 03:18	
EPA 8260	1,3,5-Trimethylbenzene	1090	ug/L	29.1	05/28/19 14:50	
EPA 8260	Benzene	16200	ug/L	200	05/29/19 03:18	
EPA 8260	Ethylbenzene	1860	ug/L	10.0	05/28/19 14:50	
EPA 8260	Naphthalene	923	ug/L	50.0	05/28/19 14:50	
EPA 8260	Toluene	18300	ug/L	1000	05/29/19 03:18	
EPA 8260	m&p-Xylene	15800	ug/L	400	05/29/19 03:18	
EPA 8260	o-Xylene	6630	ug/L	200	05/29/19 03:18	
<b>40188098018</b>	<b>MW-6/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	57.4	ug/L	5.6	05/28/19 14:28	
EPA 8260	1,3,5-Trimethylbenzene	14.0	ug/L	5.8	05/28/19 14:28	
EPA 8260	Benzene	666	ug/L	10.0	05/29/19 02:56	
EPA 8260	Ethylbenzene	54.0	ug/L	2.0	05/28/19 14:28	
EPA 8260	Naphthalene	11.3	ug/L	10.0	05/28/19 14:28	

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

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**Method:** EPA 8021

**Description:** 8021 GCV Short List

**Client:** Gannett Fleming Inc.

**Date:** June 04, 2019

**General Information:**

3 samples were analyzed for EPA 8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

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**Method:** EPA 8260

**Description:** 8260 MSV

**Client:** Gannett Fleming Inc.

**Date:** June 04, 2019

### General Information:

7 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

pH: Post-analysis pH measurement indicates insufficient VOA sample preservation.

- MW-2/T68 (Lab ID: 40188098009)

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 322936

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40188564001

R1: RPD value was outside control limits.

- MSD (Lab ID: 1875584)
  - 1,1-Dichloroethane
  - Methyl-tert-butyl ether

### Additional Comments:

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

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**Method:** EPA 8260

**Description:** 8260 MSV UST

**Client:** Gannett Fleming Inc.

**Date:** June 04, 2019

### General Information:

12 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 322305

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40188098001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1871922)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene
  - o-Xylene
- MSD (Lab ID: 1871923)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene

### Additional Comments:

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

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**Method:** EPA 8260

**Description:** 8260 MSV UST

**Client:** Gannett Fleming Inc.

**Date:** June 04, 2019

Analyte Comments:

QC Batch: 322305

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1871922)
  - Benzene
  - m&p-Xylene
- MSD (Lab ID: 1871923)
  - Benzene
  - m&p-Xylene

This data package has been reviewed for quality and completeness and is approved for release.

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-1/T68**      **Lab ID: 40188098008**      Collected: 05/21/19 09:00      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		05/30/19 20:05	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		05/30/19 20:05	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		05/30/19 20:05	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		05/30/19 20:05	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		05/30/19 20:05	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		05/30/19 20:05	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		05/30/19 20:05	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		05/30/19 20:05	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		05/30/19 20:05	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		05/30/19 20:05	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/30/19 20:05	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		05/30/19 20:05	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		05/30/19 20:05	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		05/30/19 20:05	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		05/30/19 20:05	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		05/30/19 20:05	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/30/19 20:05	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		05/30/19 20:05	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		05/30/19 20:05	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		05/30/19 20:05	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		05/30/19 20:05	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		05/30/19 20:05	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		05/30/19 20:05	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		05/30/19 20:05	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		05/30/19 20:05	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		05/30/19 20:05	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		05/30/19 20:05	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		05/30/19 20:05	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		05/30/19 20:05	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		05/30/19 20:05	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		05/30/19 20:05	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		05/30/19 20:05	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		05/30/19 20:05	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		05/30/19 20:05	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		05/30/19 20:05	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		05/30/19 20:05	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		05/30/19 20:05	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/30/19 20:05	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		05/30/19 20:05	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		05/30/19 20:05	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/30/19 20:05	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		05/30/19 20:05	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/30/19 20:05	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		05/30/19 20:05	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		05/30/19 20:05	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		05/30/19 20:05	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-1/T68**      **Lab ID: 40188098008**      Collected: 05/21/19 09:00      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<0.26	ug/L	1.0	0.26	1		05/30/19 20:05	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		05/30/19 20:05	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		05/30/19 20:05	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		05/30/19 20:05	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		05/30/19 20:05	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/30/19 20:05	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		05/30/19 20:05	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		05/30/19 20:05	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/30/19 20:05	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		05/30/19 20:05	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		05/30/19 20:05	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		05/30/19 20:05	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		05/30/19 20:05	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		05/30/19 20:05	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	97	%	70-130		1		05/30/19 20:05	460-00-4	
Dibromofluoromethane (S)	96	%	70-130		1		05/30/19 20:05	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		05/30/19 20:05	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Sample: **MW-2/T68** Lab ID: **40188098009** Collected: 05/21/19 09:30 Received: 05/22/19 08:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		05/31/19 13:18	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		05/31/19 13:18	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		05/31/19 13:18	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		05/31/19 13:18	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		05/31/19 13:18	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		05/31/19 13:18	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		05/31/19 13:18	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		05/31/19 13:18	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		05/31/19 13:18	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		05/31/19 13:18	120-82-1	
1,2,4-Trimethylbenzene	288	ug/L	2.8	0.84	1		05/31/19 13:18	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		05/31/19 13:18	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		05/31/19 13:18	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 13:18	95-50-1	
1,2-Dichloroethane	8.0	ug/L	1.0	0.28	1		05/31/19 13:18	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		05/31/19 13:18	78-87-5	
1,3,5-Trimethylbenzene	146	ug/L	2.9	0.87	1		05/31/19 13:18	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		05/31/19 13:18	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		05/31/19 13:18	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		05/31/19 13:18	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		05/31/19 13:18	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		05/31/19 13:18	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		05/31/19 13:18	106-43-4	
Benzene	106	ug/L	1.0	0.25	1		05/31/19 13:18	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		05/31/19 13:18	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		05/31/19 13:18	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		05/31/19 13:18	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		05/31/19 13:18	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		05/31/19 13:18	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		05/31/19 13:18	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 13:18	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		05/31/19 13:18	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		05/31/19 13:18	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		05/31/19 13:18	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		05/31/19 13:18	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		05/31/19 13:18	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		05/31/19 13:18	75-71-8	
Ethylbenzene	3.6	ug/L	1.0	0.22	1		05/31/19 13:18	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		05/31/19 13:18	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		05/31/19 13:18	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/31/19 13:18	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		05/31/19 13:18	75-09-2	
Naphthalene	23.8	ug/L	5.0	1.2	1		05/31/19 13:18	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		05/31/19 13:18	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		05/31/19 13:18	127-18-4	
Toluene	105	ug/L	5.0	0.17	1		05/31/19 13:18	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-2/T68**      **Lab ID: 40188098009**      Collected: 05/21/19 09:30      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<0.26	ug/L	1.0	0.26	1		05/31/19 13:18	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		05/31/19 13:18	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		05/31/19 13:18	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		05/31/19 13:18	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		05/31/19 13:18	10061-01-5	
m&p-Xylene	512	ug/L	2.0	0.47	1		05/31/19 13:18	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 13:18	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		05/31/19 13:18	103-65-1	
o-Xylene	487	ug/L	2.5	0.65	2.5		06/03/19 14:46	95-47-6	pH
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		05/31/19 13:18	99-87-6	
sec-Butylbenzene	19.3	ug/L	5.0	0.85	1		05/31/19 13:18	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		05/31/19 13:18	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		05/31/19 13:18	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		05/31/19 13:18	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	99	%	70-130		1		05/31/19 13:18	460-00-4	
Dibromofluoromethane (S)	91	%	70-130		1		05/31/19 13:18	1868-53-7	
Toluene-d8 (S)	104	%	70-130		1		05/31/19 13:18	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-4/T68**      **Lab ID: 40188098010**      Collected: 05/21/19 09:25      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<2.7	ug/L	10.0	2.7	10		05/31/19 15:09	630-20-6	
1,1,1-Trichloroethane	<2.4	ug/L	10.0	2.4	10		05/31/19 15:09	71-55-6	
1,1,2,2-Tetrachloroethane	<2.8	ug/L	10.0	2.8	10		05/31/19 15:09	79-34-5	
1,1,2-Trichloroethane	<5.5	ug/L	50.0	5.5	10		05/31/19 15:09	79-00-5	
1,1-Dichloroethane	<2.7	ug/L	10.0	2.7	10		05/31/19 15:09	75-34-3	
1,1-Dichloroethene	<2.4	ug/L	10.0	2.4	10		05/31/19 15:09	75-35-4	
1,1-Dichloropropene	<5.4	ug/L	18.0	5.4	10		05/31/19 15:09	563-58-6	
1,2,3-Trichlorobenzene	<6.3	ug/L	50.0	6.3	10		05/31/19 15:09	87-61-6	
1,2,3-Trichloropropane	<5.9	ug/L	50.0	5.9	10		05/31/19 15:09	96-18-4	
1,2,4-Trichlorobenzene	<9.5	ug/L	50.0	9.5	10		05/31/19 15:09	120-82-1	
1,2,4-Trimethylbenzene	351	ug/L	28.0	8.4	10		05/31/19 15:09	95-63-6	
1,2-Dibromo-3-chloropropane	<17.6	ug/L	58.8	17.6	10		05/31/19 15:09	96-12-8	
1,2-Dibromoethane (EDB)	<8.3	ug/L	27.6	8.3	10		05/31/19 15:09	106-93-4	
1,2-Dichlorobenzene	<7.1	ug/L	23.5	7.1	10		05/31/19 15:09	95-50-1	
1,2-Dichloroethane	<2.8	ug/L	10.0	2.8	10		05/31/19 15:09	107-06-2	
1,2-Dichloropropane	<2.8	ug/L	10.0	2.8	10		05/31/19 15:09	78-87-5	
1,3,5-Trimethylbenzene	25.0J	ug/L	29.1	8.7	10		05/31/19 15:09	108-67-8	
1,3-Dichlorobenzene	<6.3	ug/L	20.9	6.3	10		05/31/19 15:09	541-73-1	
1,3-Dichloropropane	<8.3	ug/L	27.5	8.3	10		05/31/19 15:09	142-28-9	
1,4-Dichlorobenzene	<9.4	ug/L	31.5	9.4	10		05/31/19 15:09	106-46-7	
2,2-Dichloropropane	<22.7	ug/L	75.5	22.7	10		05/31/19 15:09	594-20-7	
2-Chlorotoluene	<9.3	ug/L	50.0	9.3	10		05/31/19 15:09	95-49-8	
4-Chlorotoluene	<7.6	ug/L	25.2	7.6	10		05/31/19 15:09	106-43-4	
Benzene	1790	ug/L	10.0	2.5	10		05/31/19 15:09	71-43-2	
Bromobenzene	<2.4	ug/L	10.0	2.4	10		05/31/19 15:09	108-86-1	
Bromochloromethane	<3.6	ug/L	50.0	3.6	10		05/31/19 15:09	74-97-5	
Bromodichloromethane	<3.6	ug/L	12.1	3.6	10		05/31/19 15:09	75-27-4	
Bromoform	<39.7	ug/L	132	39.7	10		05/31/19 15:09	75-25-2	
Bromomethane	<9.7	ug/L	50.0	9.7	10		05/31/19 15:09	74-83-9	
Carbon tetrachloride	<1.7	ug/L	10.0	1.7	10		05/31/19 15:09	56-23-5	
Chlorobenzene	<7.1	ug/L	23.7	7.1	10		05/31/19 15:09	108-90-7	
Chloroethane	<13.4	ug/L	50.0	13.4	10		05/31/19 15:09	75-00-3	
Chloroform	<12.7	ug/L	50.0	12.7	10		05/31/19 15:09	67-66-3	
Chloromethane	<21.9	ug/L	73.0	21.9	10		05/31/19 15:09	74-87-3	
Dibromochloromethane	<26.0	ug/L	86.7	26.0	10		05/31/19 15:09	124-48-1	
Dibromomethane	<9.4	ug/L	31.2	9.4	10		05/31/19 15:09	74-95-3	
Dichlorodifluoromethane	<5.0	ug/L	50.0	5.0	10		05/31/19 15:09	75-71-8	
Ethylbenzene	278	ug/L	10.0	2.2	10		05/31/19 15:09	100-41-4	
Hexachloro-1,3-butadiene	<11.8	ug/L	50.0	11.8	10		05/31/19 15:09	87-68-3	
Isopropylbenzene (Cumene)	8.4J	ug/L	50.0	3.9	10		05/31/19 15:09	98-82-8	
Methyl-tert-butyl ether	<12.5	ug/L	41.5	12.5	10		05/31/19 15:09	1634-04-4	
Methylene Chloride	<5.8	ug/L	50.0	5.8	10		05/31/19 15:09	75-09-2	
Naphthalene	13.1J	ug/L	50.0	11.8	10		05/31/19 15:09	91-20-3	
Styrene	<4.7	ug/L	15.5	4.7	10		05/31/19 15:09	100-42-5	
Tetrachloroethene	<3.3	ug/L	10.9	3.3	10		05/31/19 15:09	127-18-4	
Toluene	4.9J	ug/L	50.0	1.7	10		05/31/19 15:09	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-4/T68**      **Lab ID: 40188098010**      Collected: 05/21/19 09:25      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<2.6	ug/L	10.0	2.6	10		05/31/19 15:09	79-01-6	
Trichlorofluoromethane	<2.1	ug/L	10.0	2.1	10		05/31/19 15:09	75-69-4	
Vinyl chloride	<1.7	ug/L	10.0	1.7	10		05/31/19 15:09	75-01-4	
cis-1,2-Dichloroethene	<2.7	ug/L	10.0	2.7	10		05/31/19 15:09	156-59-2	
cis-1,3-Dichloropropene	<36.3	ug/L	121	36.3	10		05/31/19 15:09	10061-01-5	
m&p-Xylene	550	ug/L	20.0	4.7	10		05/31/19 15:09	179601-23-1	
n-Butylbenzene	<7.1	ug/L	23.6	7.1	10		05/31/19 15:09	104-51-8	
n-Propylbenzene	17.9J	ug/L	50.0	8.1	10		05/31/19 15:09	103-65-1	
o-Xylene	<2.6	ug/L	10.0	2.6	10		05/31/19 15:09	95-47-6	
p-Isopropyltoluene	<8.0	ug/L	26.7	8.0	10		05/31/19 15:09	99-87-6	
sec-Butylbenzene	<8.5	ug/L	50.0	8.5	10		05/31/19 15:09	135-98-8	
tert-Butylbenzene	<3.0	ug/L	10.1	3.0	10		05/31/19 15:09	98-06-6	
trans-1,2-Dichloroethene	<10.9	ug/L	36.4	10.9	10		05/31/19 15:09	156-60-5	
trans-1,3-Dichloropropene	<43.7	ug/L	146	43.7	10		05/31/19 15:09	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	93	%	70-130		10		05/31/19 15:09	460-00-4	
Dibromofluoromethane (S)	93	%	70-130		10		05/31/19 15:09	1868-53-7	
Toluene-d8 (S)	101	%	70-130		10		05/31/19 15:09	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Sample: **MW-5/T66** Lab ID: **40188098011** Collected: 05/21/19 09:15 Received: 05/22/19 08:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<13.5	ug/L	50.0	13.5	50		05/30/19 18:35	630-20-6	
1,1,1-Trichloroethane	<12.2	ug/L	50.0	12.2	50		05/30/19 18:35	71-55-6	
1,1,2,2-Tetrachloroethane	<13.8	ug/L	50.0	13.8	50		05/30/19 18:35	79-34-5	
1,1,2-Trichloroethane	<27.6	ug/L	250	27.6	50		05/30/19 18:35	79-00-5	
1,1-Dichloroethane	<13.6	ug/L	50.0	13.6	50		05/30/19 18:35	75-34-3	
1,1-Dichloroethene	<12.2	ug/L	50.0	12.2	50		05/30/19 18:35	75-35-4	
1,1-Dichloropropene	<27.0	ug/L	90.0	27.0	50		05/30/19 18:35	563-58-6	
1,2,3-Trichlorobenzene	<31.3	ug/L	250	31.3	50		05/30/19 18:35	87-61-6	
1,2,3-Trichloropropane	<29.5	ug/L	250	29.5	50		05/30/19 18:35	96-18-4	
1,2,4-Trichlorobenzene	<47.6	ug/L	250	47.6	50		05/30/19 18:35	120-82-1	
1,2,4-Trimethylbenzene	2780	ug/L	140	42.0	50		05/30/19 18:35	95-63-6	
1,2-Dibromo-3-chloropropane	<88.2	ug/L	294	88.2	50		05/30/19 18:35	96-12-8	
1,2-Dibromoethane (EDB)	<41.5	ug/L	138	41.5	50		05/30/19 18:35	106-93-4	
1,2-Dichlorobenzene	<35.3	ug/L	118	35.3	50		05/30/19 18:35	95-50-1	
1,2-Dichloroethane	<14.0	ug/L	50.0	14.0	50		05/30/19 18:35	107-06-2	
1,2-Dichloropropane	<14.1	ug/L	50.0	14.1	50		05/30/19 18:35	78-87-5	
1,3,5-Trimethylbenzene	845	ug/L	146	43.7	50		05/30/19 18:35	108-67-8	
1,3-Dichlorobenzene	<31.4	ug/L	105	31.4	50		05/30/19 18:35	541-73-1	
1,3-Dichloropropane	<41.3	ug/L	138	41.3	50		05/30/19 18:35	142-28-9	
1,4-Dichlorobenzene	<47.2	ug/L	157	47.2	50		05/30/19 18:35	106-46-7	
2,2-Dichloropropane	<113	ug/L	378	113	50		05/30/19 18:35	594-20-7	
2-Chlorotoluene	<46.3	ug/L	250	46.3	50		05/30/19 18:35	95-49-8	
4-Chlorotoluene	<37.8	ug/L	126	37.8	50		05/30/19 18:35	106-43-4	
Benzene	2810	ug/L	50.0	12.3	50		05/30/19 18:35	71-43-2	
Bromobenzene	<12.1	ug/L	50.0	12.1	50		05/30/19 18:35	108-86-1	
Bromochloromethane	<18.1	ug/L	250	18.1	50		05/30/19 18:35	74-97-5	
Bromodichloromethane	<18.2	ug/L	60.6	18.2	50		05/30/19 18:35	75-27-4	
Bromoform	<199	ug/L	662	199	50		05/30/19 18:35	75-25-2	
Bromomethane	<48.6	ug/L	250	48.6	50		05/30/19 18:35	74-83-9	
Carbon tetrachloride	<8.3	ug/L	50.0	8.3	50		05/30/19 18:35	56-23-5	
Chlorobenzene	<35.5	ug/L	118	35.5	50		05/30/19 18:35	108-90-7	
Chloroethane	<67.1	ug/L	250	67.1	50		05/30/19 18:35	75-00-3	
Chloroform	<63.7	ug/L	250	63.7	50		05/30/19 18:35	67-66-3	
Chloromethane	<109	ug/L	365	109	50		05/30/19 18:35	74-87-3	
Dibromochloromethane	<130	ug/L	434	130	50		05/30/19 18:35	124-48-1	
Dibromomethane	<46.8	ug/L	156	46.8	50		05/30/19 18:35	74-95-3	
Dichlorodifluoromethane	<25.0	ug/L	250	25.0	50		05/30/19 18:35	75-71-8	
Ethylbenzene	1410	ug/L	50.0	10.9	50		05/30/19 18:35	100-41-4	
Hexachloro-1,3-butadiene	<59.1	ug/L	250	59.1	50		05/30/19 18:35	87-68-3	
Isopropylbenzene (Cumene)	37.0J	ug/L	250	19.6	50		05/30/19 18:35	98-82-8	
Methyl-tert-butyl ether	<62.3	ug/L	208	62.3	50		05/30/19 18:35	1634-04-4	
Methylene Chloride	<29.0	ug/L	250	29.0	50		05/30/19 18:35	75-09-2	
Naphthalene	382	ug/L	250	58.8	50		05/30/19 18:35	91-20-3	
Styrene	<23.3	ug/L	77.6	23.3	50		05/30/19 18:35	100-42-5	
Tetrachloroethene	<16.3	ug/L	54.4	16.3	50		05/30/19 18:35	127-18-4	
Toluene	7130	ug/L	250	8.6	50		05/30/19 18:35	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-5/T66**      **Lab ID: 40188098011**      Collected: 05/21/19 09:15      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<12.8	ug/L	50.0	12.8	50		05/30/19 18:35	79-01-6	
Trichlorofluoromethane	<10.7	ug/L	50.0	10.7	50		05/30/19 18:35	75-69-4	
Vinyl chloride	<8.7	ug/L	50.0	8.7	50		05/30/19 18:35	75-01-4	
cis-1,2-Dichloroethene	<13.6	ug/L	50.0	13.6	50		05/30/19 18:35	156-59-2	
cis-1,3-Dichloropropene	<181	ug/L	605	181	50		05/30/19 18:35	10061-01-5	
m&p-Xylene	9400	ug/L	100	23.3	50		05/30/19 18:35	179601-23-1	
n-Butylbenzene	<35.4	ug/L	118	35.4	50		05/30/19 18:35	104-51-8	
n-Propylbenzene	108J	ug/L	250	40.5	50		05/30/19 18:35	103-65-1	
o-Xylene	3760	ug/L	50.0	13.1	50		05/30/19 18:35	95-47-6	
p-Isopropyltoluene	<40.0	ug/L	133	40.0	50		05/30/19 18:35	99-87-6	
sec-Butylbenzene	<42.4	ug/L	250	42.4	50		05/30/19 18:35	135-98-8	
tert-Butylbenzene	<15.2	ug/L	50.6	15.2	50		05/30/19 18:35	98-06-6	
trans-1,2-Dichloroethene	<54.5	ug/L	182	54.5	50		05/30/19 18:35	156-60-5	
trans-1,3-Dichloropropene	<219	ug/L	728	219	50		05/30/19 18:35	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	101	%	70-130		50		05/30/19 18:35	460-00-4	
Dibromofluoromethane (S)	95	%	70-130		50		05/30/19 18:35	1868-53-7	
Toluene-d8 (S)	99	%	70-130		50		05/30/19 18:35	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Sample: **MW-5/T68** Lab ID: **40188098012** Collected: 05/21/19 09:10 Received: 05/22/19 08:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<67.3	ug/L	250	67.3	250		05/30/19 18:58	630-20-6	
1,1,1-Trichloroethane	<61.2	ug/L	250	61.2	250		05/30/19 18:58	71-55-6	
1,1,2,2-Tetrachloroethane	<68.8	ug/L	250	68.8	250		05/30/19 18:58	79-34-5	
1,1,2-Trichloroethane	<138	ug/L	1250	138	250		05/30/19 18:58	79-00-5	
1,1-Dichloroethane	<68.1	ug/L	250	68.1	250		05/30/19 18:58	75-34-3	
1,1-Dichloroethene	<61.2	ug/L	250	61.2	250		05/30/19 18:58	75-35-4	
1,1-Dichloropropene	<135	ug/L	450	135	250		05/30/19 18:58	563-58-6	
1,2,3-Trichlorobenzene	<156	ug/L	1250	156	250		05/30/19 18:58	87-61-6	
1,2,3-Trichloropropane	<148	ug/L	1250	148	250		05/30/19 18:58	96-18-4	
1,2,4-Trichlorobenzene	<238	ug/L	1250	238	250		05/30/19 18:58	120-82-1	
1,2,4-Trimethylbenzene	2750	ug/L	700	210	250		05/30/19 18:58	95-63-6	
1,2-Dibromo-3-chloropropane	<441	ug/L	1470	441	250		05/30/19 18:58	96-12-8	
1,2-Dibromoethane (EDB)	<207	ug/L	691	207	250		05/30/19 18:58	106-93-4	
1,2-Dichlorobenzene	<176	ug/L	588	176	250		05/30/19 18:58	95-50-1	
1,2-Dichloroethane	<70.0	ug/L	250	70.0	250		05/30/19 18:58	107-06-2	
1,2-Dichloropropane	<70.7	ug/L	250	70.7	250		05/30/19 18:58	78-87-5	
1,3,5-Trimethylbenzene	730	ug/L	728	218	250		05/30/19 18:58	108-67-8	
1,3-Dichlorobenzene	<157	ug/L	523	157	250		05/30/19 18:58	541-73-1	
1,3-Dichloropropane	<206	ug/L	688	206	250		05/30/19 18:58	142-28-9	
1,4-Dichlorobenzene	<236	ug/L	786	236	250		05/30/19 18:58	106-46-7	
2,2-Dichloropropane	<566	ug/L	1890	566	250		05/30/19 18:58	594-20-7	
2-Chlorotoluene	<232	ug/L	1250	232	250		05/30/19 18:58	95-49-8	
4-Chlorotoluene	<189	ug/L	630	189	250		05/30/19 18:58	106-43-4	
Benzene	27400	ug/L	250	61.6	250		05/30/19 18:58	71-43-2	
Bromobenzene	<60.3	ug/L	250	60.3	250		05/30/19 18:58	108-86-1	
Bromochloromethane	<90.5	ug/L	1250	90.5	250		05/30/19 18:58	74-97-5	
Bromodichloromethane	<90.9	ug/L	303	90.9	250		05/30/19 18:58	75-27-4	
Bromoform	<993	ug/L	3310	993	250		05/30/19 18:58	75-25-2	
Bromomethane	<243	ug/L	1250	243	250		05/30/19 18:58	74-83-9	
Carbon tetrachloride	<41.5	ug/L	250	41.5	250		05/30/19 18:58	56-23-5	
Chlorobenzene	<178	ug/L	592	178	250		05/30/19 18:58	108-90-7	
Chloroethane	<336	ug/L	1250	336	250		05/30/19 18:58	75-00-3	
Chloroform	<318	ug/L	1250	318	250		05/30/19 18:58	67-66-3	
Chloromethane	<547	ug/L	1820	547	250		05/30/19 18:58	74-87-3	
Dibromochloromethane	<650	ug/L	2170	650	250		05/30/19 18:58	124-48-1	
Dibromomethane	<234	ug/L	781	234	250		05/30/19 18:58	74-95-3	
Dichlorodifluoromethane	<125	ug/L	1250	125	250		05/30/19 18:58	75-71-8	
Ethylbenzene	2730	ug/L	250	54.5	250		05/30/19 18:58	100-41-4	
Hexachloro-1,3-butadiene	<296	ug/L	1250	296	250		05/30/19 18:58	87-68-3	
Isopropylbenzene (Cumene)	<98.2	ug/L	1250	98.2	250		05/30/19 18:58	98-82-8	
Methyl-tert-butyl ether	<311	ug/L	1040	311	250		05/30/19 18:58	1634-04-4	
Methylene Chloride	<145	ug/L	1250	145	250		05/30/19 18:58	75-09-2	
Naphthalene	432J	ug/L	1250	294	250		05/30/19 18:58	91-20-3	
Styrene	<116	ug/L	388	116	250		05/30/19 18:58	100-42-5	
Tetrachloroethene	<81.6	ug/L	272	81.6	250		05/30/19 18:58	127-18-4	
Toluene	41600	ug/L	1250	43.0	250		05/30/19 18:58	108-88-3	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-5/T68**      **Lab ID: 40188098012**      Collected: 05/21/19 09:10      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<63.8	ug/L	250	63.8	250		05/30/19 18:58	79-01-6	
Trichlorofluoromethane	<53.7	ug/L	250	53.7	250		05/30/19 18:58	75-69-4	
Vinyl chloride	<43.7	ug/L	250	43.7	250		05/30/19 18:58	75-01-4	
cis-1,2-Dichloroethene	<67.8	ug/L	250	67.8	250		05/30/19 18:58	156-59-2	
cis-1,3-Dichloropropene	<907	ug/L	3020	907	250		05/30/19 18:58	10061-01-5	
m&p-Xylene	17100	ug/L	500	116	250		05/30/19 18:58	179601-23-1	
n-Butylbenzene	<177	ug/L	590	177	250		05/30/19 18:58	104-51-8	
n-Propylbenzene	<203	ug/L	1250	203	250		05/30/19 18:58	103-65-1	
o-Xylene	7350	ug/L	250	65.5	250		05/30/19 18:58	95-47-6	
p-Isopropyltoluene	<200	ug/L	667	200	250		05/30/19 18:58	99-87-6	
sec-Butylbenzene	<212	ug/L	1250	212	250		05/30/19 18:58	135-98-8	
tert-Butylbenzene	<76.0	ug/L	253	76.0	250		05/30/19 18:58	98-06-6	
trans-1,2-Dichloroethene	<273	ug/L	909	273	250		05/30/19 18:58	156-60-5	
trans-1,3-Dichloropropene	<1090	ug/L	3640	1090	250		05/30/19 18:58	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	99	%	70-130		250		05/30/19 18:58	460-00-4	
Dibromofluoromethane (S)	97	%	70-130		250		05/30/19 18:58	1868-53-7	
Toluene-d8 (S)	98	%	70-130		250		05/30/19 18:58	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Sample: **MW-6/T68** Lab ID: **40188098013** Collected: 05/21/19 09:20 Received: 05/22/19 08:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<67.3	ug/L	250	67.3	250		05/30/19 19:20	630-20-6	
1,1,1-Trichloroethane	<61.2	ug/L	250	61.2	250		05/30/19 19:20	71-55-6	
1,1,2,2-Tetrachloroethane	<68.8	ug/L	250	68.8	250		05/30/19 19:20	79-34-5	
1,1,2-Trichloroethane	<138	ug/L	1250	138	250		05/30/19 19:20	79-00-5	
1,1-Dichloroethane	<68.1	ug/L	250	68.1	250		05/30/19 19:20	75-34-3	
1,1-Dichloroethene	<61.2	ug/L	250	61.2	250		05/30/19 19:20	75-35-4	
1,1-Dichloropropene	<135	ug/L	450	135	250		05/30/19 19:20	563-58-6	
1,2,3-Trichlorobenzene	<156	ug/L	1250	156	250		05/30/19 19:20	87-61-6	
1,2,3-Trichloropropane	<148	ug/L	1250	148	250		05/30/19 19:20	96-18-4	
1,2,4-Trichlorobenzene	<238	ug/L	1250	238	250		05/30/19 19:20	120-82-1	
1,2,4-Trimethylbenzene	2720	ug/L	700	210	250		05/30/19 19:20	95-63-6	
1,2-Dibromo-3-chloropropane	<441	ug/L	1470	441	250		05/30/19 19:20	96-12-8	
1,2-Dibromoethane (EDB)	<207	ug/L	691	207	250		05/30/19 19:20	106-93-4	
1,2-Dichlorobenzene	<176	ug/L	588	176	250		05/30/19 19:20	95-50-1	
1,2-Dichloroethane	236J	ug/L	250	70.0	250		05/30/19 19:20	107-06-2	
1,2-Dichloropropane	<70.7	ug/L	250	70.7	250		05/30/19 19:20	78-87-5	
1,3,5-Trimethylbenzene	767	ug/L	728	218	250		05/30/19 19:20	108-67-8	
1,3-Dichlorobenzene	<157	ug/L	523	157	250		05/30/19 19:20	541-73-1	
1,3-Dichloropropane	<206	ug/L	688	206	250		05/30/19 19:20	142-28-9	
1,4-Dichlorobenzene	<236	ug/L	786	236	250		05/30/19 19:20	106-46-7	
2,2-Dichloropropane	<566	ug/L	1890	566	250		05/30/19 19:20	594-20-7	
2-Chlorotoluene	<232	ug/L	1250	232	250		05/30/19 19:20	95-49-8	
4-Chlorotoluene	<189	ug/L	630	189	250		05/30/19 19:20	106-43-4	
Benzene	22600	ug/L	250	61.6	250		05/30/19 19:20	71-43-2	
Bromobenzene	<60.3	ug/L	250	60.3	250		05/30/19 19:20	108-86-1	
Bromochloromethane	<90.5	ug/L	1250	90.5	250		05/30/19 19:20	74-97-5	
Bromodichloromethane	<90.9	ug/L	303	90.9	250		05/30/19 19:20	75-27-4	
Bromoform	<993	ug/L	3310	993	250		05/30/19 19:20	75-25-2	
Bromomethane	<243	ug/L	1250	243	250		05/30/19 19:20	74-83-9	
Carbon tetrachloride	<41.5	ug/L	250	41.5	250		05/30/19 19:20	56-23-5	
Chlorobenzene	<178	ug/L	592	178	250		05/30/19 19:20	108-90-7	
Chloroethane	<336	ug/L	1250	336	250		05/30/19 19:20	75-00-3	
Chloroform	<318	ug/L	1250	318	250		05/30/19 19:20	67-66-3	
Chloromethane	<547	ug/L	1820	547	250		05/30/19 19:20	74-87-3	
Dibromochloromethane	<650	ug/L	2170	650	250		05/30/19 19:20	124-48-1	
Dibromomethane	<234	ug/L	781	234	250		05/30/19 19:20	74-95-3	
Dichlorodifluoromethane	<125	ug/L	1250	125	250		05/30/19 19:20	75-71-8	
Ethylbenzene	1550	ug/L	250	54.5	250		05/30/19 19:20	100-41-4	
Hexachloro-1,3-butadiene	<296	ug/L	1250	296	250		05/30/19 19:20	87-68-3	
Isopropylbenzene (Cumene)	<98.2	ug/L	1250	98.2	250		05/30/19 19:20	98-82-8	
Methyl-tert-butyl ether	<311	ug/L	1040	311	250		05/30/19 19:20	1634-04-4	
Methylene Chloride	<145	ug/L	1250	145	250		05/30/19 19:20	75-09-2	
Naphthalene	297J	ug/L	1250	294	250		05/30/19 19:20	91-20-3	
Styrene	<116	ug/L	388	116	250		05/30/19 19:20	100-42-5	
Tetrachloroethene	<81.6	ug/L	272	81.6	250		05/30/19 19:20	127-18-4	
Toluene	20400	ug/L	1250	43.0	250		05/30/19 19:20	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: MW-6/T68**      **Lab ID: 40188098013**      Collected: 05/21/19 09:20      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<63.8	ug/L	250	63.8	250		05/30/19 19:20	79-01-6	
Trichlorofluoromethane	<53.7	ug/L	250	53.7	250		05/30/19 19:20	75-69-4	
Vinyl chloride	<43.7	ug/L	250	43.7	250		05/30/19 19:20	75-01-4	
cis-1,2-Dichloroethene	<67.8	ug/L	250	67.8	250		05/30/19 19:20	156-59-2	
cis-1,3-Dichloropropene	<907	ug/L	3020	907	250		05/30/19 19:20	10061-01-5	
m&p-Xylene	13700	ug/L	500	116	250		05/30/19 19:20	179601-23-1	
n-Butylbenzene	<177	ug/L	590	177	250		05/30/19 19:20	104-51-8	
n-Propylbenzene	<203	ug/L	1250	203	250		05/30/19 19:20	103-65-1	
o-Xylene	6660	ug/L	250	65.5	250		05/30/19 19:20	95-47-6	
p-Isopropyltoluene	<200	ug/L	667	200	250		05/30/19 19:20	99-87-6	
sec-Butylbenzene	<212	ug/L	1250	212	250		05/30/19 19:20	135-98-8	
tert-Butylbenzene	<76.0	ug/L	253	76.0	250		05/30/19 19:20	98-06-6	
trans-1,2-Dichloroethene	<273	ug/L	909	273	250		05/30/19 19:20	156-60-5	
trans-1,3-Dichloropropene	<1090	ug/L	3640	1090	250		05/30/19 19:20	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	101	%	70-130		250		05/30/19 19:20	460-00-4	
Dibromofluoromethane (S)	96	%	70-130		250		05/30/19 19:20	1868-53-7	
Toluene-d8 (S)	100	%	70-130		250		05/30/19 19:20	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: TRIP BLANK**      **Lab ID: 40188098022**      Collected: 05/21/19 00:00      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		05/31/19 11:05	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		05/31/19 11:05	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		05/31/19 11:05	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		05/31/19 11:05	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		05/31/19 11:05	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		05/31/19 11:05	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		05/31/19 11:05	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		05/31/19 11:05	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		05/31/19 11:05	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		05/31/19 11:05	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/31/19 11:05	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		05/31/19 11:05	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		05/31/19 11:05	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 11:05	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		05/31/19 11:05	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		05/31/19 11:05	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/31/19 11:05	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		05/31/19 11:05	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		05/31/19 11:05	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		05/31/19 11:05	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		05/31/19 11:05	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		05/31/19 11:05	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		05/31/19 11:05	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		05/31/19 11:05	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		05/31/19 11:05	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		05/31/19 11:05	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		05/31/19 11:05	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		05/31/19 11:05	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		05/31/19 11:05	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		05/31/19 11:05	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 11:05	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		05/31/19 11:05	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		05/31/19 11:05	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		05/31/19 11:05	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		05/31/19 11:05	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		05/31/19 11:05	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		05/31/19 11:05	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/31/19 11:05	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		05/31/19 11:05	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		05/31/19 11:05	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/31/19 11:05	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		05/31/19 11:05	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/31/19 11:05	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		05/31/19 11:05	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		05/31/19 11:05	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		05/31/19 11:05	108-88-3	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

**Sample: TRIP BLANK**      **Lab ID: 40188098022**      Collected: 05/21/19 00:00      Received: 05/22/19 08:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<0.26	ug/L	1.0	0.26	1		05/31/19 11:05	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		05/31/19 11:05	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		05/31/19 11:05	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		05/31/19 11:05	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		05/31/19 11:05	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/31/19 11:05	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		05/31/19 11:05	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		05/31/19 11:05	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/31/19 11:05	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		05/31/19 11:05	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		05/31/19 11:05	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		05/31/19 11:05	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		05/31/19 11:05	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		05/31/19 11:05	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	87	%	70-130		1		05/31/19 11:05	460-00-4	
Dibromofluoromethane (S)	96	%	70-130		1		05/31/19 11:05	1868-53-7	HS
Toluene-d8 (S)	98	%	70-130		1		05/31/19 11:05	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

QC Batch: 322441 Analysis Method: EPA 8021  
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX  
Associated Lab Samples: 40188098019, 40188098020, 40188098021

METHOD BLANK: 1873411 Matrix: Water

Associated Lab Samples: 40188098019, 40188098020, 40188098021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	05/28/19 10:25	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	05/28/19 10:25	
Benzene	ug/L	<0.31	1.0	05/28/19 10:25	
Ethylbenzene	ug/L	<0.33	1.1	05/28/19 10:25	
m&p-Xylene	ug/L	<0.66	2.2	05/28/19 10:25	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	05/28/19 10:25	
Naphthalene	ug/L	<0.51	1.7	05/28/19 10:25	
o-Xylene	ug/L	<0.32	1.0	05/28/19 10:25	
Toluene	ug/L	<0.49	1.6	05/28/19 10:25	
a,a,a-Trifluorotoluene (S)	%	101	85-115	05/28/19 10:25	

LABORATORY CONTROL SAMPLE & LCSD: 1873412 1873413

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.3	19.7	102	98	87-118	3	20	
1,3,5-Trimethylbenzene	ug/L	20	20.1	19.6	101	98	84-115	3	20	
Benzene	ug/L	20	21.2	21.1	106	106	85-115	1	20	
Ethylbenzene	ug/L	20	20.8	20.3	104	101	85-115	3	20	
m&p-Xylene	ug/L	40	41.6	40.4	104	101	85-115	3	20	
Methyl-tert-butyl ether	ug/L	20	21.1	20.7	105	103	85-115	2	20	
Naphthalene	ug/L	20	20.2	20.1	101	100	83-119	1	20	
o-Xylene	ug/L	20	20.7	20.1	104	101	85-115	3	20	
Toluene	ug/L	20	21.1	20.8	105	104	85-115	2	20	
a,a,a-Trifluorotoluene (S)	%				102	101	85-115			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1873802 1873803

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40188097005 Result	Spike Conc.	Spike Conc.	MS Result						
1,2,4-Trimethylbenzene	ug/L	<0.34	20	20	21.7	21.2	108	106	72-135	2	20
1,3,5-Trimethylbenzene	ug/L	<0.33	20	20	21.6	21.2	108	106	67-134	2	20
Benzene	ug/L	<0.31	20	20	22.4	22.0	112	110	85-122	2	20
Ethylbenzene	ug/L	<0.33	20	20	22.4	21.9	112	110	85-129	2	20
m&p-Xylene	ug/L	<0.66	40	40	44.8	43.8	112	110	85-124	2	20
Methyl-tert-butyl ether	ug/L	<0.32	20	20	20.9	20.3	105	102	85-118	3	20
Naphthalene	ug/L	<0.51	20	20	20.0	20.0	100	100	78-132	0	20
o-Xylene	ug/L	<0.32	20	20	21.9	21.5	110	107	85-124	2	20
Toluene	ug/L	<0.49	20	20	22.6	22.0	113	110	85-122	2	20

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1873802 1873803												
Parameter	Units	40188097005 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.								
a,a,a-Trifluorotoluene (S)	%							102	102	85-115		

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

QC Batch: 322350 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
Associated Lab Samples: 40188098008, 40188098011, 40188098012, 40188098013

METHOD BLANK: 1872065 Matrix: Water  
Associated Lab Samples: 40188098008, 40188098011, 40188098012, 40188098013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	05/30/19 15:35	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	05/30/19 15:35	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	05/30/19 15:35	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	05/30/19 15:35	
1,1-Dichloroethane	ug/L	<0.27	1.0	05/30/19 15:35	
1,1-Dichloroethene	ug/L	<0.24	1.0	05/30/19 15:35	
1,1-Dichloropropene	ug/L	<0.54	1.8	05/30/19 15:35	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	05/30/19 15:35	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	05/30/19 15:35	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	05/30/19 15:35	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	05/30/19 15:35	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	05/30/19 15:35	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	05/30/19 15:35	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	05/30/19 15:35	
1,2-Dichloroethane	ug/L	<0.28	1.0	05/30/19 15:35	
1,2-Dichloropropane	ug/L	<0.28	1.0	05/30/19 15:35	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	05/30/19 15:35	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	05/30/19 15:35	
1,3-Dichloropropane	ug/L	<0.83	2.8	05/30/19 15:35	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	05/30/19 15:35	
2,2-Dichloropropane	ug/L	<2.3	7.6	05/30/19 15:35	
2-Chlorotoluene	ug/L	<0.93	5.0	05/30/19 15:35	
4-Chlorotoluene	ug/L	<0.76	2.5	05/30/19 15:35	
Benzene	ug/L	<0.25	1.0	05/30/19 15:35	
Bromobenzene	ug/L	<0.24	1.0	05/30/19 15:35	
Bromochloromethane	ug/L	<0.36	5.0	05/30/19 15:35	
Bromodichloromethane	ug/L	<0.36	1.2	05/30/19 15:35	
Bromoform	ug/L	<4.0	13.2	05/30/19 15:35	
Bromomethane	ug/L	<0.97	5.0	05/30/19 15:35	
Carbon tetrachloride	ug/L	<0.17	1.0	05/30/19 15:35	
Chlorobenzene	ug/L	<0.71	2.4	05/30/19 15:35	
Chloroethane	ug/L	<1.3	5.0	05/30/19 15:35	
Chloroform	ug/L	<1.3	5.0	05/30/19 15:35	
Chloromethane	ug/L	<2.2	7.3	05/30/19 15:35	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	05/30/19 15:35	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	05/30/19 15:35	
Dibromochloromethane	ug/L	<2.6	8.7	05/30/19 15:35	
Dibromomethane	ug/L	<0.94	3.1	05/30/19 15:35	
Dichlorodifluoromethane	ug/L	<0.50	5.0	05/30/19 15:35	
Ethylbenzene	ug/L	<0.22	1.0	05/30/19 15:35	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	05/30/19 15:35	

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

METHOD BLANK: 1872065

Matrix: Water

Associated Lab Samples: 40188098008, 40188098011, 40188098012, 40188098013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	05/30/19 15:35	
m&p-Xylene	ug/L	<0.47	2.0	05/30/19 15:35	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	05/30/19 15:35	
Methylene Chloride	ug/L	<0.58	5.0	05/30/19 15:35	
n-Butylbenzene	ug/L	<0.71	2.4	05/30/19 15:35	
n-Propylbenzene	ug/L	<0.81	5.0	05/30/19 15:35	
Naphthalene	ug/L	<1.2	5.0	05/30/19 15:35	
o-Xylene	ug/L	<0.26	1.0	05/30/19 15:35	
p-Isopropyltoluene	ug/L	<0.80	2.7	05/30/19 15:35	
sec-Butylbenzene	ug/L	<0.85	5.0	05/30/19 15:35	
Styrene	ug/L	<0.47	1.6	05/30/19 15:35	
tert-Butylbenzene	ug/L	<0.30	1.0	05/30/19 15:35	
Tetrachloroethene	ug/L	<0.33	1.1	05/30/19 15:35	
Toluene	ug/L	<0.17	5.0	05/30/19 15:35	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	05/30/19 15:35	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	05/30/19 15:35	
Trichloroethene	ug/L	<0.26	1.0	05/30/19 15:35	
Trichlorofluoromethane	ug/L	<0.21	1.0	05/30/19 15:35	
Vinyl chloride	ug/L	<0.17	1.0	05/30/19 15:35	
4-Bromofluorobenzene (S)	%	96	70-130	05/30/19 15:35	
Dibromofluoromethane (S)	%	98	70-130	05/30/19 15:35	
Toluene-d8 (S)	%	98	70-130	05/30/19 15:35	

LABORATORY CONTROL SAMPLE: 1872066

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	46.8	94	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	52.1	104	70-130	
1,1,2-Trichloroethane	ug/L	50	54.8	110	70-130	
1,1-Dichloroethane	ug/L	50	54.3	109	73-150	
1,1-Dichloroethene	ug/L	50	58.8	118	73-138	
1,2,4-Trichlorobenzene	ug/L	50	47.0	94	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	44.1	88	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	53.4	107	70-130	
1,2-Dichlorobenzene	ug/L	50	49.0	98	70-130	
1,2-Dichloroethane	ug/L	50	47.7	95	75-140	
1,2-Dichloropropane	ug/L	50	50.8	102	73-135	
1,3-Dichlorobenzene	ug/L	50	47.8	96	70-130	
1,4-Dichlorobenzene	ug/L	50	48.8	98	70-130	
Benzene	ug/L	50	54.8	110	70-130	
Bromodichloromethane	ug/L	50	54.7	109	70-130	
Bromoform	ug/L	50	46.3	93	68-129	
Bromomethane	ug/L	50	42.8	86	18-159	
Carbon tetrachloride	ug/L	50	46.3	93	70-130	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

LABORATORY CONTROL SAMPLE: 1872066

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	52.4	105	70-130	
Chloroethane	ug/L	50	47.8	96	53-147	
Chloroform	ug/L	50	50.8	102	74-136	
Chloromethane	ug/L	50	28.6	57	29-115	
cis-1,2-Dichloroethene	ug/L	50	56.7	113	70-130	
cis-1,3-Dichloropropene	ug/L	50	44.8	90	70-130	
Dibromochloromethane	ug/L	50	45.7	91	70-130	
Dichlorodifluoromethane	ug/L	50	35.1	70	10-130	
Ethylbenzene	ug/L	50	54.7	109	80-124	
Isopropylbenzene (Cumene)	ug/L	50	55.7	111	70-130	
m&p-Xylene	ug/L	100	113	113	70-130	
Methyl-tert-butyl ether	ug/L	50	51.2	102	54-137	
Methylene Chloride	ug/L	50	57.3	115	73-138	
o-Xylene	ug/L	50	55.6	111	70-130	
Styrene	ug/L	50	56.4	113	70-130	
Tetrachloroethene	ug/L	50	51.9	104	70-130	
Toluene	ug/L	50	56.1	112	80-126	
trans-1,2-Dichloroethene	ug/L	50	57.1	114	73-145	
trans-1,3-Dichloropropene	ug/L	50	43.5	87	70-130	
Trichloroethene	ug/L	50	55.3	111	70-130	
Trichlorofluoromethane	ug/L	50	52.9	106	76-147	
Vinyl chloride	ug/L	50	45.4	91	51-120	
4-Bromofluorobenzene (S)	%			104	70-130	
Dibromofluoromethane (S)	%			96	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1872175 1872176

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40188180001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1-Trichloroethane	ug/L	<0.24	50	50	50	47.0	47.2	94	94	70-130	0	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	50	50	50	51.6	52.1	103	104	70-130	1	20	
1,1,2-Trichloroethane	ug/L	<0.55	50	50	50	53.8	54.0	108	108	70-137	0	20	
1,1-Dichloroethane	ug/L	<0.27	50	50	50	54.5	54.5	109	109	73-153	0	20	
1,1-Dichloroethene	ug/L	<0.24	50	50	50	58.4	58.2	117	116	73-138	0	20	
1,2,4-Trichlorobenzene	ug/L	<0.95	50	50	50	48.5	48.4	96	96	70-130	0	20	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	50	50	50	44.0	44.3	88	89	58-129	1	20	
1,2-Dibromoethane (EDB)	ug/L	<0.83	50	50	50	53.1	52.9	106	106	70-130	0	20	
1,2-Dichlorobenzene	ug/L	<0.71	50	50	50	48.9	48.7	98	97	70-130	0	20	
1,2-Dichloroethane	ug/L	<0.28	50	50	50	47.8	47.7	96	95	75-140	0	20	
1,2-Dichloropropane	ug/L	<0.28	50	50	50	50.2	51.4	100	103	71-138	2	20	
1,3-Dichlorobenzene	ug/L	<0.63	50	50	50	48.2	48.4	96	97	70-130	0	20	
1,4-Dichlorobenzene	ug/L	<0.94	50	50	50	49.2	49.0	98	98	70-130	0	20	
Benzene	ug/L	<0.25	50	50	50	55.1	55.3	110	111	70-130	0	20	

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Parameter	Units	1872175		1872176		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40188180001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromodichloromethane	ug/L	<0.36	50	50	54.1	54.5	108	109	70-130	1	20	
Bromoform	ug/L	<4.0	50	50	46.0	46.0	92	92	68-129	0	20	
Bromomethane	ug/L	<0.97	50	50	46.3	47.3	93	95	15-170	2	20	
Carbon tetrachloride	ug/L	<0.17	50	50	46.3	46.7	93	93	70-130	1	20	
Chlorobenzene	ug/L	<0.71	50	50	52.2	51.9	104	104	70-130	1	20	
Chloroethane	ug/L	<1.3	50	50	46.2	46.5	92	93	51-148	1	20	
Chloroform	ug/L	<1.3	50	50	51.1	51.0	102	102	74-136	0	20	
Chloromethane	ug/L	<2.2	50	50	26.2	26.3	52	53	23-115	0	20	
cis-1,2-Dichloroethene	ug/L	<0.27	50	50	57.3	57.6	115	115	70-131	0	20	
cis-1,3-Dichloropropene	ug/L	<3.6	50	50	46.7	47.4	93	95	70-130	1	20	
Dibromochloromethane	ug/L	<2.6	50	50	45.6	45.5	91	91	70-130	0	20	
Dichlorodifluoromethane	ug/L	<0.50	50	50	23.1	22.9	46	46	10-132	1	20	
Ethylbenzene	ug/L	<0.22	50	50	54.4	54.4	109	109	80-125	0	20	
Isopropylbenzene (Cumene)	ug/L	<0.39	50	50	55.5	55.1	111	110	70-130	1	20	
m&p-Xylene	ug/L	<0.47	100	100	113	112	113	112	70-130	1	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	51.2	51.7	102	103	51-145	1	20	
Methylene Chloride	ug/L	<0.58	50	50	57.5	58.2	115	116	73-140	1	20	
o-Xylene	ug/L	<0.26	50	50	55.4	55.1	111	110	70-130	1	20	
Styrene	ug/L	<0.47	50	50	56.5	55.8	113	112	70-130	1	20	
Tetrachloroethene	ug/L	<0.33	50	50	52.4	52.2	105	104	70-130	0	20	
Toluene	ug/L	<0.17	50	50	55.8	55.8	112	112	80-131	0	20	
trans-1,2-Dichloroethene	ug/L	<1.1	50	50	58.3	57.8	117	116	73-148	1	20	
trans-1,3-Dichloropropene	ug/L	<4.4	50	50	44.8	45.0	90	90	70-130	1	20	
Trichloroethene	ug/L	<0.26	50	50	54.7	55.2	109	110	70-130	1	20	
Trichlorofluoromethane	ug/L	<0.21	50	50	50.2	49.9	100	100	74-147	1	20	
Vinyl chloride	ug/L	<0.17	50	50	41.7	41.3	83	83	41-129	1	20	
4-Bromofluorobenzene (S)	%						104	103	70-130			
Dibromofluoromethane (S)	%						97	98	70-130			
Toluene-d8 (S)	%						98	99	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40188098

QC Batch: 322936 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
Associated Lab Samples: 40188098009, 40188098010, 40188098022

METHOD BLANK: 1875570 Matrix: Water  
Associated Lab Samples: 40188098009, 40188098010, 40188098022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	05/31/19 07:57	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	05/31/19 07:57	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	05/31/19 07:57	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	05/31/19 07:57	
1,1-Dichloroethane	ug/L	<0.27	1.0	05/31/19 07:57	
1,1-Dichloroethene	ug/L	<0.24	1.0	05/31/19 07:57	
1,1-Dichloropropene	ug/L	<0.54	1.8	05/31/19 07:57	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	05/31/19 07:57	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	05/31/19 07:57	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	05/31/19 07:57	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	05/31/19 07:57	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	05/31/19 07:57	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	05/31/19 07:57	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	05/31/19 07:57	
1,2-Dichloroethane	ug/L	<0.28	1.0	05/31/19 07:57	
1,2-Dichloropropane	ug/L	<0.28	1.0	05/31/19 07:57	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	05/31/19 07:57	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	05/31/19 07:57	
1,3-Dichloropropane	ug/L	<0.83	2.8	05/31/19 07:57	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	05/31/19 07:57	
2,2-Dichloropropane	ug/L	<2.3	7.6	05/31/19 07:57	
2-Chlorotoluene	ug/L	<0.93	5.0	05/31/19 07:57	
4-Chlorotoluene	ug/L	<0.76	2.5	05/31/19 07:57	
Benzene	ug/L	<0.25	1.0	05/31/19 07:57	
Bromobenzene	ug/L	<0.24	1.0	05/31/19 07:57	
Bromochloromethane	ug/L	<0.36	5.0	05/31/19 07:57	
Bromodichloromethane	ug/L	<0.36	1.2	05/31/19 07:57	
Bromoform	ug/L	<4.0	13.2	05/31/19 07:57	
Bromomethane	ug/L	<0.97	5.0	05/31/19 07:57	
Carbon tetrachloride	ug/L	<0.17	1.0	05/31/19 07:57	
Chlorobenzene	ug/L	<0.71	2.4	05/31/19 07:57	
Chloroethane	ug/L	<1.3	5.0	05/31/19 07:57	
Chloroform	ug/L	<1.3	5.0	05/31/19 07:57	
Chloromethane	ug/L	<2.2	7.3	05/31/19 07:57	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	05/31/19 07:57	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	05/31/19 07:57	
Dibromochloromethane	ug/L	<2.6	8.7	05/31/19 07:57	
Dibromomethane	ug/L	<0.94	3.1	05/31/19 07:57	
Dichlorodifluoromethane	ug/L	<0.50	5.0	05/31/19 07:57	
Ethylbenzene	ug/L	<0.22	1.0	05/31/19 07:57	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	05/31/19 07:57	

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

METHOD BLANK: 1875570

Matrix: Water

Associated Lab Samples: 40188098009, 40188098010, 40188098022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	05/31/19 07:57	
m&p-Xylene	ug/L	<0.47	2.0	05/31/19 07:57	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	05/31/19 07:57	
Methylene Chloride	ug/L	<0.58	5.0	05/31/19 07:57	
n-Butylbenzene	ug/L	<0.71	2.4	05/31/19 07:57	
n-Propylbenzene	ug/L	<0.81	5.0	05/31/19 07:57	
Naphthalene	ug/L	<1.2	5.0	05/31/19 07:57	
o-Xylene	ug/L	<0.26	1.0	05/31/19 07:57	
p-Isopropyltoluene	ug/L	<0.80	2.7	05/31/19 07:57	
sec-Butylbenzene	ug/L	<0.85	5.0	05/31/19 07:57	
Styrene	ug/L	<0.47	1.6	05/31/19 07:57	
tert-Butylbenzene	ug/L	<0.30	1.0	05/31/19 07:57	
Tetrachloroethene	ug/L	<0.33	1.1	05/31/19 07:57	
Toluene	ug/L	<0.17	5.0	05/31/19 07:57	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	05/31/19 07:57	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	05/31/19 07:57	
Trichloroethene	ug/L	<0.26	1.0	05/31/19 07:57	
Trichlorofluoromethane	ug/L	<0.21	1.0	05/31/19 07:57	
Vinyl chloride	ug/L	<0.17	1.0	05/31/19 07:57	
4-Bromofluorobenzene (S)	%	86	70-130	05/31/19 07:57	
Dibromofluoromethane (S)	%	94	70-130	05/31/19 07:57	
Toluene-d8 (S)	%	100	70-130	05/31/19 07:57	

LABORATORY CONTROL SAMPLE: 1875571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.5	97	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.7	103	70-130	
1,1,2-Trichloroethane	ug/L	50	53.2	106	70-130	
1,1-Dichloroethane	ug/L	50	54.1	108	73-150	
1,1-Dichloroethene	ug/L	50	47.7	95	73-138	
1,2,4-Trichlorobenzene	ug/L	50	42.6	85	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	41.4	83	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	50.1	100	70-130	
1,2-Dichlorobenzene	ug/L	50	51.0	102	70-130	
1,2-Dichloroethane	ug/L	50	47.5	95	75-140	
1,2-Dichloropropane	ug/L	50	52.1	104	73-135	
1,3-Dichlorobenzene	ug/L	50	49.8	100	70-130	
1,4-Dichlorobenzene	ug/L	50	50.0	100	70-130	
Benzene	ug/L	50	49.2	98	70-130	
Bromodichloromethane	ug/L	50	51.6	103	70-130	
Bromoform	ug/L	50	43.0	86	68-129	
Bromomethane	ug/L	50	31.4	63	18-159	
Carbon tetrachloride	ug/L	50	50.1	100	70-130	

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

LABORATORY CONTROL SAMPLE: 1875571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	52.2	104	70-130	
Chloroethane	ug/L	50	44.8	90	53-147	
Chloroform	ug/L	50	48.8	98	74-136	
Chloromethane	ug/L	50	34.0	68	29-115	
cis-1,2-Dichloroethene	ug/L	50	47.1	94	70-130	
cis-1,3-Dichloropropene	ug/L	50	42.3	85	70-130	
Dibromochloromethane	ug/L	50	47.3	95	70-130	
Dichlorodifluoromethane	ug/L	50	37.8	76	10-130	
Ethylbenzene	ug/L	50	53.9	108	80-124	
Isopropylbenzene (Cumene)	ug/L	50	55.3	111	70-130	
m&p-Xylene	ug/L	100	109	109	70-130	
Methyl-tert-butyl ether	ug/L	50	45.0	90	54-137	
Methylene Chloride	ug/L	50	59.6	119	73-138	
o-Xylene	ug/L	50	54.9	110	70-130	
Styrene	ug/L	50	55.3	111	70-130	
Tetrachloroethene	ug/L	50	49.4	99	70-130	
Toluene	ug/L	50	52.6	105	80-126	
trans-1,2-Dichloroethene	ug/L	50	48.7	97	73-145	
trans-1,3-Dichloropropene	ug/L	50	40.4	81	70-130	
Trichloroethene	ug/L	50	55.0	110	70-130	
Trichlorofluoromethane	ug/L	50	43.8	88	76-147	
Vinyl chloride	ug/L	50	41.5	83	51-120	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			93	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1875583 1875584

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40188564001 Result	Spike Conc.	Spike Conc.	MS Result								
1,1,1-Trichloroethane	ug/L	<0.24	50	50	49.5	47.1	99	94	70-130	5	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.28	50	50	51.2	50.7	102	101	70-130	1	20		
1,1,2-Trichloroethane	ug/L	<0.55	50	50	51.4	51.1	103	102	70-137	1	20		
1,1-Dichloroethane	ug/L	<0.27	50	50	67.2	50.8	134	102	73-153	28	20	R1	
1,1-Dichloroethene	ug/L	<0.24	50	50	50.6	47.4	101	95	73-138	7	20		
1,2,4-Trichlorobenzene	ug/L	<0.95	50	50	46.9	45.0	94	90	70-130	4	20		
1,2-Dibromo-3-chloropropane	ug/L	<1.8	50	50	44.6	42.9	89	86	58-129	4	20		
1,2-Dibromoethane (EDB)	ug/L	<0.83	50	50	49.3	50.6	99	101	70-130	3	20		
1,2-Dichlorobenzene	ug/L	<0.71	50	50	51.2	48.4	102	97	70-130	6	20		
1,2-Dichloroethane	ug/L	<0.28	50	50	46.9	46.3	94	93	75-140	1	20		
1,2-Dichloropropane	ug/L	<0.28	50	50	51.8	50.3	104	101	71-138	3	20		
1,3-Dichlorobenzene	ug/L	<0.63	50	50	49.2	49.4	98	99	70-130	0	20		
1,4-Dichlorobenzene	ug/L	<0.94	50	50	50.6	48.3	101	97	70-130	5	20		
Benzene	ug/L	<0.25	50	50	48.9	47.3	98	95	70-130	3	20		

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1875583 1875584												
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40188564001 Result	Spike Conc.	Spike Conc.	MS Result							
Bromodichloromethane	ug/L	<0.36	50	50	51.7	50.8	103	102	70-130	2	20	
Bromoform	ug/L	<4.0	50	50	45.1	44.2	90	88	68-129	2	20	
Bromomethane	ug/L	<0.97	50	50	35.8	38.6	72	77	15-170	8	20	
Carbon tetrachloride	ug/L	<0.17	50	50	50.3	49.0	101	98	70-130	3	20	
Chlorobenzene	ug/L	<0.71	50	50	51.0	50.6	102	101	70-130	1	20	
Chloroethane	ug/L	<1.3	50	50	44.4	43.0	89	86	51-148	3	20	
Chloroform	ug/L	<1.3	50	50	48.8	47.0	98	94	74-136	4	20	
Chloromethane	ug/L	<2.2	50	50	36.4	34.8	73	70	23-115	4	20	
cis-1,2-Dichloroethene	ug/L	0.65J	50	50	47.9	45.8	95	90	70-131	5	20	
cis-1,3-Dichloropropene	ug/L	<3.6	50	50	43.9	43.1	88	86	70-130	2	20	
Dibromochloromethane	ug/L	<2.6	50	50	45.4	46.9	91	94	70-130	3	20	
Dichlorodifluoromethane	ug/L	<0.50	50	50	41.2	37.5	82	75	10-132	9	20	
Ethylbenzene	ug/L	<0.22	50	50	52.7	52.8	105	106	80-125	0	20	
Isopropylbenzene (Cumene)	ug/L	<0.39	50	50	53.7	53.7	107	107	70-130	0	20	
m&p-Xylene	ug/L	<0.47	100	100	105	105	105	105	70-130	0	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	43.5	55.3	87	111	51-145	24	20	R1
Methylene Chloride	ug/L	<0.58	50	50	50.1	58.0	100	116	73-140	15	20	
o-Xylene	ug/L	<0.26	50	50	52.3	53.7	105	107	70-130	3	20	
Styrene	ug/L	<0.47	50	50	53.2	53.5	106	107	70-130	1	20	
Tetrachloroethene	ug/L	0.81J	50	50	49.2	51.3	97	101	70-130	4	20	
Toluene	ug/L	<0.17	50	50	51.0	51.9	102	104	80-131	2	20	
trans-1,2-Dichloroethene	ug/L	<1.1	50	50	46.7	56.9	93	114	73-148	20	20	
trans-1,3-Dichloropropene	ug/L	<4.4	50	50	42.0	42.4	84	85	70-130	1	20	
Trichloroethene	ug/L	2.1	50	50	55.9	54.7	108	105	70-130	2	20	
Trichlorofluoromethane	ug/L	<0.21	50	50	43.6	42.9	87	86	74-147	2	20	
Vinyl chloride	ug/L	<0.17	50	50	41.3	40.5	83	81	41-129	2	20	
4-Bromofluorobenzene (S)	%						98	100	70-130			
Dibromofluoromethane (S)	%						99	94	70-130			
Toluene-d8 (S)	%						97	100	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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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

QC Batch:	322305	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	40188098001, 40188098002, 40188098003, 40188098004, 40188098005, 40188098006, 40188098007, 40188098014, 40188098015		

METHOD BLANK: 1871893 Matrix: Water  
Associated Lab Samples: 40188098001, 40188098002, 40188098003, 40188098004, 40188098005, 40188098006, 40188098007, 40188098014, 40188098015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	05/24/19 07:25	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	05/24/19 07:25	
Benzene	ug/L	<0.25	1.0	05/24/19 07:25	
Ethylbenzene	ug/L	<0.22	1.0	05/24/19 07:25	
m&p-Xylene	ug/L	<0.47	2.0	05/24/19 07:25	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	05/24/19 07:25	
Naphthalene	ug/L	<1.2	5.0	05/24/19 07:25	
o-Xylene	ug/L	<0.26	1.0	05/24/19 07:25	
Toluene	ug/L	<0.17	5.0	05/24/19 07:25	
4-Bromofluorobenzene (S)	%	93	70-130	05/24/19 07:25	
Dibromofluoromethane (S)	%	113	70-130	05/24/19 07:25	
Toluene-d8 (S)	%	97	70-130	05/24/19 07:25	

LABORATORY CONTROL SAMPLE: 1871894

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	53.5	107	70-130	
Ethylbenzene	ug/L	50	56.6	113	80-124	
m&p-Xylene	ug/L	100	113	113	70-130	
Methyl-tert-butyl ether	ug/L	50	43.6	87	54-137	
o-Xylene	ug/L	50	55.0	110	70-130	
Toluene	ug/L	50	54.7	109	80-126	
4-Bromofluorobenzene (S)	%			104	70-130	
Dibromofluoromethane (S)	%			113	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1871922 1871923

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40188098001 Result	Spike Conc.	Spike Conc.	Result							Result
Benzene	ug/L	374	50	50	598	494	449	241	70-130	19	20	E,M1
Ethylbenzene	ug/L	103	50	50	195	168	183	130	80-125	15	20	M1
m&p-Xylene	ug/L	1160	100	100	1560	1340	402	182	70-130	15	20	E,M1
Methyl-tert-butyl ether	ug/L	<1.2	50	50	44.4	43.0	89	86	51-145	3	20	
o-Xylene	ug/L	19.8	50	50	86.4	81.3	133	123	70-130	6	20	M1
Toluene	ug/L	0.61J	50	50	54.5	55.2	108	109	80-131	1	20	
4-Bromofluorobenzene (S)	%						102	101	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1871922												1871923	
Parameter	Units	40188098001 Result	MS	MSD	MS Result	MSD	MS % Rec	MSD	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.		MSD Result		% Rec % Rec					
Dibromofluoromethane (S)	%						112	106	70-130				
Toluene-d8 (S)	%						102	102	70-130				

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

QC Batch: 322341 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40188098016, 40188098017, 40188098018

METHOD BLANK: 1872039 Matrix: Water

Associated Lab Samples: 40188098016, 40188098017, 40188098018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	05/28/19 06:02	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	05/28/19 06:02	
Benzene	ug/L	<0.25	1.0	05/28/19 06:02	
Ethylbenzene	ug/L	<0.22	1.0	05/28/19 06:02	
m&p-Xylene	ug/L	<0.47	2.0	05/28/19 06:02	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	05/28/19 06:02	
Naphthalene	ug/L	<1.2	5.0	05/28/19 06:02	
o-Xylene	ug/L	<0.26	1.0	05/28/19 06:02	
Toluene	ug/L	<0.17	5.0	05/28/19 06:02	
4-Bromofluorobenzene (S)	%	88	70-130	05/28/19 06:02	
Dibromofluoromethane (S)	%	106	70-130	05/28/19 06:02	
Toluene-d8 (S)	%	102	70-130	05/28/19 06:02	

LABORATORY CONTROL SAMPLE: 1872040

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	53.1	106	70-130	
Ethylbenzene	ug/L	50	54.2	108	80-124	
m&p-Xylene	ug/L	100	112	112	70-130	
Methyl-tert-butyl ether	ug/L	50	51.4	103	54-137	
o-Xylene	ug/L	50	55.2	110	70-130	
Toluene	ug/L	50	53.4	107	80-126	
4-Bromofluorobenzene (S)	%			98	70-130	
Dibromofluoromethane (S)	%			110	70-130	
Toluene-d8 (S)	%			104	70-130	

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## QUALIFIERS

Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40188098

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### 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.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

### ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.  
HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).  
M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
R1 RPD value was outside control limits.  
pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40188098

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40188098019	MW-4/T50	EPA 8021	322441		
40188098020	MW-5/T50	EPA 8021	322441		
40188098021	MW-6/T50	EPA 8021	322441		
40188098008	MW-1/T68	EPA 8260	322350		
40188098009	MW-2/T68	EPA 8260	322936		
40188098010	MW-4/T68	EPA 8260	322936		
40188098011	MW-5/T66	EPA 8260	322350		
40188098012	MW-5/T68	EPA 8260	322350		
40188098013	MW-6/T68	EPA 8260	322350		
40188098022	TRIP BLANK	EPA 8260	322936		
40188098001	MW-1/T40	EPA 8260	322305		
40188098002	MW-2/T40	EPA 8260	322305		
40188098003	MW-4/T40	EPA 8260	322305		
40188098004	MW-5/T40	EPA 8260	322305		
40188098005	MW-6/T40	EPA 8260	322305		
40188098006	MW-7/T40	EPA 8260	322305		
40188098007	TS-1/T40	EPA 8260	322305		
40188098014	MW-2R/T70	EPA 8260	322305		
40188098015	MW-3/T70	EPA 8260	322305		
40188098016	MW-4/T70	EPA 8260	322341		
40188098017	MW-5/T70	EPA 8260	322341		
40188098018	MW-6/T70	EPA 8260	322341		

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# Sample Preservation Receipt Form

Pace Analytical Services, LLC  
1241 Bellevue Street, Suite 606  
Green Bay, WI 54302

Client Name: Gannett Fleming

Project # 460188098

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

Initial when completed:

Date/Time:

Lab Lot# of pH paper:

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


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	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	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																	3																		2.5 / 5 / 10
008																	3																		2.5 / 5 / 10
009																	3																		2.5 / 5 / 10
010																	3																		2.5 / 5 / 10
011																	3																		2.5 / 5 / 10
012																	3																		2.5 / 5 / 10
013																	3																		2.5 / 5 / 10
014																	3																		2.5 / 5 / 10
015																	3																		2.5 / 5 / 10
016																	3																		2.5 / 5 / 10
017																	3																		2.5 / 5 / 10
018																	3																		2.5 / 5 / 10
019																	3																		2.5 / 5 / 10
020																	3																		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	BP1U 1 liter plastic unpres	DG9A 40 mL amber ascorbic	JGFU 4 oz amber jar unpres
AG1H 1 liter amber glass HCL	BP2N 500 mL plastic HNO3	DG9T 40 mL amber Na Thio	WGFU 4 oz clear jar unpres
AG4S 125 mL amber glass H2SO4	BP2Z 500 mL plastic NaOH, Znact	VG9U 40 mL clear vial unpres	WPFU 4 oz plastic jar unpres
AG4U 120 mL amber glass unpres	BP3U 250 mL plastic unpres	VG9H 40 mL clear vial HCL	
AG5U 100 mL amber glass unpres	BP3B 250 mL plastic NaOH	VG9M 40 mL clear vial MeOH	SP5T 120 mL plastic Na Thiosulfate
AG2S 500 mL amber glass H2SO4	BP3N 250 mL plastic HNO3	VG9D 40 mL clear vial DI	ZPLC ziploc bag
BG3U 250 mL clear glass unpres	BP3S 250 mL plastic H2SO4		GN:



 1241 Bellevue Street, Green Bay, WI 54302	Document Name: <b>Sample Condition Upon Receipt (SCUR)</b>	Document Revised: 25Apr2018
	Document No.: <b>F-GB-C-031-Rev.07</b>	Issuing Authority: Pace Green Bay Quality Office

### Sample Condition Upon Receipt Form (SCUR)

**Client Name:** Gannett Fleming  
**Courier:**  CS Logistics  Fed Ex  Speedee  UPS  Waltco  
 Client  Pace Other: \_\_\_\_\_

Project #: \_\_\_\_\_

WO#: 40188098



40188098

**Tracking #:** 8146 9026 794  
**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 - NA    **Type of Ice:** Wet Blue Dry None     Samples on ice, cooling process has begun

**Cooler Temperature**    Uncorr: 201 /Corr: \_\_\_\_\_

**Temp Blank Present:**  yes  no    **Biological Tissue is Frozen:**  yes  no

**Person examining contents:**

Date: 5/23/19

Initials: ML

Temp should be above freezing to 6°C.  
 Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis    Matrix: <u>lv</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>423</u>		

**Client Notification/ Resolution:** \_\_\_\_\_ If checked, see attached form for additional comments   
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

**Project Manager Review:** Run for PM    **Date:** 5/23/19

October 17, 2019

Clifford Wright  
Gannett Fleming  
8040 Excelsior Drive, Ste 303  
Madison, WI 53717

**Project #34265.003**  
**SRC Fall 2019 GW**  
**Reviewed by CCW**  
**10/18/19**

RE: Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40197129

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Dan Milewsky  
dan.milewsky@pacelabs.com  
(920)469-2436  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

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### Green Bay Certification IDs

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40197129001	LRS-1	Water	10/09/19 08:50	10/11/19 09:15
40197129002	LRS-2	Water	10/09/19 08:55	10/11/19 09:15
40197129003	LRS-3	Water	10/09/19 09:00	10/11/19 09:15
40197129004	LRS-4	Water	10/09/19 08:45	10/11/19 09:15
40197129005	LRS-7	Water	10/09/19 09:05	10/11/19 09:15
40197129006	MW-1/FL	Water	10/09/19 07:50	10/11/19 09:15
40197129007	MW-2/FL	Water	10/09/19 07:55	10/11/19 09:15
40197129008	MW-3/FL	Water	10/09/19 08:00	10/11/19 09:15
40197129009	MW-9/FL	Water	10/09/19 09:15	10/11/19 09:15
40197129010	MW-10/FL	Water	10/09/19 09:10	10/11/19 09:15
40197129011	MW-11/FL	Water	10/09/19 08:08	10/11/19 09:15
40197129012	MW-13/FL	Water	10/09/19 08:10	10/11/19 09:15
40197129013	MW-14/FL	Water	10/09/19 08:15	10/11/19 09:15
40197129014	MW-1/T40	Water	10/09/19 09:35	10/11/19 09:15
40197129015	MW-2/T40	Water	10/09/19 09:45	10/11/19 09:15
40197129016	MW-4/T40	Water	10/09/19 10:10	10/11/19 09:15
40197129017	MW-5/T40	Water	10/09/19 09:50	10/11/19 09:15
40197129018	MW-6/T40	Water	10/09/19 10:00	10/11/19 09:15
40197129019	MW-7/T40	Water	10/09/19 10:05	10/11/19 09:15
40197129020	TS-1/T40	Water	10/09/19 09:55	10/11/19 09:15
40197129021	MW-1/T68	Water	10/09/19 10:20	10/11/19 09:15
40197129022	MW-2/T68	Water	10/09/19 10:30	10/11/19 09:15
40197129023	MW-4/T68	Water	10/09/19 10:25	10/11/19 09:15
40197129024	MW-5/T66	Water	10/09/19 10:40	10/11/19 09:15
40197129025	MW-5/T68	Water	10/09/19 10:15	10/11/19 09:15
40197129026	MW-6/T68	Water	10/09/19 10:15	10/11/19 09:15
40197129027	MW-2R/T70	Water	10/09/19 10:50	10/11/19 09:15
40197129028	MW-3/T70	Water	10/09/19 11:05	10/11/19 09:15
40197129029	MW-4/T70	Water	10/09/19 11:10	10/11/19 09:15
40197129030	MW-5/T70	Water	10/09/19 10:55	10/11/19 09:15
40197129031	MW-6/T70	Water	10/09/19 11:00	10/11/19 09:15
40197129032	TRIP BLANK	Water	10/09/19 00:00	10/11/19 09:15

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40197129001	LRS-1	EPA 8021	ALD	9	PASI-G
40197129002	LRS-2	EPA 8021	ALD	9	PASI-G
40197129003	LRS-3	EPA 8021	ALD	9	PASI-G
40197129004	LRS-4	EPA 8021	ALD	9	PASI-G
40197129005	LRS-7	EPA 8021	ALD	9	PASI-G
40197129006	MW-1/FL	EPA 8021	ALD	9	PASI-G
40197129007	MW-2/FL	EPA 8021	ALD	9	PASI-G
40197129008	MW-3/FL	EPA 8021	ALD	9	PASI-G
40197129009	MW-9/FL	EPA 8021	ALD	9	PASI-G
40197129010	MW-10/FL	EPA 8021	ALD	9	PASI-G
40197129011	MW-11/FL	EPA 8021	ALD	9	PASI-G
40197129012	MW-13/FL	EPA 8021	ALD	9	PASI-G
40197129013	MW-14/FL	EPA 8021	ALD	9	PASI-G
40197129014	MW-1/T40	EPA 8260	LAP	11	PASI-G
40197129015	MW-2/T40	EPA 8260	LAP	11	PASI-G
40197129016	MW-4/T40	EPA 8260	LAP	11	PASI-G
40197129017	MW-5/T40	EPA 8260	LAP	11	PASI-G
40197129018	MW-6/T40	EPA 8260	LAP	11	PASI-G
40197129019	MW-7/T40	EPA 8260	LAP	11	PASI-G
40197129020	TS-1/T40	EPA 8260	LAP	11	PASI-G
40197129021	MW-1/T68	EPA 8260	HNW	63	PASI-G
40197129022	MW-2/T68	EPA 8260	HNW	63	PASI-G
40197129023	MW-4/T68	EPA 8260	HNW	63	PASI-G
40197129024	MW-5/T66	EPA 8260	HNW	63	PASI-G
40197129025	MW-5/T68	EPA 8260	HNW	63	PASI-G
40197129026	MW-6/T68	EPA 8260	HNW	63	PASI-G
40197129027	MW-2R/T70	EPA 8260	LAP	12	PASI-G
40197129028	MW-3/T70	EPA 8260	LAP	12	PASI-G
40197129029	MW-4/T70	EPA 8260	LAP	12	PASI-G
40197129030	MW-5/T70	EPA 8260	LAP	12	PASI-G
40197129031	MW-6/T70	EPA 8260	LAP	12	PASI-G
40197129032	TRIP BLANK	EPA 8260	HNW	63	PASI-G

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40197129017</b>	<b>MW-5/T40</b>					
EPA 8260	1,3,5-Trimethylbenzene	14.7	ug/L	2.9	10/16/19 16:55	
EPA 8260	Benzene	6.7	ug/L	1.0	10/16/19 16:55	
EPA 8260	Ethylbenzene	8.2	ug/L	1.0	10/16/19 16:55	
EPA 8260	m&p-Xylene	172	ug/L	2.0	10/16/19 16:55	
EPA 8260	o-Xylene	0.44J	ug/L	1.0	10/16/19 16:55	
<b>40197129018</b>	<b>MW-6/T40</b>					
EPA 8260	Benzene	9.4	ug/L	1.0	10/17/19 09:30	
<b>40197129019</b>	<b>MW-7/T40</b>					
EPA 8260	1,2,4-Trimethylbenzene	869	ug/L	28.0	10/16/19 13:44	
EPA 8260	1,3,5-Trimethylbenzene	222	ug/L	29.1	10/16/19 13:44	
EPA 8260	Benzene	4850	ug/L	50.0	10/16/19 16:31	
EPA 8260	Ethylbenzene	1200	ug/L	10.0	10/16/19 13:44	
EPA 8260	Toluene	5.6J	ug/L	50.0	10/16/19 13:44	
EPA 8260	m&p-Xylene	3820	ug/L	20.0	10/16/19 13:44	
EPA 8260	o-Xylene	442	ug/L	10.0	10/16/19 13:44	
<b>40197129020</b>	<b>TS-1/T40</b>					
EPA 8260	Benzene	0.64J	ug/L	1.0	10/17/19 09:54	
<b>40197129021</b>	<b>MW-1/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	6.8	ug/L	2.8	10/16/19 14:03	
EPA 8260	1,3,5-Trimethylbenzene	2.1J	ug/L	2.9	10/16/19 14:03	
EPA 8260	Ethylbenzene	0.38J	ug/L	1.0	10/16/19 14:03	
EPA 8260	Naphthalene	1.9J	ug/L	5.0	10/16/19 14:03	
EPA 8260	Toluene	0.37J	ug/L	5.0	10/16/19 14:03	
EPA 8260	m&p-Xylene	3.3	ug/L	2.0	10/16/19 14:03	
EPA 8260	o-Xylene	1.6	ug/L	1.0	10/16/19 14:03	
<b>40197129022</b>	<b>MW-2/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	1180	ug/L	112	10/16/19 12:15	
EPA 8260	1,2-Dichloroethane	287	ug/L	40.0	10/16/19 12:15	
EPA 8260	1,3,5-Trimethylbenzene	421	ug/L	116	10/16/19 12:15	
EPA 8260	Benzene	2240	ug/L	40.0	10/16/19 12:15	
EPA 8260	Ethylbenzene	17.8J	ug/L	40.0	10/16/19 12:15	
EPA 8260	Naphthalene	98.3J	ug/L	200	10/16/19 12:15	
EPA 8260	Toluene	1330	ug/L	200	10/16/19 12:15	
EPA 8260	m&p-Xylene	3020	ug/L	80.0	10/16/19 12:15	
EPA 8260	o-Xylene	2040	ug/L	40.0	10/16/19 12:15	
<b>40197129023</b>	<b>MW-4/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	627	ug/L	28.0	10/16/19 12:37	
EPA 8260	1,2-Dichloroethane	64.6	ug/L	10.0	10/16/19 12:37	
EPA 8260	1,3,5-Trimethylbenzene	34.1	ug/L	29.1	10/16/19 12:37	
EPA 8260	Benzene	2640	ug/L	10.0	10/16/19 12:37	
EPA 8260	Ethylbenzene	420	ug/L	10.0	10/16/19 12:37	
EPA 8260	Isopropylbenzene (Cumene)	13.1J	ug/L	50.0	10/16/19 12:37	
EPA 8260	Toluene	4.8J	ug/L	50.0	10/16/19 12:37	
EPA 8260	m&p-Xylene	439	ug/L	20.0	10/16/19 12:37	

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40197129023</b>	<b>MW-4/T68</b>					
EPA 8260	n-Propylbenzene	30.5J	ug/L	50.0	10/16/19 12:37	
<b>40197129024</b>	<b>MW-5/T66</b>					
EPA 8260	1,2,4-Trimethylbenzene	2520	ug/L	140	10/16/19 12:58	
EPA 8260	1,2-Dichloroethane	112	ug/L	50.0	10/16/19 12:58	
EPA 8260	1,3,5-Trimethylbenzene	759	ug/L	146	10/16/19 12:58	
EPA 8260	Benzene	4260	ug/L	50.0	10/16/19 12:58	
EPA 8260	Ethylbenzene	1680	ug/L	50.0	10/16/19 12:58	
EPA 8260	Isopropylbenzene (Cumene)	35.9J	ug/L	250	10/16/19 12:58	
EPA 8260	Naphthalene	358	ug/L	250	10/16/19 12:58	
EPA 8260	Toluene	9810	ug/L	250	10/16/19 12:58	
EPA 8260	m&p-Xylene	10600	ug/L	100	10/16/19 12:58	
EPA 8260	n-Propylbenzene	106J	ug/L	250	10/16/19 12:58	
EPA 8260	o-Xylene	4170	ug/L	50.0	10/16/19 12:58	
<b>40197129025</b>	<b>MW-5/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	3570	ug/L	700	10/16/19 13:20	
EPA 8260	1,2-Dichloroethane	697	ug/L	250	10/16/19 13:20	
EPA 8260	1,3,5-Trimethylbenzene	985	ug/L	728	10/16/19 13:20	
EPA 8260	Benzene	25400	ug/L	250	10/16/19 13:20	
EPA 8260	Ethylbenzene	2480	ug/L	250	10/16/19 13:20	
EPA 8260	Naphthalene	717J	ug/L	1250	10/16/19 13:20	
EPA 8260	Toluene	39500	ug/L	1250	10/16/19 13:20	
EPA 8260	m&p-Xylene	15000	ug/L	500	10/16/19 13:20	
EPA 8260	n-Propylbenzene	258J	ug/L	1250	10/16/19 13:20	
EPA 8260	o-Xylene	6620	ug/L	250	10/16/19 13:20	
<b>40197129026</b>	<b>MW-6/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	2670	ug/L	700	10/16/19 13:42	
EPA 8260	1,2-Dichloroethane	743	ug/L	250	10/16/19 13:42	
EPA 8260	1,3,5-Trimethylbenzene	758	ug/L	728	10/16/19 13:42	
EPA 8260	Benzene	20300	ug/L	250	10/16/19 13:42	
EPA 8260	Ethylbenzene	1300	ug/L	250	10/16/19 13:42	
EPA 8260	Naphthalene	391J	ug/L	1250	10/16/19 13:42	
EPA 8260	Toluene	17700	ug/L	1250	10/16/19 13:42	
EPA 8260	m&p-Xylene	11700	ug/L	500	10/16/19 13:42	
EPA 8260	o-Xylene	5700	ug/L	250	10/16/19 13:42	
<b>40197129027</b>	<b>MW-2R/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	4270	ug/L	560	10/16/19 13:20	
EPA 8260	1,3,5-Trimethylbenzene	1130	ug/L	582	10/16/19 13:20	
EPA 8260	Benzene	11800	ug/L	200	10/16/19 13:20	
EPA 8260	Ethylbenzene	1310	ug/L	200	10/16/19 13:20	
EPA 8260	Naphthalene	919J	ug/L	1000	10/16/19 13:20	
EPA 8260	Toluene	15700	ug/L	1000	10/16/19 13:20	
EPA 8260	m&p-Xylene	12900	ug/L	400	10/16/19 13:20	
EPA 8260	o-Xylene	5710	ug/L	200	10/16/19 13:20	

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

---

**Method:** EPA 8021

**Description:** 8021 GCV Short List

**Client:** Gannett Fleming Inc.

**Date:** October 17, 2019

**General Information:**

13 samples were analyzed for EPA 8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

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**Method:** EPA 8260

**Description:** 8260 MSV

**Client:** Gannett Fleming Inc.

**Date:** October 17, 2019

**General Information:**

7 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

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**Method:** EPA 8260

**Description:** 8260 MSV UST

**Client:** Gannett Fleming Inc.

**Date:** October 17, 2019

**General Information:**

12 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Sample: **MW-1/T68** Lab ID: **40197129021** Collected: 10/09/19 10:20 Received: 10/11/19 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/16/19 14:03	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/16/19 14:03	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/16/19 14:03	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/16/19 14:03	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/16/19 14:03	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/16/19 14:03	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/16/19 14:03	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/16/19 14:03	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/16/19 14:03	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/16/19 14:03	120-82-1	
1,2,4-Trimethylbenzene	6.8	ug/L	2.8	0.84	1		10/16/19 14:03	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/16/19 14:03	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/16/19 14:03	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 14:03	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/16/19 14:03	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/16/19 14:03	78-87-5	
1,3,5-Trimethylbenzene	2.1J	ug/L	2.9	0.87	1		10/16/19 14:03	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/16/19 14:03	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/16/19 14:03	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/16/19 14:03	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/16/19 14:03	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/16/19 14:03	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/16/19 14:03	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/16/19 14:03	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/16/19 14:03	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/16/19 14:03	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/16/19 14:03	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/16/19 14:03	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/16/19 14:03	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/16/19 14:03	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 14:03	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/16/19 14:03	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/16/19 14:03	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/16/19 14:03	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/16/19 14:03	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/16/19 14:03	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/16/19 14:03	75-71-8	
Ethylbenzene	0.38J	ug/L	1.0	0.22	1		10/16/19 14:03	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/16/19 14:03	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/16/19 14:03	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/16/19 14:03	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/16/19 14:03	75-09-2	
Naphthalene	1.9J	ug/L	5.0	1.2	1		10/16/19 14:03	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/16/19 14:03	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/16/19 14:03	127-18-4	
Toluene	0.37J	ug/L	5.0	0.17	1		10/16/19 14:03	108-88-3	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-1/T68**      **Lab ID: 40197129021**      Collected: 10/09/19 10:20      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/16/19 14:03	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/16/19 14:03	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/16/19 14:03	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/16/19 14:03	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/16/19 14:03	10061-01-5	
m&p-Xylene	3.3	ug/L	2.0	0.47	1		10/16/19 14:03	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 14:03	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/16/19 14:03	103-65-1	
o-Xylene	1.6	ug/L	1.0	0.26	1		10/16/19 14:03	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/16/19 14:03	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/16/19 14:03	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/16/19 14:03	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/16/19 14:03	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/16/19 14:03	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	100	%	70-130		1		10/16/19 14:03	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		10/16/19 14:03	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		10/16/19 14:03	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Sample: MW-2/T68 Lab ID: 40197129022 Collected: 10/09/19 10:30 Received: 10/11/19 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<10.8	ug/L	40.0	10.8	40		10/16/19 12:15	630-20-6	
1,1,1-Trichloroethane	<9.8	ug/L	40.0	9.8	40		10/16/19 12:15	71-55-6	
1,1,2,2-Tetrachloroethane	<11.0	ug/L	40.0	11.0	40		10/16/19 12:15	79-34-5	
1,1,2-Trichloroethane	<22.1	ug/L	200	22.1	40		10/16/19 12:15	79-00-5	
1,1-Dichloroethane	<10.9	ug/L	40.0	10.9	40		10/16/19 12:15	75-34-3	
1,1-Dichloroethene	<9.8	ug/L	40.0	9.8	40		10/16/19 12:15	75-35-4	
1,1-Dichloropropene	<21.6	ug/L	72.0	21.6	40		10/16/19 12:15	563-58-6	
1,2,3-Trichlorobenzene	<25.0	ug/L	200	25.0	40		10/16/19 12:15	87-61-6	
1,2,3-Trichloropropane	<23.6	ug/L	200	23.6	40		10/16/19 12:15	96-18-4	
1,2,4-Trichlorobenzene	<38.1	ug/L	200	38.1	40		10/16/19 12:15	120-82-1	
1,2,4-Trimethylbenzene	1180	ug/L	112	33.6	40		10/16/19 12:15	95-63-6	
1,2-Dibromo-3-chloropropane	<70.5	ug/L	235	70.5	40		10/16/19 12:15	96-12-8	
1,2-Dibromoethane (EDB)	<33.2	ug/L	111	33.2	40		10/16/19 12:15	106-93-4	
1,2-Dichlorobenzene	<28.2	ug/L	94.0	28.2	40		10/16/19 12:15	95-50-1	
1,2-Dichloroethane	287	ug/L	40.0	11.2	40		10/16/19 12:15	107-06-2	
1,2-Dichloropropane	<11.3	ug/L	40.0	11.3	40		10/16/19 12:15	78-87-5	
1,3,5-Trimethylbenzene	421	ug/L	116	34.9	40		10/16/19 12:15	108-67-8	
1,3-Dichlorobenzene	<25.1	ug/L	83.7	25.1	40		10/16/19 12:15	541-73-1	
1,3-Dichloropropane	<33.0	ug/L	110	33.0	40		10/16/19 12:15	142-28-9	
1,4-Dichlorobenzene	<37.7	ug/L	126	37.7	40		10/16/19 12:15	106-46-7	
2,2-Dichloropropane	<90.6	ug/L	302	90.6	40		10/16/19 12:15	594-20-7	
2-Chlorotoluene	<37.0	ug/L	200	37.0	40		10/16/19 12:15	95-49-8	
4-Chlorotoluene	<30.3	ug/L	101	30.3	40		10/16/19 12:15	106-43-4	
Benzene	2240	ug/L	40.0	9.9	40		10/16/19 12:15	71-43-2	
Bromobenzene	<9.6	ug/L	40.0	9.6	40		10/16/19 12:15	108-86-1	
Bromochloromethane	<14.5	ug/L	200	14.5	40		10/16/19 12:15	74-97-5	
Bromodichloromethane	<14.5	ug/L	48.5	14.5	40		10/16/19 12:15	75-27-4	
Bromoform	<159	ug/L	530	159	40		10/16/19 12:15	75-25-2	
Bromomethane	<38.9	ug/L	200	38.9	40		10/16/19 12:15	74-83-9	
Carbon tetrachloride	<6.6	ug/L	40.0	6.6	40		10/16/19 12:15	56-23-5	
Chlorobenzene	<28.4	ug/L	94.8	28.4	40		10/16/19 12:15	108-90-7	
Chloroethane	<53.7	ug/L	200	53.7	40		10/16/19 12:15	75-00-3	
Chloroform	<51.0	ug/L	200	51.0	40		10/16/19 12:15	67-66-3	
Chloromethane	<87.6	ug/L	292	87.6	40		10/16/19 12:15	74-87-3	
Dibromochloromethane	<104	ug/L	347	104	40		10/16/19 12:15	124-48-1	
Dibromomethane	<37.5	ug/L	125	37.5	40		10/16/19 12:15	74-95-3	
Dichlorodifluoromethane	<20.0	ug/L	200	20.0	40		10/16/19 12:15	75-71-8	
Ethylbenzene	17.8J	ug/L	40.0	8.7	40		10/16/19 12:15	100-41-4	
Hexachloro-1,3-butadiene	<47.3	ug/L	200	47.3	40		10/16/19 12:15	87-68-3	
Isopropylbenzene (Cumene)	<15.7	ug/L	200	15.7	40		10/16/19 12:15	98-82-8	
Methyl-tert-butyl ether	<49.8	ug/L	166	49.8	40		10/16/19 12:15	1634-04-4	
Methylene Chloride	<23.2	ug/L	200	23.2	40		10/16/19 12:15	75-09-2	
Naphthalene	98.3J	ug/L	200	47.0	40		10/16/19 12:15	91-20-3	
Styrene	<18.6	ug/L	62.1	18.6	40		10/16/19 12:15	100-42-5	
Tetrachloroethene	<13.1	ug/L	43.5	13.1	40		10/16/19 12:15	127-18-4	
Toluene	1330	ug/L	200	6.9	40		10/16/19 12:15	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-2/T68**      **Lab ID: 40197129022**      Collected: 10/09/19 10:30      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<10.2	ug/L	40.0	10.2	40		10/16/19 12:15	79-01-6	
Trichlorofluoromethane	<8.6	ug/L	40.0	8.6	40		10/16/19 12:15	75-69-4	
Vinyl chloride	<7.0	ug/L	40.0	7.0	40		10/16/19 12:15	75-01-4	
cis-1,2-Dichloroethene	<10.8	ug/L	40.0	10.8	40		10/16/19 12:15	156-59-2	
cis-1,3-Dichloropropene	<145	ug/L	484	145	40		10/16/19 12:15	10061-01-5	
m&p-Xylene	3020	ug/L	80.0	18.6	40		10/16/19 12:15	179601-23-1	
n-Butylbenzene	<28.3	ug/L	94.4	28.3	40		10/16/19 12:15	104-51-8	
n-Propylbenzene	<32.4	ug/L	200	32.4	40		10/16/19 12:15	103-65-1	
o-Xylene	2040	ug/L	40.0	10.5	40		10/16/19 12:15	95-47-6	
p-Isopropyltoluene	<32.0	ug/L	107	32.0	40		10/16/19 12:15	99-87-6	
sec-Butylbenzene	<33.9	ug/L	200	33.9	40		10/16/19 12:15	135-98-8	
tert-Butylbenzene	<12.2	ug/L	40.5	12.2	40		10/16/19 12:15	98-06-6	
trans-1,2-Dichloroethene	<43.6	ug/L	145	43.6	40		10/16/19 12:15	156-60-5	
trans-1,3-Dichloropropene	<175	ug/L	583	175	40		10/16/19 12:15	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	103	%	70-130		40		10/16/19 12:15	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		40		10/16/19 12:15	1868-53-7	
Toluene-d8 (S)	101	%	70-130		40		10/16/19 12:15	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-4/T68**      **Lab ID: 40197129023**      Collected: 10/09/19 10:25      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<2.7	ug/L	10.0	2.7	10		10/16/19 12:37	630-20-6	
1,1,1-Trichloroethane	<2.4	ug/L	10.0	2.4	10		10/16/19 12:37	71-55-6	
1,1,2,2-Tetrachloroethane	<2.8	ug/L	10.0	2.8	10		10/16/19 12:37	79-34-5	
1,1,2-Trichloroethane	<5.5	ug/L	50.0	5.5	10		10/16/19 12:37	79-00-5	
1,1-Dichloroethane	<2.7	ug/L	10.0	2.7	10		10/16/19 12:37	75-34-3	
1,1-Dichloroethene	<2.4	ug/L	10.0	2.4	10		10/16/19 12:37	75-35-4	
1,1-Dichloropropene	<5.4	ug/L	18.0	5.4	10		10/16/19 12:37	563-58-6	
1,2,3-Trichlorobenzene	<6.3	ug/L	50.0	6.3	10		10/16/19 12:37	87-61-6	
1,2,3-Trichloropropane	<5.9	ug/L	50.0	5.9	10		10/16/19 12:37	96-18-4	
1,2,4-Trichlorobenzene	<9.5	ug/L	50.0	9.5	10		10/16/19 12:37	120-82-1	
1,2,4-Trimethylbenzene	627	ug/L	28.0	8.4	10		10/16/19 12:37	95-63-6	
1,2-Dibromo-3-chloropropane	<17.6	ug/L	58.8	17.6	10		10/16/19 12:37	96-12-8	
1,2-Dibromoethane (EDB)	<8.3	ug/L	27.6	8.3	10		10/16/19 12:37	106-93-4	
1,2-Dichlorobenzene	<7.1	ug/L	23.5	7.1	10		10/16/19 12:37	95-50-1	
1,2-Dichloroethane	64.6	ug/L	10.0	2.8	10		10/16/19 12:37	107-06-2	
1,2-Dichloropropane	<2.8	ug/L	10.0	2.8	10		10/16/19 12:37	78-87-5	
1,3,5-Trimethylbenzene	34.1	ug/L	29.1	8.7	10		10/16/19 12:37	108-67-8	
1,3-Dichlorobenzene	<6.3	ug/L	20.9	6.3	10		10/16/19 12:37	541-73-1	
1,3-Dichloropropane	<8.3	ug/L	27.5	8.3	10		10/16/19 12:37	142-28-9	
1,4-Dichlorobenzene	<9.4	ug/L	31.5	9.4	10		10/16/19 12:37	106-46-7	
2,2-Dichloropropane	<22.7	ug/L	75.5	22.7	10		10/16/19 12:37	594-20-7	
2-Chlorotoluene	<9.3	ug/L	50.0	9.3	10		10/16/19 12:37	95-49-8	
4-Chlorotoluene	<7.6	ug/L	25.2	7.6	10		10/16/19 12:37	106-43-4	
Benzene	2640	ug/L	10.0	2.5	10		10/16/19 12:37	71-43-2	
Bromobenzene	<2.4	ug/L	10.0	2.4	10		10/16/19 12:37	108-86-1	
Bromochloromethane	<3.6	ug/L	50.0	3.6	10		10/16/19 12:37	74-97-5	
Bromodichloromethane	<3.6	ug/L	12.1	3.6	10		10/16/19 12:37	75-27-4	
Bromoform	<39.7	ug/L	132	39.7	10		10/16/19 12:37	75-25-2	
Bromomethane	<9.7	ug/L	50.0	9.7	10		10/16/19 12:37	74-83-9	
Carbon tetrachloride	<1.7	ug/L	10.0	1.7	10		10/16/19 12:37	56-23-5	
Chlorobenzene	<7.1	ug/L	23.7	7.1	10		10/16/19 12:37	108-90-7	
Chloroethane	<13.4	ug/L	50.0	13.4	10		10/16/19 12:37	75-00-3	
Chloroform	<12.7	ug/L	50.0	12.7	10		10/16/19 12:37	67-66-3	
Chloromethane	<21.9	ug/L	73.0	21.9	10		10/16/19 12:37	74-87-3	
Dibromochloromethane	<26.0	ug/L	86.7	26.0	10		10/16/19 12:37	124-48-1	
Dibromomethane	<9.4	ug/L	31.2	9.4	10		10/16/19 12:37	74-95-3	
Dichlorodifluoromethane	<5.0	ug/L	50.0	5.0	10		10/16/19 12:37	75-71-8	
Ethylbenzene	420	ug/L	10.0	2.2	10		10/16/19 12:37	100-41-4	
Hexachloro-1,3-butadiene	<11.8	ug/L	50.0	11.8	10		10/16/19 12:37	87-68-3	
Isopropylbenzene (Cumene)	13.1J	ug/L	50.0	3.9	10		10/16/19 12:37	98-82-8	
Methyl-tert-butyl ether	<12.5	ug/L	41.5	12.5	10		10/16/19 12:37	1634-04-4	
Methylene Chloride	<5.8	ug/L	50.0	5.8	10		10/16/19 12:37	75-09-2	
Naphthalene	<11.8	ug/L	50.0	11.8	10		10/16/19 12:37	91-20-3	
Styrene	<4.7	ug/L	15.5	4.7	10		10/16/19 12:37	100-42-5	
Tetrachloroethene	<3.3	ug/L	10.9	3.3	10		10/16/19 12:37	127-18-4	
Toluene	4.8J	ug/L	50.0	1.7	10		10/16/19 12:37	108-88-3	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-4/T68**      **Lab ID: 40197129023**      Collected: 10/09/19 10:25      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<2.6	ug/L	10.0	2.6	10		10/16/19 12:37	79-01-6	
Trichlorofluoromethane	<2.1	ug/L	10.0	2.1	10		10/16/19 12:37	75-69-4	
Vinyl chloride	<1.7	ug/L	10.0	1.7	10		10/16/19 12:37	75-01-4	
cis-1,2-Dichloroethene	<2.7	ug/L	10.0	2.7	10		10/16/19 12:37	156-59-2	
cis-1,3-Dichloropropene	<36.3	ug/L	121	36.3	10		10/16/19 12:37	10061-01-5	
m&p-Xylene	439	ug/L	20.0	4.7	10		10/16/19 12:37	179601-23-1	
n-Butylbenzene	<7.1	ug/L	23.6	7.1	10		10/16/19 12:37	104-51-8	
n-Propylbenzene	30.5J	ug/L	50.0	8.1	10		10/16/19 12:37	103-65-1	
o-Xylene	<2.6	ug/L	10.0	2.6	10		10/16/19 12:37	95-47-6	
p-Isopropyltoluene	<8.0	ug/L	26.7	8.0	10		10/16/19 12:37	99-87-6	
sec-Butylbenzene	<8.5	ug/L	50.0	8.5	10		10/16/19 12:37	135-98-8	
tert-Butylbenzene	<3.0	ug/L	10.1	3.0	10		10/16/19 12:37	98-06-6	
trans-1,2-Dichloroethene	<10.9	ug/L	36.4	10.9	10		10/16/19 12:37	156-60-5	
trans-1,3-Dichloropropene	<43.7	ug/L	146	43.7	10		10/16/19 12:37	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	103	%	70-130		10		10/16/19 12:37	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		10		10/16/19 12:37	1868-53-7	
Toluene-d8 (S)	103	%	70-130		10		10/16/19 12:37	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Sample: **MW-5/T66** Lab ID: **40197129024** Collected: 10/09/19 10:40 Received: 10/11/19 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<13.5	ug/L	50.0	13.5	50		10/16/19 12:58	630-20-6	
1,1,1-Trichloroethane	<12.2	ug/L	50.0	12.2	50		10/16/19 12:58	71-55-6	
1,1,2,2-Tetrachloroethane	<13.8	ug/L	50.0	13.8	50		10/16/19 12:58	79-34-5	
1,1,2-Trichloroethane	<27.6	ug/L	250	27.6	50		10/16/19 12:58	79-00-5	
1,1-Dichloroethane	<13.6	ug/L	50.0	13.6	50		10/16/19 12:58	75-34-3	
1,1-Dichloroethene	<12.2	ug/L	50.0	12.2	50		10/16/19 12:58	75-35-4	
1,1-Dichloropropene	<27.0	ug/L	90.0	27.0	50		10/16/19 12:58	563-58-6	
1,2,3-Trichlorobenzene	<31.3	ug/L	250	31.3	50		10/16/19 12:58	87-61-6	
1,2,3-Trichloropropane	<29.5	ug/L	250	29.5	50		10/16/19 12:58	96-18-4	
1,2,4-Trichlorobenzene	<47.6	ug/L	250	47.6	50		10/16/19 12:58	120-82-1	
1,2,4-Trimethylbenzene	2520	ug/L	140	42.0	50		10/16/19 12:58	95-63-6	
1,2-Dibromo-3-chloropropane	<88.2	ug/L	294	88.2	50		10/16/19 12:58	96-12-8	
1,2-Dibromoethane (EDB)	<41.5	ug/L	138	41.5	50		10/16/19 12:58	106-93-4	
1,2-Dichlorobenzene	<35.3	ug/L	118	35.3	50		10/16/19 12:58	95-50-1	
1,2-Dichloroethane	112	ug/L	50.0	14.0	50		10/16/19 12:58	107-06-2	
1,2-Dichloropropane	<14.1	ug/L	50.0	14.1	50		10/16/19 12:58	78-87-5	
1,3,5-Trimethylbenzene	759	ug/L	146	43.7	50		10/16/19 12:58	108-67-8	
1,3-Dichlorobenzene	<31.4	ug/L	105	31.4	50		10/16/19 12:58	541-73-1	
1,3-Dichloropropane	<41.3	ug/L	138	41.3	50		10/16/19 12:58	142-28-9	
1,4-Dichlorobenzene	<47.2	ug/L	157	47.2	50		10/16/19 12:58	106-46-7	
2,2-Dichloropropane	<113	ug/L	378	113	50		10/16/19 12:58	594-20-7	
2-Chlorotoluene	<46.3	ug/L	250	46.3	50		10/16/19 12:58	95-49-8	
4-Chlorotoluene	<37.8	ug/L	126	37.8	50		10/16/19 12:58	106-43-4	
Benzene	4260	ug/L	50.0	12.3	50		10/16/19 12:58	71-43-2	
Bromobenzene	<12.1	ug/L	50.0	12.1	50		10/16/19 12:58	108-86-1	
Bromochloromethane	<18.1	ug/L	250	18.1	50		10/16/19 12:58	74-97-5	
Bromodichloromethane	<18.2	ug/L	60.6	18.2	50		10/16/19 12:58	75-27-4	
Bromoform	<199	ug/L	662	199	50		10/16/19 12:58	75-25-2	
Bromomethane	<48.6	ug/L	250	48.6	50		10/16/19 12:58	74-83-9	
Carbon tetrachloride	<8.3	ug/L	50.0	8.3	50		10/16/19 12:58	56-23-5	
Chlorobenzene	<35.5	ug/L	118	35.5	50		10/16/19 12:58	108-90-7	
Chloroethane	<67.1	ug/L	250	67.1	50		10/16/19 12:58	75-00-3	
Chloroform	<63.7	ug/L	250	63.7	50		10/16/19 12:58	67-66-3	
Chloromethane	<109	ug/L	365	109	50		10/16/19 12:58	74-87-3	
Dibromochloromethane	<130	ug/L	434	130	50		10/16/19 12:58	124-48-1	
Dibromomethane	<46.8	ug/L	156	46.8	50		10/16/19 12:58	74-95-3	
Dichlorodifluoromethane	<25.0	ug/L	250	25.0	50		10/16/19 12:58	75-71-8	
Ethylbenzene	1680	ug/L	50.0	10.9	50		10/16/19 12:58	100-41-4	
Hexachloro-1,3-butadiene	<59.1	ug/L	250	59.1	50		10/16/19 12:58	87-68-3	
Isopropylbenzene (Cumene)	35.9J	ug/L	250	19.6	50		10/16/19 12:58	98-82-8	
Methyl-tert-butyl ether	<62.3	ug/L	208	62.3	50		10/16/19 12:58	1634-04-4	
Methylene Chloride	<29.0	ug/L	250	29.0	50		10/16/19 12:58	75-09-2	
Naphthalene	358	ug/L	250	58.8	50		10/16/19 12:58	91-20-3	
Styrene	<23.3	ug/L	77.6	23.3	50		10/16/19 12:58	100-42-5	
Tetrachloroethene	<16.3	ug/L	54.4	16.3	50		10/16/19 12:58	127-18-4	
Toluene	9810	ug/L	250	8.6	50		10/16/19 12:58	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-5/T66**      **Lab ID: 40197129024**      Collected: 10/09/19 10:40      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<12.8	ug/L	50.0	12.8	50		10/16/19 12:58	79-01-6	
Trichlorofluoromethane	<10.7	ug/L	50.0	10.7	50		10/16/19 12:58	75-69-4	
Vinyl chloride	<8.7	ug/L	50.0	8.7	50		10/16/19 12:58	75-01-4	
cis-1,2-Dichloroethene	<13.6	ug/L	50.0	13.6	50		10/16/19 12:58	156-59-2	
cis-1,3-Dichloropropene	<181	ug/L	605	181	50		10/16/19 12:58	10061-01-5	
m&p-Xylene	10600	ug/L	100	23.3	50		10/16/19 12:58	179601-23-1	
n-Butylbenzene	<35.4	ug/L	118	35.4	50		10/16/19 12:58	104-51-8	
n-Propylbenzene	106J	ug/L	250	40.5	50		10/16/19 12:58	103-65-1	
o-Xylene	4170	ug/L	50.0	13.1	50		10/16/19 12:58	95-47-6	
p-Isopropyltoluene	<40.0	ug/L	133	40.0	50		10/16/19 12:58	99-87-6	
sec-Butylbenzene	<42.4	ug/L	250	42.4	50		10/16/19 12:58	135-98-8	
tert-Butylbenzene	<15.2	ug/L	50.6	15.2	50		10/16/19 12:58	98-06-6	
trans-1,2-Dichloroethene	<54.5	ug/L	182	54.5	50		10/16/19 12:58	156-60-5	
trans-1,3-Dichloropropene	<219	ug/L	728	219	50		10/16/19 12:58	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	104	%	70-130		50		10/16/19 12:58	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		50		10/16/19 12:58	1868-53-7	
Toluene-d8 (S)	100	%	70-130		50		10/16/19 12:58	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-5/T68**      **Lab ID: 40197129025**      Collected: 10/09/19 10:15      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<67.3	ug/L	250	67.3	250		10/16/19 13:20	630-20-6	
1,1,1-Trichloroethane	<61.2	ug/L	250	61.2	250		10/16/19 13:20	71-55-6	
1,1,2,2-Tetrachloroethane	<68.8	ug/L	250	68.8	250		10/16/19 13:20	79-34-5	
1,1,2-Trichloroethane	<138	ug/L	1250	138	250		10/16/19 13:20	79-00-5	
1,1-Dichloroethane	<68.1	ug/L	250	68.1	250		10/16/19 13:20	75-34-3	
1,1-Dichloroethene	<61.2	ug/L	250	61.2	250		10/16/19 13:20	75-35-4	
1,1-Dichloropropene	<135	ug/L	450	135	250		10/16/19 13:20	563-58-6	
1,2,3-Trichlorobenzene	<156	ug/L	1250	156	250		10/16/19 13:20	87-61-6	
1,2,3-Trichloropropane	<148	ug/L	1250	148	250		10/16/19 13:20	96-18-4	
1,2,4-Trichlorobenzene	<238	ug/L	1250	238	250		10/16/19 13:20	120-82-1	
1,2,4-Trimethylbenzene	3570	ug/L	700	210	250		10/16/19 13:20	95-63-6	
1,2-Dibromo-3-chloropropane	<441	ug/L	1470	441	250		10/16/19 13:20	96-12-8	
1,2-Dibromoethane (EDB)	<207	ug/L	691	207	250		10/16/19 13:20	106-93-4	
1,2-Dichlorobenzene	<176	ug/L	588	176	250		10/16/19 13:20	95-50-1	
1,2-Dichloroethane	697	ug/L	250	70.0	250		10/16/19 13:20	107-06-2	
1,2-Dichloropropane	<70.7	ug/L	250	70.7	250		10/16/19 13:20	78-87-5	
1,3,5-Trimethylbenzene	985	ug/L	728	218	250		10/16/19 13:20	108-67-8	
1,3-Dichlorobenzene	<157	ug/L	523	157	250		10/16/19 13:20	541-73-1	
1,3-Dichloropropane	<206	ug/L	688	206	250		10/16/19 13:20	142-28-9	
1,4-Dichlorobenzene	<236	ug/L	786	236	250		10/16/19 13:20	106-46-7	
2,2-Dichloropropane	<566	ug/L	1890	566	250		10/16/19 13:20	594-20-7	
2-Chlorotoluene	<232	ug/L	1250	232	250		10/16/19 13:20	95-49-8	
4-Chlorotoluene	<189	ug/L	630	189	250		10/16/19 13:20	106-43-4	
Benzene	25400	ug/L	250	61.6	250		10/16/19 13:20	71-43-2	
Bromobenzene	<60.3	ug/L	250	60.3	250		10/16/19 13:20	108-86-1	
Bromochloromethane	<90.5	ug/L	1250	90.5	250		10/16/19 13:20	74-97-5	
Bromodichloromethane	<90.9	ug/L	303	90.9	250		10/16/19 13:20	75-27-4	
Bromoform	<993	ug/L	3310	993	250		10/16/19 13:20	75-25-2	
Bromomethane	<243	ug/L	1250	243	250		10/16/19 13:20	74-83-9	
Carbon tetrachloride	<41.5	ug/L	250	41.5	250		10/16/19 13:20	56-23-5	
Chlorobenzene	<178	ug/L	592	178	250		10/16/19 13:20	108-90-7	
Chloroethane	<336	ug/L	1250	336	250		10/16/19 13:20	75-00-3	
Chloroform	<318	ug/L	1250	318	250		10/16/19 13:20	67-66-3	
Chloromethane	<547	ug/L	1820	547	250		10/16/19 13:20	74-87-3	
Dibromochloromethane	<650	ug/L	2170	650	250		10/16/19 13:20	124-48-1	
Dibromomethane	<234	ug/L	781	234	250		10/16/19 13:20	74-95-3	
Dichlorodifluoromethane	<125	ug/L	1250	125	250		10/16/19 13:20	75-71-8	
Ethylbenzene	2480	ug/L	250	54.5	250		10/16/19 13:20	100-41-4	
Hexachloro-1,3-butadiene	<296	ug/L	1250	296	250		10/16/19 13:20	87-68-3	
Isopropylbenzene (Cumene)	<98.2	ug/L	1250	98.2	250		10/16/19 13:20	98-82-8	
Methyl-tert-butyl ether	<311	ug/L	1040	311	250		10/16/19 13:20	1634-04-4	
Methylene Chloride	<145	ug/L	1250	145	250		10/16/19 13:20	75-09-2	
Naphthalene	717J	ug/L	1250	294	250		10/16/19 13:20	91-20-3	
Styrene	<116	ug/L	388	116	250		10/16/19 13:20	100-42-5	
Tetrachloroethene	<81.6	ug/L	272	81.6	250		10/16/19 13:20	127-18-4	
Toluene	39500	ug/L	1250	43.0	250		10/16/19 13:20	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-5/T68**      **Lab ID: 40197129025**      Collected: 10/09/19 10:15      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
Trichloroethene	<63.8	ug/L	250	63.8	250		10/16/19 13:20	79-01-6	
Trichlorofluoromethane	<53.7	ug/L	250	53.7	250		10/16/19 13:20	75-69-4	
Vinyl chloride	<43.7	ug/L	250	43.7	250		10/16/19 13:20	75-01-4	
cis-1,2-Dichloroethene	<67.8	ug/L	250	67.8	250		10/16/19 13:20	156-59-2	
cis-1,3-Dichloropropene	<907	ug/L	3020	907	250		10/16/19 13:20	10061-01-5	
m&p-Xylene	15000	ug/L	500	116	250		10/16/19 13:20	179601-23-1	
n-Butylbenzene	<177	ug/L	590	177	250		10/16/19 13:20	104-51-8	
n-Propylbenzene	258J	ug/L	1250	203	250		10/16/19 13:20	103-65-1	
o-Xylene	6620	ug/L	250	65.5	250		10/16/19 13:20	95-47-6	
p-Isopropyltoluene	<200	ug/L	667	200	250		10/16/19 13:20	99-87-6	
sec-Butylbenzene	<212	ug/L	1250	212	250		10/16/19 13:20	135-98-8	
tert-Butylbenzene	<76.0	ug/L	253	76.0	250		10/16/19 13:20	98-06-6	
trans-1,2-Dichloroethene	<273	ug/L	909	273	250		10/16/19 13:20	156-60-5	
trans-1,3-Dichloropropene	<1090	ug/L	3640	1090	250		10/16/19 13:20	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	102	%	70-130		250		10/16/19 13:20	460-00-4	
Dibromofluoromethane (S)	99	%	70-130		250		10/16/19 13:20	1868-53-7	
Toluene-d8 (S)	101	%	70-130		250		10/16/19 13:20	2037-26-5	

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## ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Sample: **MW-6/T68** Lab ID: **40197129026** Collected: 10/09/19 10:15 Received: 10/11/19 09:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b> Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<67.3	ug/L	250	67.3	250		10/16/19 13:42	630-20-6	
1,1,1-Trichloroethane	<61.2	ug/L	250	61.2	250		10/16/19 13:42	71-55-6	
1,1,2,2-Tetrachloroethane	<68.8	ug/L	250	68.8	250		10/16/19 13:42	79-34-5	
1,1,2-Trichloroethane	<138	ug/L	1250	138	250		10/16/19 13:42	79-00-5	
1,1-Dichloroethane	<68.1	ug/L	250	68.1	250		10/16/19 13:42	75-34-3	
1,1-Dichloroethene	<61.2	ug/L	250	61.2	250		10/16/19 13:42	75-35-4	
1,1-Dichloropropene	<135	ug/L	450	135	250		10/16/19 13:42	563-58-6	
1,2,3-Trichlorobenzene	<156	ug/L	1250	156	250		10/16/19 13:42	87-61-6	
1,2,3-Trichloropropane	<148	ug/L	1250	148	250		10/16/19 13:42	96-18-4	
1,2,4-Trichlorobenzene	<238	ug/L	1250	238	250		10/16/19 13:42	120-82-1	
1,2,4-Trimethylbenzene	2670	ug/L	700	210	250		10/16/19 13:42	95-63-6	
1,2-Dibromo-3-chloropropane	<441	ug/L	1470	441	250		10/16/19 13:42	96-12-8	
1,2-Dibromoethane (EDB)	<207	ug/L	691	207	250		10/16/19 13:42	106-93-4	
1,2-Dichlorobenzene	<176	ug/L	588	176	250		10/16/19 13:42	95-50-1	
1,2-Dichloroethane	743	ug/L	250	70.0	250		10/16/19 13:42	107-06-2	
1,2-Dichloropropane	<70.7	ug/L	250	70.7	250		10/16/19 13:42	78-87-5	
1,3,5-Trimethylbenzene	758	ug/L	728	218	250		10/16/19 13:42	108-67-8	
1,3-Dichlorobenzene	<157	ug/L	523	157	250		10/16/19 13:42	541-73-1	
1,3-Dichloropropane	<206	ug/L	688	206	250		10/16/19 13:42	142-28-9	
1,4-Dichlorobenzene	<236	ug/L	786	236	250		10/16/19 13:42	106-46-7	
2,2-Dichloropropane	<566	ug/L	1890	566	250		10/16/19 13:42	594-20-7	
2-Chlorotoluene	<232	ug/L	1250	232	250		10/16/19 13:42	95-49-8	
4-Chlorotoluene	<189	ug/L	630	189	250		10/16/19 13:42	106-43-4	
Benzene	20300	ug/L	250	61.6	250		10/16/19 13:42	71-43-2	
Bromobenzene	<60.3	ug/L	250	60.3	250		10/16/19 13:42	108-86-1	
Bromochloromethane	<90.5	ug/L	1250	90.5	250		10/16/19 13:42	74-97-5	
Bromodichloromethane	<90.9	ug/L	303	90.9	250		10/16/19 13:42	75-27-4	
Bromoform	<993	ug/L	3310	993	250		10/16/19 13:42	75-25-2	
Bromomethane	<243	ug/L	1250	243	250		10/16/19 13:42	74-83-9	
Carbon tetrachloride	<41.5	ug/L	250	41.5	250		10/16/19 13:42	56-23-5	
Chlorobenzene	<178	ug/L	592	178	250		10/16/19 13:42	108-90-7	
Chloroethane	<336	ug/L	1250	336	250		10/16/19 13:42	75-00-3	
Chloroform	<318	ug/L	1250	318	250		10/16/19 13:42	67-66-3	
Chloromethane	<547	ug/L	1820	547	250		10/16/19 13:42	74-87-3	
Dibromochloromethane	<650	ug/L	2170	650	250		10/16/19 13:42	124-48-1	
Dibromomethane	<234	ug/L	781	234	250		10/16/19 13:42	74-95-3	
Dichlorodifluoromethane	<125	ug/L	1250	125	250		10/16/19 13:42	75-71-8	
Ethylbenzene	1300	ug/L	250	54.5	250		10/16/19 13:42	100-41-4	
Hexachloro-1,3-butadiene	<296	ug/L	1250	296	250		10/16/19 13:42	87-68-3	
Isopropylbenzene (Cumene)	<98.2	ug/L	1250	98.2	250		10/16/19 13:42	98-82-8	
Methyl-tert-butyl ether	<311	ug/L	1040	311	250		10/16/19 13:42	1634-04-4	
Methylene Chloride	<145	ug/L	1250	145	250		10/16/19 13:42	75-09-2	
Naphthalene	391J	ug/L	1250	294	250		10/16/19 13:42	91-20-3	
Styrene	<116	ug/L	388	116	250		10/16/19 13:42	100-42-5	
Tetrachloroethene	<81.6	ug/L	272	81.6	250		10/16/19 13:42	127-18-4	
Toluene	17700	ug/L	1250	43.0	250		10/16/19 13:42	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: MW-6/T68**      **Lab ID: 40197129026**      Collected: 10/09/19 10:15      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<63.8	ug/L	250	63.8	250		10/16/19 13:42	79-01-6	
Trichlorofluoromethane	<53.7	ug/L	250	53.7	250		10/16/19 13:42	75-69-4	
Vinyl chloride	<43.7	ug/L	250	43.7	250		10/16/19 13:42	75-01-4	
cis-1,2-Dichloroethene	<67.8	ug/L	250	67.8	250		10/16/19 13:42	156-59-2	
cis-1,3-Dichloropropene	<907	ug/L	3020	907	250		10/16/19 13:42	10061-01-5	
m&p-Xylene	11700	ug/L	500	116	250		10/16/19 13:42	179601-23-1	
n-Butylbenzene	<177	ug/L	590	177	250		10/16/19 13:42	104-51-8	
n-Propylbenzene	<203	ug/L	1250	203	250		10/16/19 13:42	103-65-1	
o-Xylene	5700	ug/L	250	65.5	250		10/16/19 13:42	95-47-6	
p-Isopropyltoluene	<200	ug/L	667	200	250		10/16/19 13:42	99-87-6	
sec-Butylbenzene	<212	ug/L	1250	212	250		10/16/19 13:42	135-98-8	
tert-Butylbenzene	<76.0	ug/L	253	76.0	250		10/16/19 13:42	98-06-6	
trans-1,2-Dichloroethene	<273	ug/L	909	273	250		10/16/19 13:42	156-60-5	
trans-1,3-Dichloropropene	<1090	ug/L	3640	1090	250		10/16/19 13:42	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	103	%	70-130		250		10/16/19 13:42	460-00-4	
Dibromofluoromethane (S)	99	%	70-130		250		10/16/19 13:42	1868-53-7	
Toluene-d8 (S)	102	%	70-130		250		10/16/19 13:42	2037-26-5	

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: TRIP BLANK**      **Lab ID: 40197129032**      Collected: 10/09/19 00:00      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/16/19 11:31	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/16/19 11:31	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/16/19 11:31	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/16/19 11:31	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/16/19 11:31	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/16/19 11:31	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/16/19 11:31	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/16/19 11:31	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/16/19 11:31	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/16/19 11:31	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/16/19 11:31	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/16/19 11:31	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/16/19 11:31	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 11:31	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/16/19 11:31	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/16/19 11:31	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/16/19 11:31	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/16/19 11:31	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/16/19 11:31	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/16/19 11:31	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/16/19 11:31	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/16/19 11:31	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/16/19 11:31	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/16/19 11:31	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/16/19 11:31	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/16/19 11:31	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/16/19 11:31	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/16/19 11:31	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/16/19 11:31	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/16/19 11:31	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 11:31	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/16/19 11:31	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/16/19 11:31	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/16/19 11:31	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/16/19 11:31	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/16/19 11:31	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/16/19 11:31	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/16/19 11:31	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/16/19 11:31	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/16/19 11:31	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/16/19 11:31	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/16/19 11:31	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/16/19 11:31	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/16/19 11:31	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/16/19 11:31	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/16/19 11:31	108-88-3	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

**Sample: TRIP BLANK**      **Lab ID: 40197129032**      Collected: 10/09/19 00:00      Received: 10/11/19 09:15      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/16/19 11:31	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/16/19 11:31	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/16/19 11:31	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/16/19 11:31	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/16/19 11:31	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/16/19 11:31	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/16/19 11:31	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/16/19 11:31	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/16/19 11:31	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/16/19 11:31	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/16/19 11:31	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/16/19 11:31	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/16/19 11:31	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/16/19 11:31	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	99	%	70-130		1		10/16/19 11:31	460-00-4	
Dibromofluoromethane (S)	107	%	70-130		1		10/16/19 11:31	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		10/16/19 11:31	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

QC Batch: 337629 Analysis Method: EPA 8021  
 QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX  
 Associated Lab Samples: 40197129001, 40197129002, 40197129003, 40197129004, 40197129005, 40197129006, 40197129007, 40197129008, 40197129009, 40197129010, 40197129011, 40197129012, 40197129013

METHOD BLANK: 1961193 Matrix: Water  
 Associated Lab Samples: 40197129001, 40197129002, 40197129003, 40197129004, 40197129005, 40197129006, 40197129007, 40197129008, 40197129009, 40197129010, 40197129011, 40197129012, 40197129013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	10/16/19 09:48	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	10/16/19 09:48	
Benzene	ug/L	<0.31	1.0	10/16/19 09:48	
Ethylbenzene	ug/L	<0.33	1.1	10/16/19 09:48	
m&p-Xylene	ug/L	<0.32	2.0	10/16/19 09:48	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	10/16/19 09:48	
o-Xylene	ug/L	<0.15	1.0	10/16/19 09:48	
Toluene	ug/L	<0.16	1.0	10/16/19 09:48	
a,a,a-Trifluorotoluene (S)	%	101	85-115	10/16/19 09:48	

LABORATORY CONTROL SAMPLE & LCSD: 1961194 1961195

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	18.6	19.9	93	99	87-118	7	20	
1,3,5-Trimethylbenzene	ug/L	20	18.5	19.8	92	99	84-115	7	20	
Benzene	ug/L	20	20.1	21.3	101	107	85-115	6	20	
Ethylbenzene	ug/L	20	19.3	20.7	97	103	85-115	7	20	
m&p-Xylene	ug/L	40	38.8	41.5	97	104	85-115	7	20	
Methyl-tert-butyl ether	ug/L	20	21.8	22.7	109	114	85-115	4	20	
o-Xylene	ug/L	20	19.6	20.8	98	104	85-115	6	20	
Toluene	ug/L	20	20.2	21.5	101	108	85-115	6	20	
a,a,a-Trifluorotoluene (S)	%				102	102	85-115			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1962028 1962029

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40197129005 Result	Spike Conc.	Spike Conc.	MS Result						
1,2,4-Trimethylbenzene	ug/L	<0.34	20	20	19.2	18.3	96	91	72-135	5	20
1,3,5-Trimethylbenzene	ug/L	<0.33	20	20	19.4	18.4	97	92	67-134	5	20
Benzene	ug/L	0.79J	20	20	21.4	20.9	103	101	85-122	2	20
Ethylbenzene	ug/L	<0.33	20	20	20.4	19.4	102	97	85-129	5	20
m&p-Xylene	ug/L	<0.32	40	40	40.8	39.0	102	98	85-124	4	20
Methyl-tert-butyl ether	ug/L	<0.32	20	20	19.5	19.0	97	95	85-118	3	20
o-Xylene	ug/L	<0.15	20	20	20.2	19.2	101	96	85-124	5	20
Toluene	ug/L	<0.16	20	20	21.4	20.4	107	102	85-122	5	20
a,a,a-Trifluorotoluene (S)	%						104	102	85-115		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

QC Batch: 337268 Analysis Method: EPA 8260  
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
 Associated Lab Samples: 40197129021, 40197129022, 40197129023, 40197129024, 40197129025, 40197129026, 40197129032

METHOD BLANK: 1959916 Matrix: Water  
 Associated Lab Samples: 40197129021, 40197129022, 40197129023, 40197129024, 40197129025, 40197129026, 40197129032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	10/16/19 07:13	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	10/16/19 07:13	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	10/16/19 07:13	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	10/16/19 07:13	
1,1-Dichloroethane	ug/L	<0.27	1.0	10/16/19 07:13	
1,1-Dichloroethene	ug/L	<0.24	1.0	10/16/19 07:13	
1,1-Dichloropropene	ug/L	<0.54	1.8	10/16/19 07:13	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	10/16/19 07:13	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	10/16/19 07:13	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/16/19 07:13	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/16/19 07:13	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	10/16/19 07:13	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	10/16/19 07:13	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	10/16/19 07:13	
1,2-Dichloroethane	ug/L	<0.28	1.0	10/16/19 07:13	
1,2-Dichloropropane	ug/L	<0.28	1.0	10/16/19 07:13	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/16/19 07:13	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	10/16/19 07:13	
1,3-Dichloropropane	ug/L	<0.83	2.8	10/16/19 07:13	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	10/16/19 07:13	
2,2-Dichloropropane	ug/L	<2.3	7.6	10/16/19 07:13	
2-Chlorotoluene	ug/L	<0.93	5.0	10/16/19 07:13	
4-Chlorotoluene	ug/L	<0.76	2.5	10/16/19 07:13	
Benzene	ug/L	<0.25	1.0	10/16/19 07:13	
Bromobenzene	ug/L	<0.24	1.0	10/16/19 07:13	
Bromochloromethane	ug/L	<0.36	5.0	10/16/19 07:13	
Bromodichloromethane	ug/L	<0.36	1.2	10/16/19 07:13	
Bromoform	ug/L	<4.0	13.2	10/16/19 07:13	
Bromomethane	ug/L	<0.97	5.0	10/16/19 07:13	
Carbon tetrachloride	ug/L	<0.17	1.0	10/16/19 07:13	
Chlorobenzene	ug/L	<0.71	2.4	10/16/19 07:13	
Chloroethane	ug/L	<1.3	5.0	10/16/19 07:13	
Chloroform	ug/L	<1.3	5.0	10/16/19 07:13	
Chloromethane	ug/L	<2.2	7.3	10/16/19 07:13	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	10/16/19 07:13	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	10/16/19 07:13	
Dibromochloromethane	ug/L	<2.6	8.7	10/16/19 07:13	
Dibromomethane	ug/L	<0.94	3.1	10/16/19 07:13	
Dichlorodifluoromethane	ug/L	<0.50	5.0	10/16/19 07:13	
Ethylbenzene	ug/L	<0.22	1.0	10/16/19 07:13	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	10/16/19 07:13	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO  
Pace Project No.: 40197129

METHOD BLANK: 1959916 Matrix: Water  
Associated Lab Samples: 40197129021, 40197129022, 40197129023, 40197129024, 40197129025, 40197129026, 40197129032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	10/16/19 07:13	
m&p-Xylene	ug/L	<0.47	2.0	10/16/19 07:13	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/16/19 07:13	
Methylene Chloride	ug/L	<0.58	5.0	10/16/19 07:13	
n-Butylbenzene	ug/L	<0.71	2.4	10/16/19 07:13	
n-Propylbenzene	ug/L	<0.81	5.0	10/16/19 07:13	
Naphthalene	ug/L	<1.2	5.0	10/16/19 07:13	
o-Xylene	ug/L	<0.26	1.0	10/16/19 07:13	
p-Isopropyltoluene	ug/L	<0.80	2.7	10/16/19 07:13	
sec-Butylbenzene	ug/L	<0.85	5.0	10/16/19 07:13	
Styrene	ug/L	<0.47	1.6	10/16/19 07:13	
tert-Butylbenzene	ug/L	<0.30	1.0	10/16/19 07:13	
Tetrachloroethene	ug/L	<0.33	1.1	10/16/19 07:13	
Toluene	ug/L	<0.17	5.0	10/16/19 07:13	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	10/16/19 07:13	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	10/16/19 07:13	
Trichloroethene	ug/L	<0.26	1.0	10/16/19 07:13	
Trichlorofluoromethane	ug/L	<0.21	1.0	10/16/19 07:13	
Vinyl chloride	ug/L	<0.17	1.0	10/16/19 07:13	
4-Bromofluorobenzene (S)	%	99	70-130	10/16/19 07:13	
Dibromofluoromethane (S)	%	102	70-130	10/16/19 07:13	
Toluene-d8 (S)	%	102	70-130	10/16/19 07:13	

LABORATORY CONTROL SAMPLE: 1959917

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	58.3	117	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	57.5	115	70-130	
1,1,2-Trichloroethane	ug/L	50	56.0	112	70-130	
1,1-Dichloroethane	ug/L	50	55.1	110	73-150	
1,1-Dichloroethene	ug/L	50	52.0	104	73-138	
1,2,4-Trichlorobenzene	ug/L	50	50.5	101	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	57.8	116	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	55.2	110	70-130	
1,2-Dichlorobenzene	ug/L	50	52.9	106	70-130	
1,2-Dichloroethane	ug/L	50	59.0	118	75-140	
1,2-Dichloropropane	ug/L	50	54.6	109	73-135	
1,3-Dichlorobenzene	ug/L	50	50.8	102	70-130	
1,4-Dichlorobenzene	ug/L	50	50.1	100	70-130	
Benzene	ug/L	50	57.3	115	70-130	
Bromodichloromethane	ug/L	50	54.1	108	70-130	
Bromoform	ug/L	50	52.8	106	68-129	
Bromomethane	ug/L	50	25.8	52	18-159	
Carbon tetrachloride	ug/L	50	50.9	102	70-130	

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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

LABORATORY CONTROL SAMPLE: 1959917

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	53.5	107	70-130	
Chloroethane	ug/L	50	50.6	101	53-147	
Chloroform	ug/L	50	53.1	106	74-136	
Chloromethane	ug/L	50	39.0	78	29-115	
cis-1,2-Dichloroethene	ug/L	50	52.4	105	70-130	
cis-1,3-Dichloropropene	ug/L	50	54.8	110	70-130	
Dibromochloromethane	ug/L	50	56.7	113	70-130	
Dichlorodifluoromethane	ug/L	50	40.3	81	10-130	
Ethylbenzene	ug/L	50	56.8	114	80-124	
Isopropylbenzene (Cumene)	ug/L	50	55.1	110	70-130	
m&p-Xylene	ug/L	100	112	112	70-130	
Methyl-tert-butyl ether	ug/L	50	48.2	96	54-137	
Methylene Chloride	ug/L	50	50.0	100	73-138	
o-Xylene	ug/L	50	54.4	109	70-130	
Styrene	ug/L	50	49.7	99	70-130	
Tetrachloroethene	ug/L	50	48.5	97	70-130	
Toluene	ug/L	50	55.4	111	80-126	
trans-1,2-Dichloroethene	ug/L	50	50.6	101	73-145	
trans-1,3-Dichloropropene	ug/L	50	51.1	102	70-130	
Trichloroethene	ug/L	50	55.0	110	70-130	
Trichlorofluoromethane	ug/L	50	48.3	97	76-147	
Vinyl chloride	ug/L	50	48.3	97	51-120	
4-Bromofluorobenzene (S)	%			109	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			100	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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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

QC Batch: 337260 Analysis Method: EPA 8260  
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
 Associated Lab Samples: 40197129014, 40197129015, 40197129016, 40197129017, 40197129018, 40197129019, 40197129020, 40197129027, 40197129028, 40197129029, 40197129030, 40197129031

METHOD BLANK: 1959896 Matrix: Water  
 Associated Lab Samples: 40197129014, 40197129015, 40197129016, 40197129017, 40197129018, 40197129019, 40197129020, 40197129027, 40197129028, 40197129029, 40197129030, 40197129031

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/16/19 08:56	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/16/19 08:56	
Benzene	ug/L	<0.25	1.0	10/16/19 08:56	
Ethylbenzene	ug/L	<0.22	1.0	10/16/19 08:56	
m&p-Xylene	ug/L	<0.47	2.0	10/16/19 08:56	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/16/19 08:56	
Naphthalene	ug/L	<1.2	5.0	10/16/19 08:56	
o-Xylene	ug/L	<0.26	1.0	10/16/19 08:56	
Toluene	ug/L	<0.17	5.0	10/16/19 08:56	
4-Bromofluorobenzene (S)	%	96	70-130	10/16/19 08:56	
Dibromofluoromethane (S)	%	114	70-130	10/16/19 08:56	
Toluene-d8 (S)	%	101	70-130	10/16/19 08:56	

LABORATORY CONTROL SAMPLE: 1959897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	46.4	93	70-130	
Ethylbenzene	ug/L	50	49.5	99	80-124	
m&p-Xylene	ug/L	100	98.2	98	70-130	
Methyl-tert-butyl ether	ug/L	50	50.9	102	54-137	
o-Xylene	ug/L	50	47.3	95	70-130	
Toluene	ug/L	50	47.2	94	80-126	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1959898 1959899

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40197054001 Result	Spike Conc.	Spike Conc.	Conc.							
Benzene	ug/L	<0.00025 mg/L	50	50	47.0	48.8	94	98	70-130	4	20	
Ethylbenzene	ug/L	<0.00022 mg/L	50	50	49.8	52.3	100	105	80-125	5	20	
m&p-Xylene	ug/L	<0.47	100	100	98.3	104	98	104	70-130	5	20	
Methyl-tert-butyl ether	ug/L	<0.0012 mg/L	50	50	52.5	53.6	105	107	51-145	2	20	
o-Xylene	ug/L	<0.26	50	50	49.1	51.5	98	103	70-130	5	20	

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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### QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1959898		1959899		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40197054001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Toluene	ug/L	<0.00017 mg/L	50	50	49.2	51.7	98	103	80-131	5	20	
4-Bromofluorobenzene (S)	%							100	98	70-130		
Dibromofluoromethane (S)	%							98	95	70-130		
Toluene-d8 (S)	%							94	98	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: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

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### 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.

### LABORATORIES

PASI-G Pace Analytical Services - Green Bay

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40197129

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40197129001	LRS-1	EPA 8021	337629		
40197129002	LRS-2	EPA 8021	337629		
40197129003	LRS-3	EPA 8021	337629		
40197129004	LRS-4	EPA 8021	337629		
40197129005	LRS-7	EPA 8021	337629		
40197129006	MW-1/FL	EPA 8021	337629		
40197129007	MW-2/FL	EPA 8021	337629		
40197129008	MW-3/FL	EPA 8021	337629		
40197129009	MW-9/FL	EPA 8021	337629		
40197129010	MW-10/FL	EPA 8021	337629		
40197129011	MW-11/FL	EPA 8021	337629		
40197129012	MW-13/FL	EPA 8021	337629		
40197129013	MW-14/FL	EPA 8021	337629		
40197129021	MW-1/T68	EPA 8260	337268		
40197129022	MW-2/T68	EPA 8260	337268		
40197129023	MW-4/T68	EPA 8260	337268		
40197129024	MW-5/T66	EPA 8260	337268		
40197129025	MW-5/T68	EPA 8260	337268		
40197129026	MW-6/T68	EPA 8260	337268		
40197129032	TRIP BLANK	EPA 8260	337268		
40197129014	MW-1/T40	EPA 8260	337260		
40197129015	MW-2/T40	EPA 8260	337260		
40197129016	MW-4/T40	EPA 8260	337260		
40197129017	MW-5/T40	EPA 8260	337260		
40197129018	MW-6/T40	EPA 8260	337260		
40197129019	MW-7/T40	EPA 8260	337260		
40197129020	TS-1/T40	EPA 8260	337260		
40197129027	MW-2R/T70	EPA 8260	337260		
40197129028	MW-3/T70	EPA 8260	337260		
40197129029	MW-4/T70	EPA 8260	337260		
40197129030	MW-5/T70	EPA 8260	337260		
40197129031	MW-6/T70	EPA 8260	337260		

### REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

**Company Name:** Gannett Fleming, Inc.  
**Branch/Location:** Madison, WI  
**Project Contact:** Cliff Wright  
**Phone:** 608/836-1500 x6722  
**Project Number:** 34265.003  
**Project Name:** Superior Refining Company (SRC)  
**Project State:** WI  
**Sampled By (Print):** Marcus Mussey  
**Sampled By (Sign):**



**UPPER MIDWEST REGION**  
 MN: 612-607-1700 WI: 920-469-2436

**COC No.** 40197129

# CHAIN OF CUSTODY

**\*Preservation Codes\***  
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

**Quote #:** Pace 2019  
**Mail To Contact:** Cliff Wright  
**Mail To Company:** Gannett Fleming  
**Mail To Address:** 8040 Excelsior Dr., Suite 303, Madison, WI 53717-1338  
**Invoice To Contact:** See "Mail to Contact" info above  
**Invoice To Company:** "  
**Invoice To Address:** "  
**Invoice To Phone:** 608/836-1500 x6722  
**CLIENT COMMENTS**      **LAB COMMENTS (Lab Use Only)**      **Profile #**

**PO #:**      **Regulatory Program:**

**Data Package Options (billable)**  
 EPA Level III  
 EPA Level IV

**MS/MSD**  
 On your sample (billable)  
 NOT needed on your sample

**Matrix Codes**  
 A = Air      W = Water  
 B = Biota      DW = Drinking Water  
 C = Charcoal      GW = Ground Water  
 O = Oil      SW = Surface Water  
 S = Soil      WW = Waste Water  
 Sl = Sludge      WP = Wipe

**FILTERED? (YES/NO)**  
**PRESERVATION (CODE)\***

Y/N	Pick Letter	Analyses Requested	COLLECTION																	
			DATE	TIME	MATRIX															
N	B	PV05 S260	10/9	9:35	6W															
N	B	V065 8260		9:45																
				10:10																
				9:50																
				10:00																
				10:05																
				9:55																
				10:20																
				10:30																
				10:25																
				10:40																
				10:15																
				10:35																

**Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)**  
**Date Needed:**

**Transmit Prelim Rush Results by (complete what you want):**

**Email #1:**      **Relinquished By:**      **Date/Time:**      **Received By:**      **Date/Time:**

**Email #2:**      **Relinquished By:**      **Date/Time:**      **Received By:**      **Date/Time:**

**Telephone:**      **Relinquished By:**      **Date/Time:**      **Received By:**      **Date/Time:**

**Fax:**      **Relinquished By:**      **Date/Time:**      **Received By:**      **Date/Time:**

**Samples on HOLD are subject to special pricing and release of liability**

**PACE Project No.** 40197129  
**Receipt Temp =**      °C  
**Sample Receipt pH** OK / Adjusted  
**Cooler Custody Seal** Present / Not Present Intact / Not Intact

(Please Print Clearly)

**Company Name:** Gannett Fleming, Inc.  
**Branch/Location:** Madison, WI  
**Project Contact:** Cliff Wright  
**Phone:** 608/836-1500 x6722  
**Project Number:** 34265.003  
**Project Name:** Superior Refining Company (SRC)  
**Project State:** WI  
**Sampled By (Print):** Marcus Mussey  
**Sampled By (Sign):** *[Signature]*  
**PO #:**   
**Regulatory Program:**



UPPER MIDWEST REGION  
 MN: 612-607-1700 WI: 920-469-2436

COC No. 40197109

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# CHAIN OF CUSTODY

**\*Preservation Codes**  
 A=None B=HCL C=H2SO4 D=HNO3 E=D1 Water F=Methanol G=NaOH  
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?  
(YES/NO)  
 PRESERVATION  
(CODE)\*

Y/N	Pick Letter	Analyses Requested																	
N	B	PVOC/Naph																	
		8260																	

<b>Quote #:</b>	Pace 2019
<b>Mail To Contact:</b>	Cliff Wright
<b>Mail To Company:</b>	Gannett Fleming
<b>Mail To Address:</b>	8040 Excelsior Dr., Suite 303, Madison, WI 53717-1338
<b>Invoice To Contact:</b>	See "Mail to Contact" info above
<b>Invoice To Company:</b>	"
<b>Invoice To Address:</b>	"
<b>Invoice To Phone:</b>	608/836-1500 x6722
<b>CLIENT COMMENTS</b>	<b>LAB COMMENTS (Lab Use Only)</b>
	<b>Profile #</b>

**Data Package Options (billable)**  
 EPA Level III  
 EPA Level IV

**MS/MSD**  
 On your sample (billable)  
 NOT needed on your sample

**Matrix Codes**  
 A = Air W = Water  
 B = Biota DW = Drinking Water  
 C = Charcoal GW = Ground Water  
 O = Oil SW = Surface Water  
 S = Soil WW = Waste Water  
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
027	MW-2R/T70	10/9	10:50	GW
028	MW-3/T70		11:05	
029	MW-4/T70		11:10	
030	MW-5/T70		10:55	
031	MW-6/T70		11:00	
032	Trip Blank			

<b>Rush Turnaround Time Requested - Prelims</b> (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <i>Fed Ex</i> Date/Time: <i>10/11/19 9:45</i>	Received By: <i>Alan Pace</i> Date/Time: <i>10/11/19 9:45</i>	PACE Project No. <i>40197109</i>
Transmit Prelim Rush Results by (complete what you want):	Relinquished By:	Received By:	Receipt Temp = °C
Email #1:	Relinquished By:	Received By:	Sample Receipt pH OK / Adjusted
Email #2:	Relinquished By:	Received By:	Cooler Custody Seal Present / Not Present
Telephone:	Relinquished By:	Received By:	Intact / Not Intact
Fax:	Relinquished By:	Received By:	
Samples on HOLD are subject to special pricing and release of liability	Relinquished By:	Received By:	

# Sample Preservation Receipt Form

Pace Analytical Services, LLC,  
1241 Bellevue Street, Suite 900  
Green Bay, WI 54302

Client Name: Gannett Fleming

Project # 4051971291

Page 63 of 65

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	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU								WGFU
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																	3												2.5 / 5 / 10
008																	3												2.5 / 5 / 10
009																	3												2.5 / 5 / 10
010																	3												2.5 / 5 / 10
011																	3												2.5 / 5 / 10
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013																	3												2.5 / 5 / 10
014																	3												2.5 / 5 / 10
015																	3												2.5 / 5 / 10
016																	3												2.5 / 5 / 10
017																	3												2.5 / 5 / 10
018																	3												2.5 / 5 / 10
019																	3												2.5 / 5 / 10
020																	3												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	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

Sample Preservation Receipt Form

Client Name: Barnett Fleming

Project #: 40197127

Pace Lab #	Glass							Plastic						Vials			Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤	pH after adjusted	Volume (mL)									
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU								WPFU	SP5T	ZPLC	GN					
021																	3																					2.5 / 5 / 10
022																	3																					2.5 / 5 / 10
023																	3																					2.5 / 5 / 10
024																	3																					2.5 / 5 / 10
025																	3																					2.5 / 5 / 10
026																	3																					2.5 / 5 / 10
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030																	3																					2.5 / 5 / 10
031																	3																					2.5 / 5 / 10
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																																						2.5 / 5 / 19
																																						2.5 / 5 / 20

LC/11/19  
AS





1241 Bellevue Street, Green Bay, WI 54302

Document Name:  
Sample Condition Upon Receipt (SCUR)

Document No.:  
F-GB-C-031-Rev.07

Document Revised: 25Apr2018

Issuing Authority:  
Pace Green Bay Quality Office

### Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Gannett Fleming

WO#: **40197129**

Courier:  CS Logistics  Fed Ex  Speedee  UPS  Waltco  
 Client  Pace Other: \_\_\_\_\_



Tracking #: 8149 6215 5813

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 - N/A Type of Ice:  Wet  Blue, Dry None  Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT / Corr: \_\_\_\_\_

Temp Blank Present:  yes  no Biological Tissue is Frozen:  yes  no

Person examining contents:  
Date: 10/11/19  
Initials: AS

Temp should be above freezing to 6°C.  
Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>433</u>		

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

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: HMTZ PC DM

Date: 10/11/19