



**Gannett Fleming**

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November 12, 2018

File #34265.003

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

Re: 2018 Remediation Progress Report for Tank 70 Release Site  
Superior Refining Company LLC Refinery, Superior, WI  
WDNR BRRTS# 02-16-223154 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 70 release site (WDNR BRRTS# 02-16-223154) at the SRC refinery in Superior for 2018. In addition, it includes background information on the refinery, Tank 70 basin, and Tank 70 release site 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 70 Basin Information**

Figure 1 is a location map showing Tank 70, the refinery, its approximate property boundary, and the area around the refinery and was prepared using the most recent USGS topographic map. Figure 2 is a site plan of the Tank 70 basin, which 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 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, as shown on Figure 1. The Tank 70 basin is located on relatively level land in the north-central area of the refinery. The basin's ground surface is unpaved. Beneath an impermeable liner installed in June 2003, as described in the following section, the basin is underlain by native clay; the depth to groundwater ranges from approximately 1 to 4 feet below ground surface (bgs), based on

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location and time of year; and the regional direction of shallow groundwater flow below the refinery is to the east.

The hydraulic conductivity of the native clay underlying the refinery is on the order of  $10^{-7}$  centimeters per second (cm/sec). 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 70 Release Site Background and Remedial History (February 1999-August 2013)**

A release of about 200 gallons of platformate (gasoline blend stock) within the Tank 70 basin was reported to the WDNR on February 25, 1999. The release occurred when a bleeder valve cracked at the ground surface due to frost heave. In immediate response to the release, Murphy personnel shoveled up and drummed the stained snow, and a small amount of water was applied to float the gasoline. The water/gasoline mixture was vacuumed up and treated in the No. 1 API oil/water separator/wastewater treatment plant (WWTP). When the snow melted in the spring, water in the basin was also vacuumed up and treated in the No. 1 API oil/water separator/WWTP.

In January 2002, all liquid product (platformate) was removed from Tank 70 to conduct an API 653 tank inspection. An access hatch was removed to allow workers access to the inside of the tank. On January 7, 2002, a fire occurred inside Tank 70 as the tank was being cleaned. Murphy personnel used a mixture of water and foam to put out the fire, which took approximately two hours. The water and foam that were used to put out the fire ran out the open access hatch into the bermed Tank 70 basin. Some of the water/foam mixture was pumped into the adjacent Tank 71 basin, which is lined with a plastic membrane. Because of the extremely cold temperatures at the time of the fire and other activities associated with the fire that needed to be completed, Murphy was not able to immediately remove all the water/foam mixture from the Tanks 70 and Tank 71 basins.

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Sampling conducted after both releases defined the estimated extent of impacted soil. (Summaries of the soil investigations and analytical results are provided in GF's October 26, 2010, closure request to the WDNR.) In addition, after removing the tank that was destroyed by fire in January 2002 and prior to installing the new tank in the basin, Murphy installed an impermeable liner in June 2003. Prior to the installation of the liner, soil in the Tank 70 basin was graded flat, a layer of cobbles was laid down and leveled, followed by 0.5 foot of sand. The liner was 60-mil HDPE and was covered with 1.5 feet of clay fill. The 1.5 feet of clay protects the liner from exposure to weather extremes, maintenance vehicles, and personnel.

This clay layer and liner serve as a permanent engineered barrier that eliminates direct-contact and meets the performance standard criteria in NR 720.08. This liner also minimizes future soil-to-groundwater contaminant migration.

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

Based on the recommendations included in the API (2004) document, Twin Ports Testing of Superior (Twin Ports) manually bailed product when found in a well. API (2004) also states that product preferentially accumulates in wells when the potentiometric surface is low. This occurs because as the potentiometric surface drops, product that remains above the water level will drain downward into the well. As the potentiometric surface rises, the product becomes submerged and trapped in the soil pores and subsequently will not accumulate in the well. In general, this appears to be the case in the Tank 70 site wells that have had measurable product. To take advantage of this apparent pattern, the wells located in the basin were purged dry following each depth to product or groundwater measurement event to promote the accumulation of product.

Using this approach from November 1999 to May 2009, a total of 262 liters (approximately 70 gallons) of product was recovered. Most of the free product (>92%) was recovered from MP-1/T70, MP-4/T70, MW-1/T70, and MW-2/T70. All free product and/or petroleum-contaminated

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groundwater recovered from monitoring locations was treated in the No. 1 API oil/water separator/WWTP.

In addition to bailing free product, Twin Ports installed 1.5-inch-diameter, petroleum-absorbent socks in select wells. These socks passively absorbed any free product that collected in the well. Twin Ports regularly inspected the absorbent socks in the monitoring wells and the monitoring points for product and replaced the socks as necessary.

In October 2010, GF submitted a closure request to the WDNR on behalf of Murphy, as outlined below.

- There is an engineered cap in place to prevent direct contact.
- Summaries of the historical free product measurements and volume of product recovered were included and documented that product had been recovered to the extent practicable.
- The residual groundwater contamination should not migrate beyond the immediate vicinity of the basin, based on the relatively low (i.e., approximately 0.01 ft/yr) horizontal groundwater flow velocity in the native clay.
- The site would be registered on the WDNR's Geographic Information System (GIS) database of sites where residual soil and groundwater contamination remains.

In August 2011, supplemental soil and groundwater data from outside the Tank 70 basin were submitted to the WDNR, as requested, in support of the October 2010 closure request. However, on September 9, 2011, the WDNR denied site closure and requested additional groundwater monitoring to show stable or decreasing trends. In May 2014, GF submitted October 2011 through August 2013 groundwater monitoring data to the WDNR on behalf of Calumet. In April 2018, GF submitted September 2013 through December 2017 groundwater monitoring data to the WDNR on behalf of SRC.

### **Remedial and Monitoring Activities in 2018**

The Tank 70 basin monitoring network currently includes MW-1R/T70, MW-2R/T70, and MW-3/T70 through MW-7/T70; monitoring points MP-1/T70 through MP-4/T70; and test pit sumps TP-1/T70, TP-3/T70, and TP-4/T70, as shown on Figure 2. Note that:

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- Test pits TP-2/T70 and TP-5/T70 were backfilled in June 2006.
- MW-1/T70 and MW-2/T70 were plugged and abandoned in November 2007 and replaced by MW-1R/T70 and MW-2R/T70, respectively.
- MW-7/T70 has not been sampled since June 2015, and MW-1R/T70 has not been sampled since October 2017 due to damaged PVC casing/surface water infiltration.

Since the last update report was submitted to the WDNR on April 5, 2018, work in the Tank 70 basin has included monitoring on-site wells for free product and collecting groundwater samples from select locations.

During the reporting period, no measurable product was observed. 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 70 basin, and the site is ready for closure.

Groundwater samples were collected at the site during the reporting period in June and October 2018. Each well was purged dry twice and allowed to recover for at least 6 days, prior to the collection of the samples. Monitoring wells MW-2R/T70 and MW-3/T70 through MW-6/T70 were routinely sampled.

Gannett Fleming used new one-time-use polyethylene bailers 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 petroleum volatile organic compounds (PVOCs) and naphthalene (N). Four of the PVOCs of common concern include benzene, toluene, ethylbenzene, and xylenes (BTEX). The other PVOCs include the two trimethylbenzenes (TMBs) and methyl tert butyl ether (MTBE).

Wells not sampled due to damaged PVC casing/surface water infiltration include MW-7/T70 starting in October 2015 and MW-1R/T70 starting in June 2018.

Table 2 summarizes the analytical results of the groundwater samples in micrograms per liter ( $\mu\text{g}/\ell$ ). As shown in Table 2, at least one PVOC compound has historically been present at a concentration at or above its applicable NR 140 enforcement standard (ES) in each well. However, because of the removal of accumulated free product over the years, PVOC and N concentrations in the wells have been stable or decreasing. For example, Figures 3 through 5

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present trend analysis plots for BTEX, BTEX(+N), and BTEX(+N+)TMBs concentrations in the groundwater at MW-1R/T70, MW-2R/T70, and MW-4/T70 through MW-7/T70. Note that the best-fit exponential trend lines were generated using Excel. As shown on Figures 3 through 5, dissolved-phase concentrations in the wells have followed a general downward trend. Attachment A provides copies of the laboratory reports and chain of custody records for the groundwater samples collected in 2018.

Historically, a groundwater contour map for the Tank 70 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 70 site cannot be created.

### **Future Work**

Due to relatively shallow groundwater, cold weather, and snow, year-round access to wells at the refinery is not practical. During time periods when it's warm enough to allow access (i.e., from April/May through October/November), SRG's work plan for 2019 follows:

- Abandon MW-1R/T70 and MW-7/T70 since the PVC casing of both wells is damaged. A replacement well will not be installed at either location because:
  - Product has never been measured in MW-1R/T70 since it was installed in May 2008.
  - Product has not been measured in MW-7/T70 since November 2007.
  - Historical data document that PVOC and N concentrations in both wells are decreasing.
- Continue to manually bail product from the remaining five monitoring wells (MW-2/T70 through MW-6/T70) and four monitoring points (MP-1/T70 through MP-4/T70) when free product is present. The purged product/water will continue to be treated in the refinery's No. 1 API oil/water separator/WWTP.
- Continue to gauge test pit sump TP-1/T70, along with the monitoring wells, etc. If product is observed in TP-1/T70, then pump the sump using an on-site vacuum truck. The pumped product/water would be treated in the refinery's No. 1 API oil/water separator/WWTP.

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- If product is observed, then check the wells, points, and test pit sump monthly. If product is not observed, then check the wells, points, and sump quarterly.
- Collect groundwater samples from those monitoring wells without product biannually, and have the samples analyzed for PVOCs and N by a Wisconsin-certified laboratory using EPA Method 8260. Each monitoring well (but not TP-1/T70) will be purged dry twice and allowed to recover, prior to the collection of the samples.
- Document the proper abandonment of MW-1R/T70 and MW-7/T70, recovery of any product, and analytical results of the 2019 groundwater samples in our next remediation progress report to the WDNR by the end of January 2020.

Please contact me and/or Matt Turner at Husky Superior if you have any questions, need additional information, or agree that the site is now ready for closure.

Sincerely,

GANNETT FLEMING, INC.



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

CCW/jec

Enc.

ecc: Matt Turner (Husky Superior)

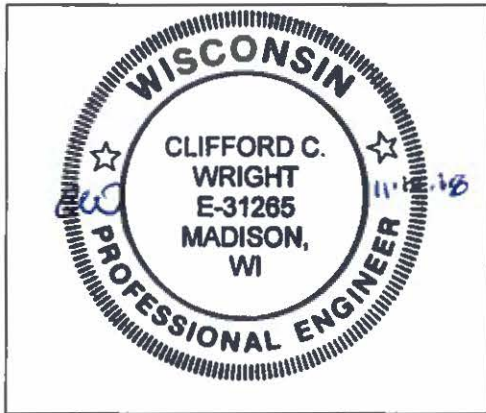
**CERTIFICATION**

Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring, or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.

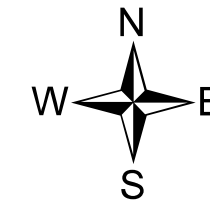
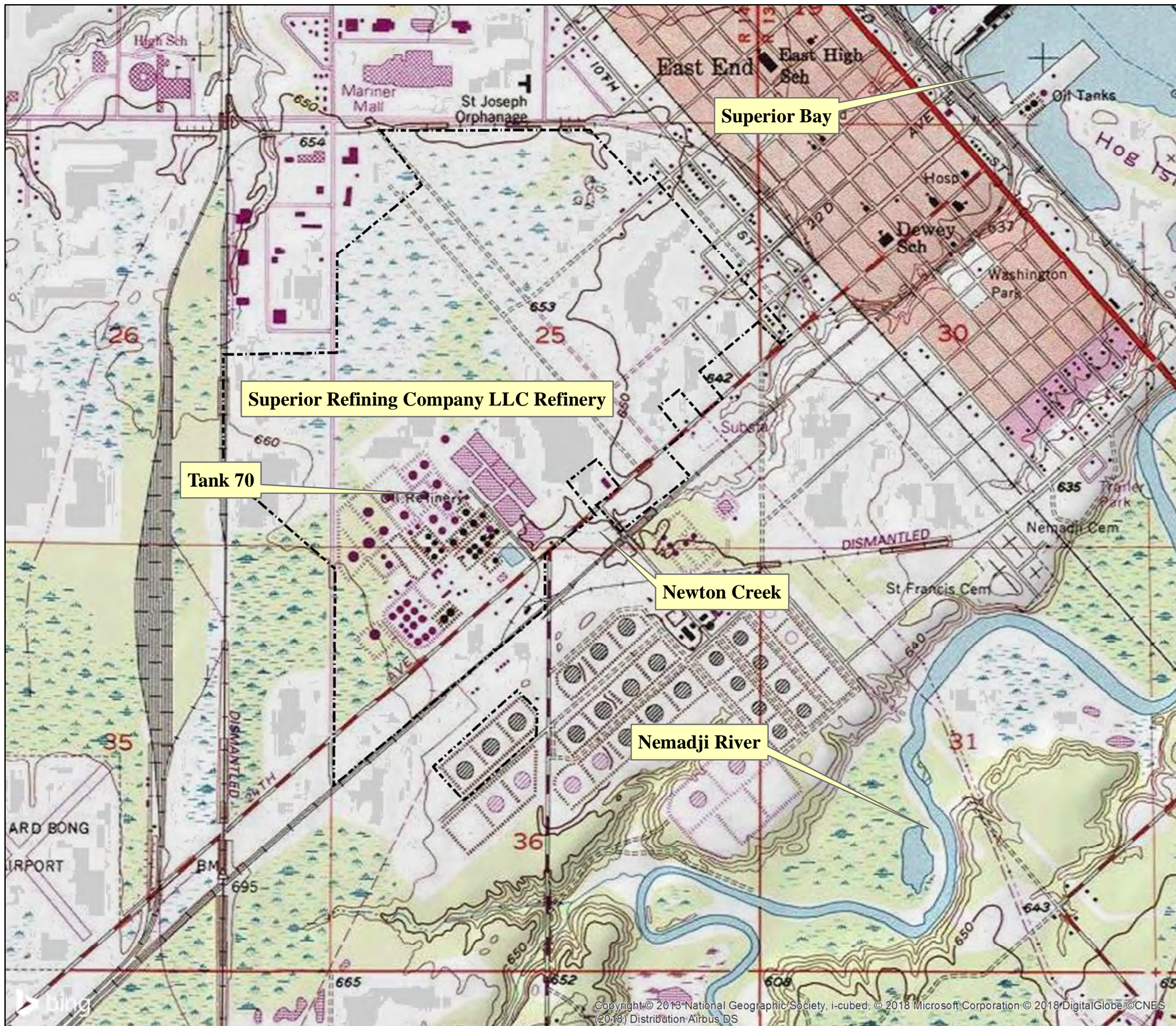
I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the 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 <i>Clifford C. Wright</i>	Title <i>Project Engineer</i>
Signature <i>Clifford C. Wright</i>	Date <i>11-12-18</i>

Professional Seal, if applicable:





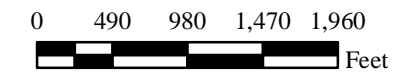


### Legend

--- 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.



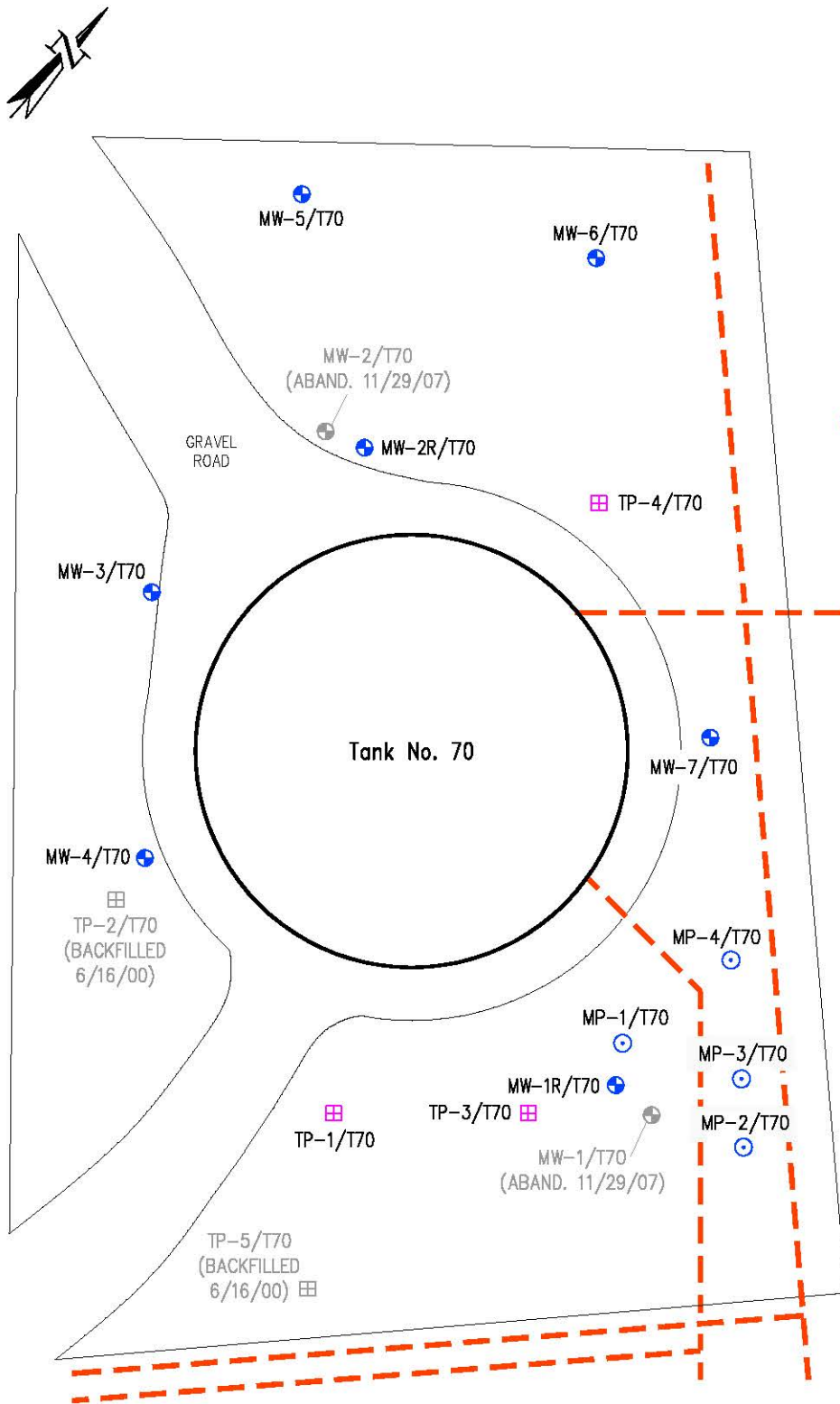
### Site Location Map

SUPERIOR REFINING COMPANY LLC REFINERY  
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Project No. 34265.003 Date 2/26/18 Figure 1



**LEGEND**

- Monitoring Well Location
- Test Pit Location (See Note 3)
- Monitoring Point Location
- Aboveground Piping

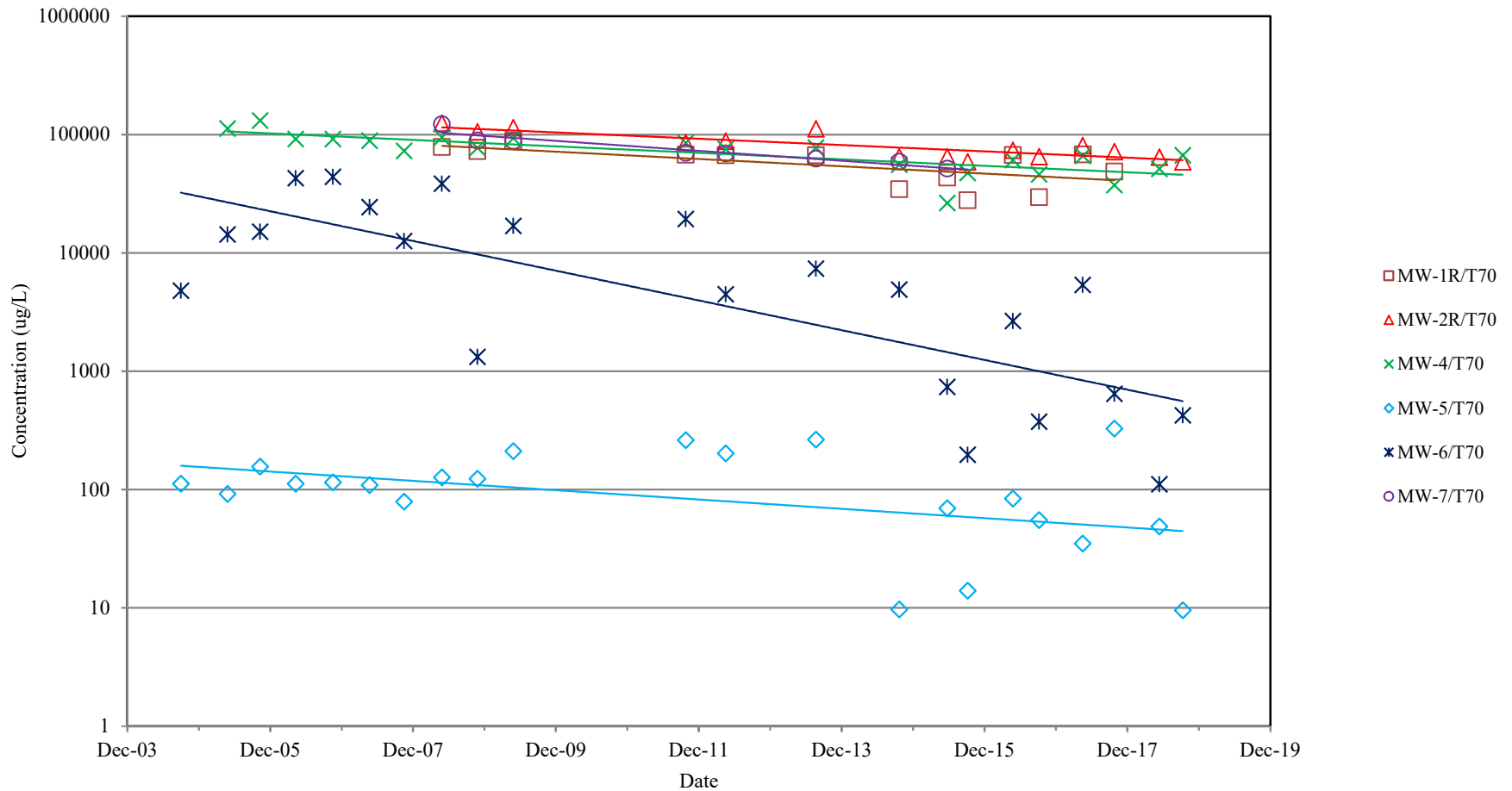
**NOTES**

1. Site Layout And Sample Locations Are Based On Field Measurements By Twin Ports Testing And Are To Be Considered Approximate; Site Not Surveyed.
2. MW-1/T70 Installed In August 1999.
3. Sumps Installed In Test Pits TP-1, TP-3, & TP-4 In June 2000. Each Sump Is 8 Feet Deep And Consists Of 6"Ø PVC With 4 Feet Of Slotted PVC Screen.
4. Each Monitoring Point Installed In July 2001 Is 7 Feet Deep And Consists Of PVC With 3 Feet Of 4"Ø Slotted PVC Screen.
5. MW-2/T70, MW-3/T70, And MW-4/T70 Installed In May 2003.
6. Impermeable Liner With Clay Layer Cap Installed In Basin In June 2003.
7. Monitoring Wells MW-5/T70 Through MW-7/T70 Installed In May 2004.
8. Monitoring Wells MW-1R/T70 And MW-2R/T70 Installed On November 29, 2007.
9. Shaded Wells/Test Pits Have Been Abandoned/Backfilled Or Lost.



**TANK NO. 70  
SITE PLAN**

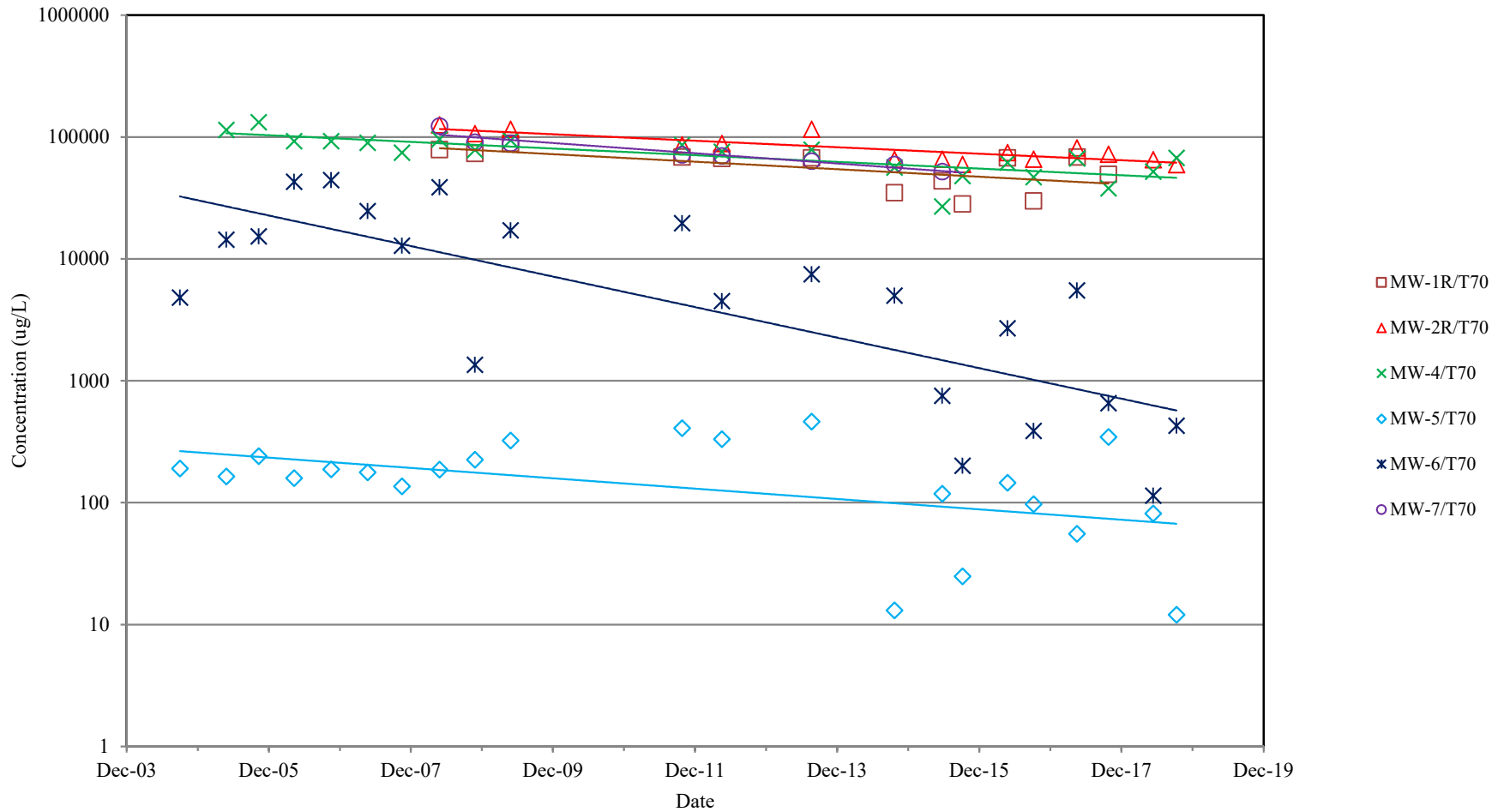
SUPERIOR REFINING COMPANY LLC  
SUPERIOR, WISCONSIN



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

**BTEX GROUNDWATER CONCENTRATIONS TANK 70 BASIN**

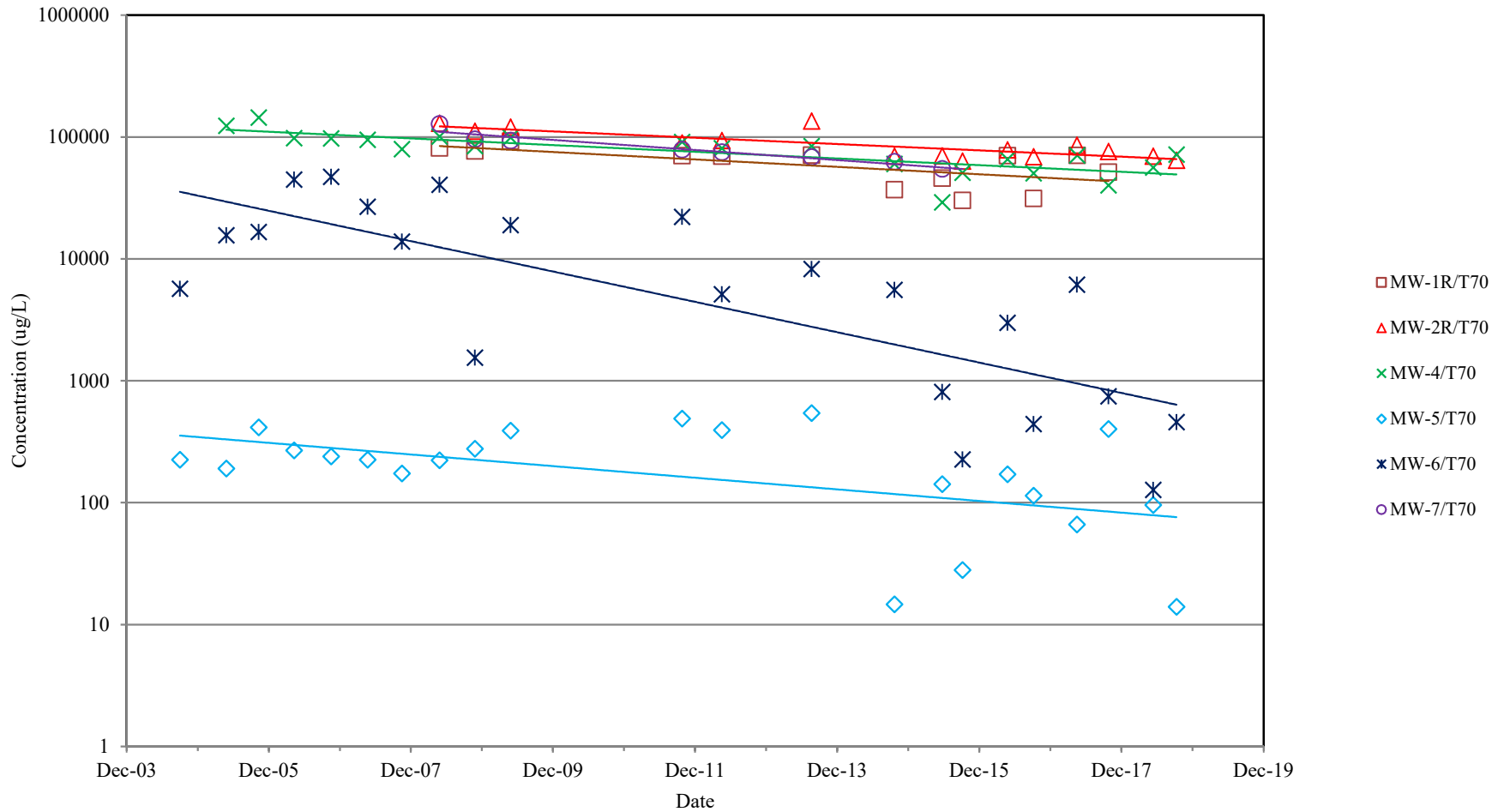
SUPERIOR REFINING COMPANY LLC  
SUPERIOR, WISCONSIN



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

BTEX+N GROUNDWATER CONCENTRATIONS TANK 70 BASIN

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.

**BTEX+N+TMBs GROUNDWATER CONCENTRATIONS TANK 70 BASIN**

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SUPERIOR, WISCONSIN

TABLE 1

2018 FLUID LEVEL MONITORING DATA FOR TANK 70 RELEASE SITE<sup>(1)</sup>

Date	MP-1/T70		MP-2/T70		MP-3/T70		MP-4/T70		MW-1R/T70		MW-2R/T70		MW-3/T70		MW-4/T70		MW-5/T70		MW-6/T70		MW-7/T70		TP-1/T70		Foot- notes	
	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW		
	Depth to Fluid from Top of Casing (feet)																									
05/23/18	--	5.11	--	6.05	--	5.47	--	5.37	--	3.53	--	2.79	--	5.06	--	4.81	--	4.29	--	4.15	nm	nm	--	4.51	(2,3)	
06/07/18	--	4.87	--	5.90	--	5.07	--	5.01	--	3.25	--	2.34	--	4.72	--	4.58	--	3.88	--	3.21	nm	nm	--	4.00	(2,3)	
06/12/18	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.04	--	6.03	--	5.58	--	3.98	--	3.98	nm	nm	nm	nm	(2,4)
09/11/18	--	5.02	--	6.08	--	5.41	--	5.28	nm	nm	--	3.71	--	4.80	--	4.87	--	2.83	--	3.80	nm	nm	--	4.20	(2,5)	
09/24/18	--	4.89	--	6.85	--	5.06	--	5.18	nm	nm	--	2.95	--	5.59	--	4.93	--	3.68	--	3.24	nm	nm	--	4.09	(2,5)	
10/09/18	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	2.93	--	4.82	--	4.71	--	3.97	--	3.09	nm	nm	nm	nm	(2,4)	

NOTES:

DTP = Depth to product in feet.

DTW = Depth to water in feet.

nm = Not measured.

-- = Not applicable/no free product.

FOOTNOTES:

(1) Table does not include data from MW-5/T70 when that well was gauged for Environmental Repair Program (ERP) monitoring.

(2) Bailed the monitoring wells (MWs) dry in preparation for sampling, but skipped MW-7/T70 due to damaged PVC casing.

(3) Bailed 0.25 gallon of muddy water from MW-1R/T70; PVC casing apparently damaged approximately 2 feet below grade (and depth to water <2 feet below grade there).

(4) Sampled the MWs (see Table 2 for summary of analytical results), but MW-1R/T70 and MW-7/T70 not sampled due to damaged PVC casing/surface water infiltration.

(5) Bailed the monitoring wells (MWs) dry in preparation for sampling, but skipped MW-1R/T70 and MW-7/T70 due to damaged PVC casing.

SUPERIOR REFINING COMPANY LLC  
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TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID	GRO	Benzene	Ethyl-benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	Naphthalene	n-Propyl-benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
MW-1/T70 from 09/09/99 through 11/15/07 and its replacement MW-1R/T70 since 05/27/08										
09/09/99	115,000	25,900	4,390	33,800	16,600	3,720	<1,500	na	na	na
12/09/99	115,000	23,100	2,730	30,500	17,280	3,584	<150	na	na	na
03/09/00	87,000	25,000	2,400	31,000	14,000	3,130	<160	na	na	na
06/14/00	120,000	28,000	3,300	43,000	21,000	4,040	<94	na	na	na
06/07/02	130,000	31,000	2,600	33,000	16,100	3,030	<35	55 J	450	240 J
09/12/02	110,000	29,000	2,600	34,000	17,700	3,920	<86	na	810	na
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	167,000	25,100	5,510	50,300	32,800	10,970	<150	na	848	na
11/09/05	108,000	38,200	2,130	46,000	13,890	1,578	<300	na	800 U	na
05/10/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/16/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/08	103,000	31,000	1,750	31,500	13,910	2,657	<15.0	na	475	na
11/24/08	96,400	26,400	2,060	28,100	15,790	3,592	<150	na	753 J	na
05/27/09	115,000	32,900	2,930	33,600	18,510	3,555	<60.0	na	669	na
10/25/11	na	28,100	1,970	24,200	13,040	2,003 J	<500	na	1,000 U	na
05/16/12	na	26,300	2,360	23,000	14,890	2,882	<122	na	178 U	na
08/21/13	na	24,850	2,545	22,250	16,885	3,525 J	<123	na	668 J	na
10/21/14	na	13,600	983	10,500	9,390	2,032	<48.5	na	348	na
06/23/15	na	14,600	1,500	14,300	12,770	2,397	<21.8	na	418 J	na
10/06/15	na	10,400	570	8,130	8,750	1,904	<21.8	na	312 U	na
05/24/16	na	30,800	1,670	20,700	13,870	2,668	<21.8	na	380 J	na
10/05/16	na	12,400	106 J	8,630	8,450	1,280	<21.8	na	312 U	na
05/17/17	na	30,400	2,020	21,100	14,280	2,269	<34.8	na	599 J	na
10/25/17	na	22,000	1,410	13,900	11,420	2,275	<34.8	na	500 U	na
06/12/18	Starting 06/12/18, well not sampled due to PVC casing damage and surface water infiltration									
MW-2/T70 from 09/12/02 through 11/16/06 and its replacement MW-2R/T70 since 05/27/08										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/09/05	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/10/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/16/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/08	160,000	37,900	3,920	56,000	26,540	4,431	<15.0	na	777	na
11/24/08	140,000	31,100	3,900	46,200	24,045	5,245	<150	na	1,055 J	na
05/27/09	148,000	32,400	4,210	51,100	26,605	4,935	<75.0	na	967	na
10/25/11	na	23,600	2,700	38,100	20,590	3,270 J	<500	na	1,000 U	na
05/16/12	na	23,200	3,210	37,300	23,890	5,420	<122	na	445 J	na
08/21/13	na	20,800	5,410	41,200	44,100	19,330	<98.7	na	3,950	na
10/21/14	na	17,300	2,280	25,800	19,110	4,280	<97.0	na	776	na
06/23/15	na	15,900	2,130	25,200	21,480	4,483	<43.6	na	743 J	na
10/06/15	na	15,200	1,600	24,100	17,850	4,002	<43.6	na	625 U	na
05/24/16	na	22,000	2,150	29,500	19,980	3,918	<43.6	na	625 U	na
10/05/16	na	19,200	1,480	25,700	18,670	3,086	<43.6	na	625 U	na
05/16/17	na	23,000	2,510	31,500	23,540	4,044	<43.6	na	625 U	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID	GRO	Benzene	Ethyl-benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	Naphthalene	n-Propyl-benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
10/25/17	na	19,800	2,250	28,400	21,060	3,678	<43.6	na	625 U	na
06/12/18	na	16,300	2,000	24,400	21,700	4,410	<43.6	na	625 U	na
10/09/18	na	14,400	1,850	20,900	21,540	4,919	<311	na	575 J	na
MW-3/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	1,400	400	66	3.2	143	87	<0.90	na	14	na
05/26/05	5,970	1,200	61.7	884	1,412	274.3	<15.0	<15.5	47.3	<15.0
11/09/05	665	129	13.8	<6.00	44	13.0	<6.00	na	16.0 U	na
05/10/06	<10,000	500	102.0	636	823	231.7	<0.300	na	27.5	na
11/16/06	<50.0	0.310 U	0.500 U	0.300 U	0.920 U	0.710 U	<0.300	na	0.800 U	na
05/23/07	<50.0	0.310 U	0.500 U	0.948 J	1.90 J	0.710 U	<0.300	na	2.51 J	na
11/15/07	<50.0	0.310 U	0.500 U	0.300 U	0.920 U	0.710 U	<0.300	na	0.975 J	na
05/27/08	151	14.2	3.57	5.44	15.62	4.06	<0.300	na	0.800 U	na
11/24/08	<50.0	2.73	0.998 J	0.300 U	0.920 U	1.12	<0.300	na	0.800 U	na
05/27/09	252	38.2	11.8	3.5	40.9	19.16	1.76 J	na	1.86 J	na
10/25/11	na	2,040	444	154	2,536	899	<50.0	na	189 J	na
05/16/12	na	2,080	483	295	2,494	761	<12.2	na	33.7 J	na
08/21/13	na	186	31.4	6.7	198.3	75.6	<0.99	na	8.0 J	na
10/21/14	na	273	7.2	6.0	436	149.1	<1.2	na	8.9	na
06/23/15	na	2.8	0.50 U	0.50 U	3.63 J	3.8 U	<0.17	na	2.5 U	na
10/06/15	na	4.0	0.70 J	0.50 U	1.77 JU	1.28 JU	<0.17	na	2.5 U	na
05/24/16	na	748	44.5	12.2	522	218.4	<1.7	na	25.0 U	na
10/05/16	na	0.50 U	0.50 U	0.50 U	1.50 U	1.00 U	<0.17	na	2.5 U	na
05/17/17	na	56.1	0.50 U	0.78 J	22.6	8.42 J	<0.17	na	3.2 J	na
10/25/17	na	0.83 J	0.50 U	0.50 U	2.20 J	1.12 JU	108	na	2.5 U	na
06/12/18	na	441	9.5 J	12.5	299.7	95.8	<1.7	na	25.0 U	na
10/09/18	na	32.5	4.1	0.50 J	55.8	36.6	<1.2	na	5.1	na
MW-4/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	234,000	23,400	4,280	49,300	35,130	9,800	<600	<620	1,810	820
11/09/05	145,000	28,900	4,640	50,300	47,400	11,850	<75.0	na	1,060	na
05/10/06	88,350	23,600	2,505	39,700	25,550	5,805	<150	na	750 J	na
11/16/06	116,000	22,900	2,420	40,900	25,130	4,970	<75.0	na	979	na
05/23/07	129,000	24,300	2,080	37,600	24,630	5,160	<75.0	na	1,040	na
11/15/07	110,000	19,800	1,770	29,000	22,290	5,200	<150	na	1,380	na
05/27/08	127,000	27,100	2,320	38,800	26,540	5,270	<150	na	777 J	na
11/24/08	104,000	22,000	1,800	30,500	22,890	5,810	<150	na	1,150 J	na
05/27/09	123,000	27,200	2,750	38,900	24,340	4,820	440	na	808	na
10/25/11	na	20,300	2,110	37,100	25,290	5,160	<500	na	1,000 U	na
05/16/12	na	21,700	1,720	30,500	21,400	5,100	<122	na	279 J	na
08/21/13	na	21,300	1,800	31,200	23,170	5,790 J	<123	na	997 J	na
10/21/14	na	15,300	1,140	21,000	18,090	3,863	<97.0	na	751	na
06/23/15	na	6,210	615	9,580	10,030	2,067	<17.4	na	497 J	na
10/06/15	na	10,700	1,500	17,600	17,470	3,190	<17.4	na	515	na
05/24/16	na	14,700	2,160	20,700	23,200	4,118	<17.4	na	712	na
10/05/16	na	10,600	1,520	15,700	18,360	3,446	<17.4	na	686	na
05/17/17	na	16,700	1,750	25,900	21,540	3,906	<21.8	na	584 J	na



TABLE 2

## GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID	GRO	Benzene	Ethyl-benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	Naphthalene	n-Propyl-benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
10/25/17	na	11,100	954	13,600	11,720	2,148	<34.8	na	500 U	na
06/12/18	na	12,200	1,560	15,900	21,550	4,152	<17.4	na	681	na
10/09/18	na	17,400	1,810	23,200	24,230	4,283	<125	na	609	na
MW-5/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	1,600	6.1	11	17	78	35	<0.61	0.62 J	78	<0.81
05/26/05	1,530	4.75	3.05	17.8	66.4	26.43	<0.3	na	72	na
11/09/05	1,810	7.81	3.01	25.2	120.2	174	<0.3	na	85	na
05/10/06	1,620	5.87	8.73	18.9	78.3	109.9	<0.300	na	47.3	na
11/16/06	1,560	6.89	2.55	18.1	87.5	52.1	<0.300	na	72.2	na
05/23/07	1,270	4.54	24.5	15.0	65.1	48.3	<0.300	na	68.1	na
11/15/07	1,150	6.78	2.50 U	12.0	57.7	37.4	<1.50	na	57.0	na
05/27/08	1,120	8.79	22.5	18.4	76.8	36.1	<1.50	na	60.6	na
11/24/08	1,190	6.84 J	17.2	15.0	84.6	51.6	<1.50	na	101	na
05/27/09	1,930	7.69	59.1	24.3	120.0	65.7	<0.300	na	112	na
10/25/11	na	9.13	78.8	30.4	143.0	80.8	<0.50	na	148	na
05/16/12	na	10.4	58.2	25.9	107.5	62.7	<0.61	na	129	na
08/21/13	na	8.7	80.8	31.5	143.4	80.1	<0.49	na	198	na
10/21/14	na	0.91 J	0.39 U	1.0	7.4 J	1.52 U	<0.48	na	3.4	na
06/23/15	na	2.6	17.4	8.1	41.3	23.7	<0.17	na	48.6	na
10/06/15	na	1.6	0.59 J	0.50 U	11.3	3.1	<0.17	na	10.9	na
05/24/16	na	4.9	20.7	11.3	46.9	25.8	<0.17	na	61.4	na
10/05/16	na	3.4	3.2	7.5	41.0	16.9	<0.17	na	42.2	na
05/16/17	na	1.7	8.8	4.1	20.4	10.7	<0.17	na	20.4	na
10/25/17	na	179	9.9	1.6	136.8	56.8	<0.17	na	17.9	na
06/12/18	na	2.0	10.5	5.7	30.7	14.3	<0.35	na	32.4	na
10/09/18	na	4.3	0.66 J	0.51 J	4.08 J	1.97 JU	<1.2	na	2.5 J	na
MW-6/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	9,700	1,200	58	140	3,400	850	<6.1	<5.9	26	<8.1
05/26/05	21,600	5,490	52	3,620	5,150	1,287	<15.0	na	40.0 U	na
11/09/05	18,600	5,240	258	4,150	5,460	1,296	<30.0	na	192	na
05/10/06	34,600	14,900	399	17,900	9,570	1,719	<60.0	na	160 U	na
11/16/06	59,100	13,800	659	16,500	13,000	2,904	<75.0	na	200 U	na
05/23/07	35,700	8,730	125 U	8,020	7,450	2,166	<75.0	na	295 J	na
11/15/07	21,100	4,040	335	4,150	4,060	1,012	<30.0	na	248 J	na
05/27/08	50,100	13,400	960	14,100	9,870	1,882	<30.0	na	250 J	na
11/24/08	2,520	337	28.7	341	617	189	<3.00	na	30.1	na
05/27/09	27,400	4,600	629	4,780	6,890	1,820	59.4 J	na	229	na
10/25/11	na	7,420	763	2,410	8,750	2,460	<50.0	na	251 J	na
05/16/12	na	1,600	260	660	1,935	620	<6.1	na	49.9 J	na
08/21/13	na	3,990	393	313	2,650	774	<9.9	na	114	na
10/21/14	na	2,630	16.0 J	126	2,126	579	<9.7	na	85.9	na
06/23/15	na	537	6.3	33.4	160.9	57.7	<0.87	na	14.5 J	na
10/06/15	na	84.1	4.6	6.4	101.7	25.0	<0.17	na	4.0 J	na
05/24/16	na	1,270	69.7	158	1,158	295.5	<1.7	na	41.9 J	na
10/05/16	na	147	8.1	9.1	211.3	54.8	<0.17	na	11.4	na
05/16/17	na	2,380	394	191	2,407	647	<8.7	na	125 U	na

TABLE 2

## GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID Date	GRO	Benzene	Ethyl- benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl- benzene	Naph- thalene	n-Propyl- benzene
NR 140 PAL	NS	<i>0.5</i>	<i>140</i>	<i>160</i>	<i>400</i>	<i>96</i>	<i>12</i>	NS	<i>10</i>	NS
NR 140 ES	NS	<b>5</b>	<b>700</b>	<b>800</b>	<b>2,000</b>	<b>480</b>	<b>60</b>	NS	<b>100</b>	NS
10/25/17	na	<b>350</b>	4.0 J	12.0	276.4	88.6	<0.70	na	<i>12.5</i> J	na
06/12/18	na	<b>42.3</b>	0.50 U	2.3	66.0	13.0	<0.17	na	3.0 J	na
10/09/18	na	<b>235</b>	16.2	8.2	164.6	30.4	<1.2	na	2.8 J	na
MW-7/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	120,000	<b>29,000</b>	<b>2,900</b>	<b>36,000</b>	<b>18,800</b>	<b>3,600</b>	<120	<130	<b>560</b>	240 J
05/26/05	144,000	<b>26,400</b>	<b>3,640</b>	<b>40,600</b>	<b>24,370</b>	<b>6,440</b>	<150	na	<b>4,430</b>	na
11/09/05	104,000	<b>31,000</b>	<b>3,100</b>	<b>44,400</b>	<b>21,950</b>	<b>3,661</b>	<150	na	<b>500</b>	na
05/10/06	105,000	<b>29,900</b>	<b>2,420</b>	<b>34,700</b>	<b>17,580</b>	<b>3,613</b>	<60.0	na	<b>836</b>	na
11/16/06	111,000	<b>30,700</b>	<b>2,420</b>	<b>38,150</b>	<b>17,525</b>	<b>2,634</b>	<150	na	<400	na
05/23/07	127,500	<b>31,350</b>	<b>3,170</b>	<b>41,050</b>	<b>20,880</b>	<b>4,460</b>	<150	na	<b>997</b> J	na
11/15/07	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/08	153,000	<b>38,700</b>	<b>3,470</b>	<b>53,800</b>	<b>26,310</b>	<b>4,810</b>	<150	na	<b>809</b> J	na
11/24/08	123,000	<b>28,300</b>	<b>2,740</b>	<b>36,100</b>	<b>22,150</b>	<b>5,200</b>	<150	na	<b>1,100</b> J	na
05/27/09	115,000	<b>31,200</b>	<b>3,130</b>	<b>32,200</b>	<b>21,500</b>	<b>4,410</b>	<75.0	na	<b>682</b>	na
10/25/11	na	<b>27,600</b>	<b>2,320</b>	<b>22,500</b>	<b>17,750</b>	<b>7,270</b>	<500	na	<b>1,100</b> J	na
05/16/12	na	<b>26,300</b>	<b>2,460</b>	<b>21,900</b>	<b>18,620</b>	<b>5,360</b>	<122	na	<b>459</b> J	na
08/21/13	na	<b>24,900</b>	<b>2,450</b>	<b>18,200</b>	<b>16,860</b>	<b>5,030</b> J	<123	na	<b>753</b> J	na
10/21/14	na	<b>21,000</b>	<b>1,930</b>	<b>21,000</b>	<b>15,100</b>	<b>3,023</b>	<60.6	na	<b>501</b>	na
06/23/15	na	<b>17,000</b>	<b>1,570</b>	<b>19,300</b>	<b>13,650</b>	<b>2,573</b>	<34.8	na	500 U	na
10/06/15	Starting 10/06/15, well not sampled due to PVC casing damage and surface water infiltration									

## NOTES:

Results are in micrograms per liter ( $\mu\text{g}/\ell$ ) or parts per billion (ppb).

Detected concentrations at/above an applicable NR 140 PAL in red font & italicized; those at/above an NR 140 ES in red font & bold.

Duplicate sample results are averaged for statistical analysis/plotting, per Dec 2013 ITRC guidance.

Samples collected from most wells were analyzed for VOCs at least once; all other samples analyzed for GRO/PVOCs and naphthalene or PVOCs and naphthalene. In addition, MW-1/T70 was sampled for dissolved lead on 09/09/99 (6.25 ppb) and 12/09/99 (<1.0 ppb).

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 detection limit, which is the value shown for all parameters except xylenes and TMBs.

**ATTACHMENT A**

**LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS FOR GROUNDWATER  
SAMPLES COLLECTED IN 2018**

June 15, 2018

Project #34265.003  
Superior Refining Company  
Reviewed by CCW  
6/19/18

Clifford Wright  
Gannett Fleming  
8025 Excelsior Drive  
Madison, WI 53717

RE: Project: 34265.003 SRC  
Pace Project No.: 40170716

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on June 13, 2018. 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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October 15, 2018

Project #34265.003  
SRC CW, T40/68/70  
Reviewed by CCW  
10/16/18

Clifford Wright  
Gannett Fleming  
8025 Excelsior Drive  
Madison, WI 53717

RE: Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 10, 2018. 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.: 40177409

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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.: 40177409

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40177409001	MW-1/CW	Water	10/09/18 13:30	10/10/18 09:50
40177409002	MW-2/CW	Water	10/09/18 13:25	10/10/18 09:50
40177409003	MW-3/CW	Water	10/09/18 13:35	10/10/18 09:50
40177409004	MW-4/CW	Water	10/09/18 13:20	10/10/18 09:50
40177409005	MW-1/T40	Water	10/09/18 14:25	10/10/18 09:50
40177409006	MW-2/T40	Water	10/09/18 14:00	10/10/18 09:50
40177409007	MW-4/T40	Water	10/09/18 14:30	10/10/18 09:50
40177409008	MW-5/T40	Water	10/09/18 14:05	10/10/18 09:50
40177409009	MW-6/T40	Water	10/09/18 14:20	10/10/18 09:50
40177409010	MW-7/T40	Water	10/09/18 14:15	10/10/18 09:50
40177409011	TS-1/T40	Water	10/09/18 14:10	10/10/18 09:50
40177409012	MW-1/T68	Water	10/09/18 14:40	10/10/18 09:50
40177409013	MW-2/T68	Water	10/09/18 14:50	10/10/18 09:50
40177409014	MW-4/T68	Water	10/09/18 14:45	10/10/18 09:50
40177409015	MW-5/T66	Water	10/09/18 15:05	10/10/18 09:50
40177409016	MW-6/T68	Water	10/09/18 15:00	10/10/18 09:50
40177409017	MW-2R/T70	Water	10/09/18 15:20	10/10/18 09:50
40177409018	MW-3/T70	Water	10/09/18 15:10	10/10/18 09:50
40177409019	MW-4/T70	Water	10/09/18 15:15	10/10/18 09:50
40177409020	MW-5/T70	Water	10/09/18 15:25	10/10/18 09:50
40177409021	MW-6/T70	Water	10/09/18 15:30	10/10/18 09:50
40177409022	TRIP BLANK	Water	10/09/18 00:00	10/10/18 09:50

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40177409001	MW-1/CW	EPA 8260	MDS	12	PASI-G
40177409002	MW-2/CW	EPA 8260	MDS	12	PASI-G
40177409003	MW-3/CW	EPA 8260	MDS	12	PASI-G
40177409004	MW-4/CW	EPA 8260	MDS	12	PASI-G
40177409005	MW-1/T40	EPA 8260	MDS	11	PASI-G
40177409006	MW-2/T40	EPA 8260	MDS	11	PASI-G
40177409007	MW-4/T40	EPA 8260	MDS	11	PASI-G
40177409008	MW-5/T40	EPA 8260	MDS	11	PASI-G
40177409009	MW-6/T40	EPA 8260	MDS	11	PASI-G
40177409010	MW-7/T40	EPA 8260	MDS	11	PASI-G
40177409011	TS-1/T40	EPA 8260	LAP	11	PASI-G
40177409012	MW-1/T68	EPA 8260	HNW	63	PASI-G
40177409013	MW-2/T68	EPA 8260	HNW	63	PASI-G
40177409014	MW-4/T68	EPA 8260	MDS	63	PASI-G
40177409015	MW-5/T66	EPA 8260	HNW	63	PASI-G
40177409016	MW-6/T68	EPA 8260	HNW	63	PASI-G
40177409017	MW-2R/T70	EPA 8260	LAP	12	PASI-G
40177409018	MW-3/T70	EPA 8260	LAP	12	PASI-G
40177409019	MW-4/T70	EPA 8260	LAP	12	PASI-G
40177409020	MW-5/T70	EPA 8260	LAP	12	PASI-G
40177409021	MW-6/T70	EPA 8260	LAP	12	PASI-G
40177409022	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.: 40177409

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40177409016</b>	<b>MW-6/T68</b>					
EPA 8260	m&p-Xylene	13500	ug/L	500	10/12/18 01:40	
EPA 8260	o-Xylene	5990	ug/L	250	10/12/18 01:40	
<b>40177409017</b>	<b>MW-2R/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	3940	ug/L	700	10/11/18 21:00	
EPA 8260	1,3,5-Trimethylbenzene	979	ug/L	728	10/11/18 21:00	
EPA 8260	Benzene	14400	ug/L	250	10/11/18 21:00	
EPA 8260	Ethylbenzene	1850	ug/L	250	10/11/18 21:00	
EPA 8260	Naphthalene	575J	ug/L	1250	10/11/18 21:00	
EPA 8260	Toluene	20900	ug/L	1250	10/11/18 21:00	
EPA 8260	m&p-Xylene	14700	ug/L	500	10/11/18 21:00	
EPA 8260	o-Xylene	6840	ug/L	250	10/11/18 21:00	
<b>40177409018</b>	<b>MW-3/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	31.6	ug/L	2.8	10/12/18 16:15	
EPA 8260	1,3,5-Trimethylbenzene	5.0	ug/L	2.9	10/12/18 16:15	
EPA 8260	Benzene	32.5	ug/L	1.0	10/12/18 16:15	
EPA 8260	Ethylbenzene	4.1	ug/L	1.0	10/12/18 16:15	
EPA 8260	Naphthalene	5.1	ug/L	5.0	10/12/18 16:15	
EPA 8260	Toluene	0.50J	ug/L	5.0	10/12/18 16:15	
EPA 8260	m&p-Xylene	45.1	ug/L	2.0	10/12/18 16:15	
EPA 8260	o-Xylene	10.7	ug/L	1.0	10/12/18 16:15	
<b>40177409019</b>	<b>MW-4/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	3430	ug/L	280	10/11/18 21:46	
EPA 8260	1,3,5-Trimethylbenzene	853	ug/L	291	10/11/18 21:46	
EPA 8260	Benzene	17400	ug/L	100	10/11/18 21:46	
EPA 8260	Ethylbenzene	1810	ug/L	100	10/11/18 21:46	
EPA 8260	Naphthalene	609	ug/L	500	10/11/18 21:46	
EPA 8260	Toluene	23200	ug/L	500	10/11/18 21:46	
EPA 8260	m&p-Xylene	16500	ug/L	200	10/11/18 21:46	
EPA 8260	o-Xylene	7730	ug/L	100	10/11/18 21:46	
<b>40177409020</b>	<b>MW-5/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	1.1J	ug/L	2.8	10/12/18 16:38	
EPA 8260	Benzene	4.3	ug/L	1.0	10/12/18 16:38	
EPA 8260	Ethylbenzene	0.66J	ug/L	1.0	10/12/18 16:38	
EPA 8260	Naphthalene	2.5J	ug/L	5.0	10/12/18 16:38	
EPA 8260	Toluene	0.51J	ug/L	5.0	10/12/18 16:38	
EPA 8260	m&p-Xylene	0.98J	ug/L	2.0	10/12/18 16:38	
EPA 8260	o-Xylene	3.1	ug/L	1.0	10/12/18 16:38	
<b>40177409021</b>	<b>MW-6/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	22.8	ug/L	2.8	10/11/18 20:38	
EPA 8260	1,3,5-Trimethylbenzene	7.6	ug/L	2.9	10/11/18 20:38	
EPA 8260	Benzene	235	ug/L	1.0	10/11/18 20:38	
EPA 8260	Ethylbenzene	16.2	ug/L	1.0	10/11/18 20:38	
EPA 8260	Naphthalene	2.8J	ug/L	5.0	10/11/18 20:38	
EPA 8260	Toluene	8.2	ug/L	5.0	10/11/18 20:38	

### REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
<b>40177409021</b>	<b>MW-6/T70</b>					
EPA 8260	m&p-Xylene	87.8	ug/L	2.0	10/11/18 20:38	
EPA 8260	o-Xylene	76.8	ug/L	1.0	10/11/18 20:38	

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

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**Method:** EPA 8260

**Description:** 8260 MSV

**Client:** Gannett Fleming Inc.

**Date:** October 15, 2018

**General Information:**

6 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.: 40177409

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**Method:** EPA 8260  
**Description:** 8260 MSV UST  
**Client:** Gannett Fleming Inc.  
**Date:** October 15, 2018

### General Information:

16 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: 303005

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40177402015

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

- MS (Lab ID: 1770718)
  - o-Xylene
- MSD (Lab ID: 1770719)
  - o-Xylene

### 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.: 40177409

**Sample: MW-2R/T70**      **Lab ID: 40177409017**      Collected: 10/09/18 15:20      Received: 10/10/18 09:50      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>3940</b>	ug/L	700	210	250		10/11/18 21:00	95-63-6	
1,3,5-Trimethylbenzene	<b>979</b>	ug/L	728	218	250		10/11/18 21:00	108-67-8	
Benzene	<b>14400</b>	ug/L	250	61.6	250		10/11/18 21:00	71-43-2	
Ethylbenzene	<b>1850</b>	ug/L	250	54.5	250		10/11/18 21:00	100-41-4	
Methyl-tert-butyl ether	<b>&lt;311</b>	ug/L	1040	311	250		10/11/18 21:00	1634-04-4	
Naphthalene	<b>575J</b>	ug/L	1250	294	250		10/11/18 21:00	91-20-3	
Toluene	<b>20900</b>	ug/L	1250	43.0	250		10/11/18 21:00	108-88-3	
m&p-Xylene	<b>14700</b>	ug/L	500	116	250		10/11/18 21:00	179601-23-1	
o-Xylene	<b>6840</b>	ug/L	250	65.5	250		10/11/18 21:00	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	95	%	70-130		250		10/11/18 21:00	1868-53-7	
Toluene-d8 (S)	96	%	70-130		250		10/11/18 21:00	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		250		10/11/18 21:00	460-00-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: MW-3/T70**      **Lab ID: 40177409018**      Collected: 10/09/18 15:10      Received: 10/10/18 09:50      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>31.6</b>	ug/L	2.8	0.84	1		10/12/18 16:15	95-63-6	
1,3,5-Trimethylbenzene	<b>5.0</b>	ug/L	2.9	0.87	1		10/12/18 16:15	108-67-8	
Benzene	<b>32.5</b>	ug/L	1.0	0.25	1		10/12/18 16:15	71-43-2	
Ethylbenzene	<b>4.1</b>	ug/L	1.0	0.22	1		10/12/18 16:15	100-41-4	
Methyl-tert-butyl ether	<b>&lt;1.2</b>	ug/L	4.2	1.2	1		10/12/18 16:15	1634-04-4	
Naphthalene	<b>5.1</b>	ug/L	5.0	1.2	1		10/12/18 16:15	91-20-3	
Toluene	<b>0.50J</b>	ug/L	5.0	0.17	1		10/12/18 16:15	108-88-3	
m&p-Xylene	<b>45.1</b>	ug/L	2.0	0.47	1		10/12/18 16:15	179601-23-1	
o-Xylene	<b>10.7</b>	ug/L	1.0	0.26	1		10/12/18 16:15	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	90	%	70-130		1		10/12/18 16:15	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/12/18 16:15	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130		1		10/12/18 16:15	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: MW-4/T70**      **Lab ID: 40177409019**      Collected: 10/09/18 15:15      Received: 10/10/18 09:50      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>3430</b>	ug/L	280	84.1	100		10/11/18 21:46	95-63-6	
1,3,5-Trimethylbenzene	<b>853</b>	ug/L	291	87.3	100		10/11/18 21:46	108-67-8	
Benzene	<b>17400</b>	ug/L	100	24.6	100		10/11/18 21:46	71-43-2	
Ethylbenzene	<b>1810</b>	ug/L	100	21.8	100		10/11/18 21:46	100-41-4	
Methyl-tert-butyl ether	<b>&lt;125</b>	ug/L	415	125	100		10/11/18 21:46	1634-04-4	
Naphthalene	<b>609</b>	ug/L	500	118	100		10/11/18 21:46	91-20-3	
Toluene	<b>23200</b>	ug/L	500	17.2	100		10/11/18 21:46	108-88-3	
m&p-Xylene	<b>16500</b>	ug/L	200	46.5	100		10/11/18 21:46	179601-23-1	
o-Xylene	<b>7730</b>	ug/L	100	26.2	100		10/11/18 21:46	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	96	%	70-130		100		10/11/18 21:46	1868-53-7	
Toluene-d8 (S)	99	%	70-130		100		10/11/18 21:46	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		100		10/11/18 21:46	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: MW-5/T70**      **Lab ID: 40177409020**      Collected: 10/09/18 15:25      Received: 10/10/18 09:50      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>1.1J</b>	ug/L	2.8	0.84	1		10/12/18 16:38	95-63-6	
1,3,5-Trimethylbenzene	<b>&lt;0.87</b>	ug/L	2.9	0.87	1		10/12/18 16:38	108-67-8	
Benzene	<b>4.3</b>	ug/L	1.0	0.25	1		10/12/18 16:38	71-43-2	
Ethylbenzene	<b>0.66J</b>	ug/L	1.0	0.22	1		10/12/18 16:38	100-41-4	
Methyl-tert-butyl ether	<b>&lt;1.2</b>	ug/L	4.2	1.2	1		10/12/18 16:38	1634-04-4	
Naphthalene	<b>2.5J</b>	ug/L	5.0	1.2	1		10/12/18 16:38	91-20-3	
Toluene	<b>0.51J</b>	ug/L	5.0	0.17	1		10/12/18 16:38	108-88-3	
m&p-Xylene	<b>0.98J</b>	ug/L	2.0	0.47	1		10/12/18 16:38	179601-23-1	
o-Xylene	<b>3.1</b>	ug/L	1.0	0.26	1		10/12/18 16:38	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	90	%	70-130		1		10/12/18 16:38	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/12/18 16:38	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		10/12/18 16:38	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: MW-6/T70**      **Lab ID: 40177409021**      Collected: 10/09/18 15:30      Received: 10/10/18 09:50      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>22.8</b>	ug/L	2.8	0.84	1		10/11/18 20:38	95-63-6	
1,3,5-Trimethylbenzene	<b>7.6</b>	ug/L	2.9	0.87	1		10/11/18 20:38	108-67-8	
Benzene	<b>235</b>	ug/L	1.0	0.25	1		10/11/18 20:38	71-43-2	
Ethylbenzene	<b>16.2</b>	ug/L	1.0	0.22	1		10/11/18 20:38	100-41-4	
Methyl-tert-butyl ether	<b>&lt;1.2</b>	ug/L	4.2	1.2	1		10/11/18 20:38	1634-04-4	
Naphthalene	<b>2.8J</b>	ug/L	5.0	1.2	1		10/11/18 20:38	91-20-3	
Toluene	<b>8.2</b>	ug/L	5.0	0.17	1		10/11/18 20:38	108-88-3	
m&p-Xylene	<b>87.8</b>	ug/L	2.0	0.47	1		10/11/18 20:38	179601-23-1	
o-Xylene	<b>76.8</b>	ug/L	1.0	0.26	1		10/11/18 20:38	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	90	%	70-130		1		10/11/18 20:38	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/11/18 20:38	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		10/11/18 20:38	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: TRIP BLANK**      **Lab ID: 40177409022**      Collected: 10/09/18 00:00      Received: 10/10/18 09:50      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		10/11/18 19:35	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/18 19:35	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/18 19:35	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/18 19:35	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/18 19:35	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/18 19:35	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/18 19:35	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/18 19:35	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/18 19:35	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/18 19:35	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/18 19:35	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/18 19:35	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/18 19:35	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/18 19:35	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/18 19:35	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/18 19:35	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/18 19:35	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/18 19:35	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/18 19:35	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/18 19:35	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/18 19:35	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/18 19:35	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/18 19:35	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/18 19:35	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/18 19:35	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/18 19:35	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/18 19:35	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/18 19:35	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/18 19:35	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/18 19:35	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/18 19:35	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/18 19:35	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/18 19:35	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/18 19:35	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/18 19:35	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/18 19:35	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/18 19:35	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/18 19:35	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/18 19:35	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/18 19:35	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/18 19:35	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/18 19:35	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/18 19:35	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/18 19:35	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/18 19:35	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/18 19:35	108-88-3	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

**Sample: TRIP BLANK**      **Lab ID: 40177409022**      Collected: 10/09/18 00:00      Received: 10/10/18 09:50      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		10/11/18 19:35	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/18 19:35	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/18 19:35	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/18 19:35	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/18 19:35	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/18 19:35	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/18 19:35	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/18 19:35	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/18 19:35	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/18 19:35	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/18 19:35	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/18 19:35	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/18 19:35	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/18 19:35	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%	70-130		1		10/11/18 19:35	460-00-4	
Dibromofluoromethane (S)	108	%	70-130		1		10/11/18 19:35	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/11/18 19:35	2037-26-5	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

QC Batch: 302883 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
Associated Lab Samples: 40177409012, 40177409013, 40177409015, 40177409016, 40177409022

METHOD BLANK: 1769057 Matrix: Water  
Associated Lab Samples: 40177409012, 40177409013, 40177409015, 40177409016, 40177409022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	10/11/18 15:39	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	10/11/18 15:39	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	10/11/18 15:39	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	10/11/18 15:39	
1,1-Dichloroethane	ug/L	<0.27	1.0	10/11/18 15:39	
1,1-Dichloroethene	ug/L	<0.24	1.0	10/11/18 15:39	
1,1-Dichloropropene	ug/L	<0.54	1.8	10/11/18 15:39	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	10/11/18 15:39	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	10/11/18 15:39	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/11/18 15:39	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/11/18 15:39	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	10/11/18 15:39	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	10/11/18 15:39	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	10/11/18 15:39	
1,2-Dichloroethane	ug/L	<0.28	1.0	10/11/18 15:39	
1,2-Dichloropropane	ug/L	<0.28	1.0	10/11/18 15:39	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/11/18 15:39	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	10/11/18 15:39	
1,3-Dichloropropane	ug/L	<0.83	2.8	10/11/18 15:39	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	10/11/18 15:39	
2,2-Dichloropropane	ug/L	<2.3	7.6	10/11/18 15:39	
2-Chlorotoluene	ug/L	<0.93	5.0	10/11/18 15:39	
4-Chlorotoluene	ug/L	<0.76	2.5	10/11/18 15:39	
Benzene	ug/L	<0.25	1.0	10/11/18 15:39	
Bromobenzene	ug/L	<0.24	1.0	10/11/18 15:39	
Bromochloromethane	ug/L	<0.36	5.0	10/11/18 15:39	
Bromodichloromethane	ug/L	<0.36	1.2	10/11/18 15:39	
Bromoform	ug/L	<4.0	13.2	10/11/18 15:39	
Bromomethane	ug/L	<0.97	5.0	10/11/18 15:39	
Carbon tetrachloride	ug/L	<0.17	1.0	10/11/18 15:39	
Chlorobenzene	ug/L	<0.71	2.4	10/11/18 15:39	
Chloroethane	ug/L	<1.3	5.0	10/11/18 15:39	
Chloroform	ug/L	<1.3	5.0	10/11/18 15:39	
Chloromethane	ug/L	<2.2	7.3	10/11/18 15:39	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	10/11/18 15:39	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	10/11/18 15:39	
Dibromochloromethane	ug/L	<2.6	8.7	10/11/18 15:39	
Dibromomethane	ug/L	<0.94	3.1	10/11/18 15:39	
Dichlorodifluoromethane	ug/L	<0.50	5.0	10/11/18 15:39	
Ethylbenzene	ug/L	<0.22	1.0	10/11/18 15:39	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	10/11/18 15:39	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

METHOD BLANK: 1769057

Matrix: Water

Associated Lab Samples: 40177409012, 40177409013, 40177409015, 40177409016, 40177409022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	10/11/18 15:39	
m&p-Xylene	ug/L	<0.47	2.0	10/11/18 15:39	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/11/18 15:39	
Methylene Chloride	ug/L	<0.58	5.0	10/11/18 15:39	
n-Butylbenzene	ug/L	<0.71	2.4	10/11/18 15:39	
n-Propylbenzene	ug/L	<0.81	5.0	10/11/18 15:39	
Naphthalene	ug/L	<1.2	5.0	10/11/18 15:39	
o-Xylene	ug/L	<0.26	1.0	10/11/18 15:39	
p-Isopropyltoluene	ug/L	<0.80	2.7	10/11/18 15:39	
sec-Butylbenzene	ug/L	<0.85	5.0	10/11/18 15:39	
Styrene	ug/L	<0.47	1.6	10/11/18 15:39	
tert-Butylbenzene	ug/L	<0.30	1.0	10/11/18 15:39	
Tetrachloroethene	ug/L	<0.33	1.1	10/11/18 15:39	
Toluene	ug/L	<0.17	5.0	10/11/18 15:39	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	10/11/18 15:39	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	10/11/18 15:39	
Trichloroethene	ug/L	<0.26	1.0	10/11/18 15:39	
Trichlorofluoromethane	ug/L	<0.21	1.0	10/11/18 15:39	
Vinyl chloride	ug/L	<0.17	1.0	10/11/18 15:39	
4-Bromofluorobenzene (S)	%	95	70-130	10/11/18 15:39	
Dibromofluoromethane (S)	%	109	70-130	10/11/18 15:39	
Toluene-d8 (S)	%	98	70-130	10/11/18 15:39	

LABORATORY CONTROL SAMPLE: 1769058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.0	108	70-133	
1,1,2,2-Tetrachloroethane	ug/L	50	47.5	95	67-130	
1,1,2-Trichloroethane	ug/L	50	48.2	96	70-130	
1,1-Dichloroethane	ug/L	50	52.1	104	70-134	
1,1-Dichloroethene	ug/L	50	51.2	102	75-132	
1,2,4-Trichlorobenzene	ug/L	50	46.3	93	68-130	
1,2-Dibromo-3-chloropropane	ug/L	50	41.7	83	60-126	
1,2-Dibromoethane (EDB)	ug/L	50	50.1	100	70-130	
1,2-Dichlorobenzene	ug/L	50	50.1	100	70-130	
1,2-Dichloroethane	ug/L	50	49.4	99	73-134	
1,2-Dichloropropane	ug/L	50	44.8	90	79-128	
1,3-Dichlorobenzene	ug/L	50	49.4	99	70-130	
1,4-Dichlorobenzene	ug/L	50	49.0	98	70-130	
Benzene	ug/L	50	53.3	107	69-137	
Bromodichloromethane	ug/L	50	48.6	97	70-130	
Bromoform	ug/L	50	45.4	91	64-133	
Bromomethane	ug/L	50	30.6	61	29-123	
Carbon tetrachloride	ug/L	50	52.8	106	73-142	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

LABORATORY CONTROL SAMPLE: 1769058

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	50.0	100	70-130	
Chloroethane	ug/L	50	45.5	91	59-133	
Chloroform	ug/L	50	51.6	103	80-129	
Chloromethane	ug/L	50	39.7	79	27-125	
cis-1,2-Dichloroethene	ug/L	50	52.5	105	70-134	
cis-1,3-Dichloropropene	ug/L	50	42.7	85	70-130	
Dibromochloromethane	ug/L	50	54.5	109	70-130	
Dichlorodifluoromethane	ug/L	50	35.5	71	12-127	
Ethylbenzene	ug/L	50	50.5	101	86-127	
Isopropylbenzene (Cumene)	ug/L	50	50.9	102	70-130	
m&p-Xylene	ug/L	100	101	101	70-131	
Methyl-tert-butyl ether	ug/L	50	44.6	89	65-136	
Methylene Chloride	ug/L	50	51.1	102	72-133	
o-Xylene	ug/L	50	49.6	99	70-130	
Styrene	ug/L	50	50.5	101	70-130	
Tetrachloroethene	ug/L	50	45.7	91	70-130	
Toluene	ug/L	50	49.6	99	84-124	
trans-1,2-Dichloroethene	ug/L	50	52.3	105	70-133	
trans-1,3-Dichloropropene	ug/L	50	41.3	83	67-130	
Trichloroethene	ug/L	50	50.4	101	70-130	
Trichlorofluoromethane	ug/L	50	54.0	108	69-147	
Vinyl chloride	ug/L	50	46.4	93	48-134	
4-Bromofluorobenzene (S)	%			97	70-130	
Dibromofluoromethane (S)	%			108	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769362 1769363

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40177409012 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	<0.24	50	50	54.2	54.8	108	110	70-136	1	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	50	50	47.9	49.3	96	99	67-133	3	20	
1,1,2-Trichloroethane	ug/L	<0.55	50	50	47.5	49.2	95	98	70-130	3	20	
1,1-Dichloroethane	ug/L	<0.27	50	50	51.5	52.4	103	105	70-139	2	20	
1,1-Dichloroethene	ug/L	<0.24	50	50	51.8	51.1	104	102	72-137	1	20	
1,2,4-Trichlorobenzene	ug/L	<0.95	50	50	48.0	49.0	96	98	68-130	2	20	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	50	50	42.5	47.0	85	94	60-130	10	21	
1,2-Dibromoethane (EDB)	ug/L	<0.83	50	50	49.7	52.3	99	105	70-130	5	20	
1,2-Dichlorobenzene	ug/L	<0.71	50	50	51.5	51.6	103	103	70-130	0	20	
1,2-Dichloroethane	ug/L	<0.28	50	50	49.4	49.6	99	99	71-137	0	20	
1,2-Dichloropropane	ug/L	<0.28	50	50	45.1	45.9	90	92	78-130	2	20	
1,3-Dichlorobenzene	ug/L	<0.63	50	50	50.2	51.4	100	103	70-130	2	20	
1,4-Dichlorobenzene	ug/L	<0.94	50	50	49.5	51.2	99	102	70-130	3	20	
Benzene	ug/L	<0.25	50	50	52.6	53.2	105	106	66-143	1	20	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

Parameter	Units	40177409012		1769362		1769363		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<0.36	50	50	48.8	50.2	98	100	70-130	3	20		
Bromoform	ug/L	<4.0	50	50	45.6	47.1	91	94	64-134	3	20		
Bromomethane	ug/L	<0.97	50	50	30.3	32.2	61	64	29-136	6	25		
Carbon tetrachloride	ug/L	<0.17	50	50	53.0	53.8	106	108	73-142	2	20		
Chlorobenzene	ug/L	<0.71	50	50	50.1	51.5	100	103	70-130	3	20		
Chloroethane	ug/L	<1.3	50	50	43.9	45.5	88	91	58-138	4	20		
Chloroform	ug/L	<1.3	50	50	51.1	51.6	102	103	80-131	1	20		
Chloromethane	ug/L	<2.2	50	50	38.4	39.6	77	79	24-125	3	20		
cis-1,2-Dichloroethene	ug/L	<0.27	50	50	51.3	51.7	103	103	68-137	1	22		
cis-1,3-Dichloropropene	ug/L	<3.6	50	50	43.1	44.7	86	89	70-130	4	20		
Dibromochloromethane	ug/L	<2.6	50	50	54.2	55.9	108	112	70-131	3	20		
Dichlorodifluoromethane	ug/L	<0.50	50	50	34.5	34.5	69	69	10-127	0	20		
Ethylbenzene	ug/L	<0.22	50	50	50.1	51.6	100	103	81-136	3	20		
Isopropylbenzene (Cumene)	ug/L	<0.39	50	50	51.2	52.2	102	104	70-132	2	20		
m&p-Xylene	ug/L	0.64J	100	100	102	105	102	105	70-135	3	20		
Methyl-tert-butyl ether	ug/L	<1.2	50	50	44.0	45.1	88	90	58-142	2	23		
Methylene Chloride	ug/L	<0.58	50	50	49.9	51.3	100	103	69-137	3	20		
o-Xylene	ug/L	<0.26	50	50	50.3	50.5	100	101	70-132	1	20		
Styrene	ug/L	<0.47	50	50	50.6	51.8	101	104	70-130	2	20		
Tetrachloroethene	ug/L	<0.33	50	50	46.0	47.5	92	95	70-132	3	20		
Toluene	ug/L	0.22J	50	50	49.4	50.9	98	101	81-130	3	20		
trans-1,2-Dichloroethene	ug/L	<1.1	50	50	51.1	51.4	102	103	70-136	0	20		
trans-1,3-Dichloropropene	ug/L	<4.4	50	50	41.4	42.8	83	86	67-130	3	20		
Trichloroethene	ug/L	<0.26	50	50	49.9	51.1	100	102	70-131	2	20		
Trichlorofluoromethane	ug/L	<0.21	50	50	53.8	55.0	108	110	66-150	2	20		
Vinyl chloride	ug/L	<0.17	50	50	45.5	45.9	91	92	46-134	1	20		
4-Bromofluorobenzene (S)	%						98	99	70-130				
Dibromofluoromethane (S)	%						105	105	70-130				
Toluene-d8 (S)	%						97	99	70-130				

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

QC Batch: 303011 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV  
Associated Lab Samples: 40177409014

METHOD BLANK: 1769831 Matrix: Water  
Associated Lab Samples: 40177409014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	10/12/18 09:18	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	10/12/18 09:18	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	10/12/18 09:18	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	10/12/18 09:18	
1,1-Dichloroethane	ug/L	<0.27	1.0	10/12/18 09:18	
1,1-Dichloroethene	ug/L	<0.24	1.0	10/12/18 09:18	
1,1-Dichloropropene	ug/L	<0.54	1.8	10/12/18 09:18	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	10/12/18 09:18	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	10/12/18 09:18	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/12/18 09:18	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/12/18 09:18	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	10/12/18 09:18	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	10/12/18 09:18	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	10/12/18 09:18	
1,2-Dichloroethane	ug/L	<0.28	1.0	10/12/18 09:18	
1,2-Dichloropropane	ug/L	<0.28	1.0	10/12/18 09:18	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/12/18 09:18	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	10/12/18 09:18	
1,3-Dichloropropane	ug/L	<0.83	2.8	10/12/18 09:18	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	10/12/18 09:18	
2,2-Dichloropropane	ug/L	<2.3	7.6	10/12/18 09:18	
2-Chlorotoluene	ug/L	<0.93	5.0	10/12/18 09:18	
4-Chlorotoluene	ug/L	<0.76	2.5	10/12/18 09:18	
Benzene	ug/L	<0.25	1.0	10/12/18 09:18	
Bromobenzene	ug/L	<0.24	1.0	10/12/18 09:18	
Bromochloromethane	ug/L	<0.36	5.0	10/12/18 09:18	
Bromodichloromethane	ug/L	<0.36	1.2	10/12/18 09:18	
Bromoform	ug/L	<4.0	13.2	10/12/18 09:18	
Bromomethane	ug/L	<0.97	5.0	10/12/18 09:18	
Carbon tetrachloride	ug/L	<0.17	1.0	10/12/18 09:18	
Chlorobenzene	ug/L	<0.71	2.4	10/12/18 09:18	
Chloroethane	ug/L	<1.3	5.0	10/12/18 09:18	
Chloroform	ug/L	<1.3	5.0	10/12/18 09:18	
Chloromethane	ug/L	<2.2	7.3	10/12/18 09:18	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	10/12/18 09:18	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	10/12/18 09:18	
Dibromochloromethane	ug/L	<2.6	8.7	10/12/18 09:18	
Dibromomethane	ug/L	<0.94	3.1	10/12/18 09:18	
Dichlorodifluoromethane	ug/L	<0.50	5.0	10/12/18 09:18	
Ethylbenzene	ug/L	<0.22	1.0	10/12/18 09:18	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	10/12/18 09:18	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

METHOD BLANK: 1769831 Matrix: Water  
Associated Lab Samples: 40177409014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	10/12/18 09:18	
m&p-Xylene	ug/L	<0.47	2.0	10/12/18 09:18	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/12/18 09:18	
Methylene Chloride	ug/L	<0.58	5.0	10/12/18 09:18	
n-Butylbenzene	ug/L	<0.71	2.4	10/12/18 09:18	
n-Propylbenzene	ug/L	<0.81	5.0	10/12/18 09:18	
Naphthalene	ug/L	<1.2	5.0	10/12/18 09:18	
o-Xylene	ug/L	<0.26	1.0	10/12/18 09:18	
p-Isopropyltoluene	ug/L	<0.80	2.7	10/12/18 09:18	
sec-Butylbenzene	ug/L	<0.85	5.0	10/12/18 09:18	
Styrene	ug/L	<0.47	1.6	10/12/18 09:18	
tert-Butylbenzene	ug/L	<0.30	1.0	10/12/18 09:18	
Tetrachloroethene	ug/L	<0.33	1.1	10/12/18 09:18	
Toluene	ug/L	<0.17	5.0	10/12/18 09:18	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	10/12/18 09:18	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	10/12/18 09:18	
Trichloroethene	ug/L	<0.26	1.0	10/12/18 09:18	
Trichlorofluoromethane	ug/L	<0.21	1.0	10/12/18 09:18	
Vinyl chloride	ug/L	<0.17	1.0	10/12/18 09:18	
4-Bromofluorobenzene (S)	%	86	70-130	10/12/18 09:18	
Dibromofluoromethane (S)	%	106	70-130	10/12/18 09:18	
Toluene-d8 (S)	%	94	70-130	10/12/18 09:18	

LABORATORY CONTROL SAMPLE: 1769832

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.4	109	70-133	
1,1,2,2-Tetrachloroethane	ug/L	50	49.5	99	67-130	
1,1,2-Trichloroethane	ug/L	50	52.6	105	70-130	
1,1-Dichloroethane	ug/L	50	54.2	108	70-134	
1,1-Dichloroethene	ug/L	50	46.0	92	75-132	
1,2,4-Trichlorobenzene	ug/L	50	47.0	94	68-130	
1,2-Dibromo-3-chloropropane	ug/L	50	51.9	104	60-126	
1,2-Dibromoethane (EDB)	ug/L	50	52.9	106	70-130	
1,2-Dichlorobenzene	ug/L	50	52.3	105	70-130	
1,2-Dichloroethane	ug/L	50	49.4	99	73-134	
1,2-Dichloropropane	ug/L	50	50.1	100	79-128	
1,3-Dichlorobenzene	ug/L	50	51.5	103	70-130	
1,4-Dichlorobenzene	ug/L	50	51.5	103	70-130	
Benzene	ug/L	50	41.7	83	69-137	
Bromodichloromethane	ug/L	50	52.4	105	70-130	
Bromoform	ug/L	50	56.4	113	64-133	
Bromomethane	ug/L	50	18.7	37	29-123	
Carbon tetrachloride	ug/L	50	54.4	109	73-142	

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

LABORATORY CONTROL SAMPLE: 1769832

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	51.7	103	70-130	
Chloroethane	ug/L	50	35.5	71	59-133	
Chloroform	ug/L	50	51.2	102	80-129	
Chloromethane	ug/L	50	14.5	29	27-125	
cis-1,2-Dichloroethene	ug/L	50	48.3	97	70-134	
cis-1,3-Dichloropropene	ug/L	50	46.9	94	70-130	
Dibromochloromethane	ug/L	50	55.8	112	70-130	
Dichlorodifluoromethane	ug/L	50	7.7	15	12-127	
Ethylbenzene	ug/L	50	51.9	104	86-127	
Isopropylbenzene (Cumene)	ug/L	50	57.1	114	70-130	
m&p-Xylene	ug/L	100	112	112	70-131	
Methyl-tert-butyl ether	ug/L	50	49.8	100	65-136	
Methylene Chloride	ug/L	50	46.6	93	72-133	
o-Xylene	ug/L	50	55.4	111	70-130	
Styrene	ug/L	50	56.9	114	70-130	
Tetrachloroethene	ug/L	50	54.4	109	70-130	
Toluene	ug/L	50	51.2	102	84-124	
trans-1,2-Dichloroethene	ug/L	50	50.2	100	70-133	
trans-1,3-Dichloropropene	ug/L	50	47.0	94	67-130	
Trichloroethene	ug/L	50	53.4	107	70-130	
Trichlorofluoromethane	ug/L	50	49.6	99	69-147	
Vinyl chloride	ug/L	50	27.5	55	48-134	
4-Bromofluorobenzene (S)	%			108	70-130	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1771098 1771099

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40177467001 Result	Spike Conc.	Spike Conc.	MSD Result								
1,1,1-Trichloroethane	ug/L	<0.24	50	50	58.5	58.1	117	116	70-136	1	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.28	50	50	52.7	53.0	105	106	67-133	1	20		
1,1,2-Trichloroethane	ug/L	<0.55	50	50	54.6	54.6	109	109	70-130	0	20		
1,1-Dichloroethane	ug/L	<0.27	50	50	54.7	55.4	109	111	70-139	1	20		
1,1-Dichloroethene	ug/L	<0.24	50	50	46.1	47.3	92	95	72-137	3	20		
1,2,4-Trichlorobenzene	ug/L	<0.95	50	50	49.8	50.2	100	100	68-130	1	20		
1,2-Dibromo-3-chloropropane	ug/L	<1.8	50	50	55.6	57.6	111	115	60-130	3	21		
1,2-Dibromoethane (EDB)	ug/L	<0.83	50	50	54.5	54.9	109	110	70-130	1	20		
1,2-Dichlorobenzene	ug/L	<0.71	50	50	52.3	54.4	105	109	70-130	4	20		
1,2-Dichloroethane	ug/L	<0.28	50	50	56.5	54.4	113	109	71-137	4	20		
1,2-Dichloropropane	ug/L	<0.28	50	50	51.1	53.1	102	106	78-130	4	20		
1,3-Dichlorobenzene	ug/L	<0.63	50	50	53.2	53.5	106	107	70-130	1	20		
1,4-Dichlorobenzene	ug/L	<0.94	50	50	55.3	55.7	111	111	70-130	1	20		
Benzene	ug/L	<0.25	50	50	46.9	44.9	94	90	66-143	4	20		

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

Parameter	Units	40177467001		1771098		1771099		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<0.36	50	50	51.9	55.4	104	111	70-130	6	20		
Bromoform	ug/L	<4.0	50	50	61.4	61.2	123	122	64-134	0	20		
Bromomethane	ug/L	<0.97	50	50	22.2	20.9	44	42	29-136	6	25		
Carbon tetrachloride	ug/L	<0.17	50	50	59.1	57.0	118	114	73-142	4	20		
Chlorobenzene	ug/L	<0.71	50	50	53.2	54.0	106	108	70-130	1	20		
Chloroethane	ug/L	<1.3	50	50	34.7	37.0	69	74	58-138	6	20		
Chloroform	ug/L	<1.3	50	50	54.4	53.5	109	107	80-131	2	20		
Chloromethane	ug/L	<2.2	50	50	14.9	14.0	30	28	24-125	6	20		
cis-1,2-Dichloroethene	ug/L	<0.27	50	50	49.6	50.5	99	101	68-137	2	22		
cis-1,3-Dichloropropene	ug/L	<3.6	50	50	46.8	49.7	94	99	70-130	6	20		
Dibromochloromethane	ug/L	<2.6	50	50	58.1	58.3	116	117	70-131	0	20		
Dichlorodifluoromethane	ug/L	<0.50	50	50	7.6	6.5	15	13	10-127	15	20		
Ethylbenzene	ug/L	<0.22	50	50	55.6	55.4	111	111	81-136	0	20		
Isopropylbenzene (Cumene)	ug/L	<0.39	50	50	58.9	58.8	118	118	70-132	0	20		
m&p-Xylene	ug/L	<0.47	100	100	117	117	117	117	70-135	0	20		
Methyl-tert-butyl ether	ug/L	<1.2	50	50	51.5	53.2	103	106	58-142	3	23		
Methylene Chloride	ug/L	<0.58	50	50	47.6	48.8	95	98	69-137	2	20		
o-Xylene	ug/L	<0.26	50	50	57.8	57.7	116	115	70-132	0	20		
Styrene	ug/L	<0.47	50	50	59.4	59.6	119	119	70-130	0	20		
Tetrachloroethene	ug/L	<0.33	50	50	55.6	55.7	111	111	70-132	0	20		
Toluene	ug/L	<0.17	50	50	52.0	52.3	104	105	81-130	1	20		
trans-1,2-Dichloroethene	ug/L	<1.1	50	50	49.7	50.6	99	101	70-136	2	20		
trans-1,3-Dichloropropene	ug/L	<4.4	50	50	51.2	50.8	102	102	67-130	1	20		
Trichloroethene	ug/L	<0.26	50	50	54.7	55.8	109	112	70-131	2	20		
Trichlorofluoromethane	ug/L	<0.21	50	50	48.5	49.3	97	99	66-150	2	20		
Vinyl chloride	ug/L	<0.17	50	50	27.0	25.8	54	52	46-134	4	20		
4-Bromofluorobenzene (S)	%						104	104	70-130				
Dibromofluoromethane (S)	%						103	104	70-130				
Toluene-d8 (S)	%						96	96	70-130				

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

QC Batch: 302885 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40177409001, 40177409002, 40177409003, 40177409004, 40177409005, 40177409006, 40177409007, 40177409008, 40177409009, 40177409010

METHOD BLANK: 1769063 Matrix: Water  
Associated Lab Samples: 40177409001, 40177409002, 40177409003, 40177409004, 40177409005, 40177409006, 40177409007, 40177409008, 40177409009, 40177409010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/11/18 09:02	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/11/18 09:02	
Benzene	ug/L	<0.25	1.0	10/11/18 09:02	
Ethylbenzene	ug/L	<0.22	1.0	10/11/18 09:02	
m&p-Xylene	ug/L	<0.47	2.0	10/11/18 09:02	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/11/18 09:02	
Naphthalene	ug/L	<1.2	5.0	10/11/18 09:02	
o-Xylene	ug/L	<0.26	1.0	10/11/18 09:02	
Toluene	ug/L	<0.17	5.0	10/11/18 09:02	
4-Bromofluorobenzene (S)	%	84	70-130	10/11/18 09:02	
Dibromofluoromethane (S)	%	107	70-130	10/11/18 09:02	
Toluene-d8 (S)	%	92	70-130	10/11/18 09:02	

LABORATORY CONTROL SAMPLE: 1769064

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	43.1	86	69-137	
Ethylbenzene	ug/L	50	53.4	107	86-127	
m&p-Xylene	ug/L	100	111	111	70-131	
Methyl-tert-butyl ether	ug/L	50	50.5	101	65-136	
o-Xylene	ug/L	50	54.0	108	70-130	
Toluene	ug/L	50	50.7	101	84-124	
4-Bromofluorobenzene (S)	%			104	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769073 1769074

Parameter	Units	40177409002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Benzene	ug/L	<0.25	50	50	44.2	46.6	88	93	66-143	5	20	
Ethylbenzene	ug/L	<0.22	50	50	55.2	56.6	110	113	81-136	3	20	
m&p-Xylene	ug/L	<0.47	100	100	115	119	115	119	70-135	3	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	51.7	51.3	103	103	58-142	1	23	
o-Xylene	ug/L	<0.26	50	50	56.6	58.3	113	117	70-132	3	20	
Toluene	ug/L	<0.17	50	50	52.4	52.7	105	105	81-130	1	20	
4-Bromofluorobenzene (S)	%						106	105	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769073		1769074		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40177409002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Dibromofluoromethane (S)	%					103	104	70-130			
Toluene-d8 (S)	%					96	95	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co  
Pace Project No.: 40177409

QC Batch: 302931 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40177409011, 40177409017, 40177409019, 40177409021

METHOD BLANK: 1769300 Matrix: Water  
Associated Lab Samples: 40177409011, 40177409017, 40177409019, 40177409021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/11/18 16:17	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/11/18 16:17	
Benzene	ug/L	<0.25	1.0	10/11/18 16:17	
Ethylbenzene	ug/L	<0.22	1.0	10/11/18 16:17	
m&p-Xylene	ug/L	<0.47	2.0	10/11/18 16:17	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/11/18 16:17	
Naphthalene	ug/L	<1.2	5.0	10/11/18 16:17	
o-Xylene	ug/L	<0.26	1.0	10/11/18 16:17	
Toluene	ug/L	<0.17	5.0	10/11/18 16:17	
4-Bromofluorobenzene (S)	%	92	70-130	10/11/18 16:17	
Dibromofluoromethane (S)	%	88	70-130	10/11/18 16:17	
Toluene-d8 (S)	%	100	70-130	10/11/18 16:17	

LABORATORY CONTROL SAMPLE: 1769301

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	51.5	103	69-137	
Ethylbenzene	ug/L	50	55.9	112	86-127	
m&p-Xylene	ug/L	100	109	109	70-131	
Methyl-tert-butyl ether	ug/L	50	52.0	104	65-136	
o-Xylene	ug/L	50	56.3	113	70-130	
Toluene	ug/L	50	52.8	106	84-124	
4-Bromofluorobenzene (S)	%			97	70-130	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1769694 1769695

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40177402022 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.25	50	50	51.1	51.1	102	102	66-143	0	20	
Ethylbenzene	ug/L	<0.22	50	50	54.1	53.4	108	107	81-136	1	20	
m&p-Xylene	ug/L	<0.47	100	100	107	107	107	107	70-135	1	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	44.2	46.1	88	92	58-142	4	23	
o-Xylene	ug/L	<0.26	50	50	55.0	54.1	110	108	70-132	2	20	
Toluene	ug/L	<0.17	50	50	51.7	51.3	103	103	81-130	1	20	
4-Bromofluorobenzene (S)	%						94	101	70-130			
Dibromofluoromethane (S)	%						95	90	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1769694		1769695									
Parameter	Units	40177402022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						99	96	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.: 40177409

QC Batch: 303005 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40177409018, 40177409020

METHOD BLANK: 1769811 Matrix: Water  
Associated Lab Samples: 40177409018, 40177409020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/12/18 12:05	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/12/18 12:05	
Benzene	ug/L	<0.25	1.0	10/12/18 12:05	
Ethylbenzene	ug/L	<0.22	1.0	10/12/18 12:05	
m&p-Xylene	ug/L	<0.47	2.0	10/12/18 12:05	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/12/18 12:05	
Naphthalene	ug/L	<1.2	5.0	10/12/18 12:05	
o-Xylene	ug/L	<0.26	1.0	10/12/18 12:05	
Toluene	ug/L	<0.17	5.0	10/12/18 12:05	
4-Bromofluorobenzene (S)	%	92	70-130	10/12/18 12:05	
Dibromofluoromethane (S)	%	90	70-130	10/12/18 12:05	
Toluene-d8 (S)	%	101	70-130	10/12/18 12:05	

LABORATORY CONTROL SAMPLE: 1769812

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	47.7	95	69-137	
Ethylbenzene	ug/L	50	52.9	106	86-127	
m&p-Xylene	ug/L	100	108	108	70-131	
Methyl-tert-butyl ether	ug/L	50	44.5	89	65-136	
o-Xylene	ug/L	50	53.8	108	70-130	
Toluene	ug/L	50	50.6	101	84-124	
4-Bromofluorobenzene (S)	%			94	70-130	
Dibromofluoromethane (S)	%			88	70-130	
Toluene-d8 (S)	%			93	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1770718 1770719

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40177402015 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.25	50	50	49.2	49.7	98	99	66-143	1	20	
Ethylbenzene	ug/L	10.6	50	50	69.2	70.9	117	120	81-136	2	20	
m&p-Xylene	ug/L	24.7	100	100	143	144	118	119	70-135	1	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	46.5	46.9	93	94	58-142	1	23	
o-Xylene	ug/L	34.0	50	50	104	106	140	144	70-132	2	20 M1	
Toluene	ug/L	<0.17	50	50	52.2	52.7	104	105	81-130	1	20	
4-Bromofluorobenzene (S)	%						98	98	70-130			
Dibromofluoromethane (S)	%						93	94	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.: 40177409

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1770718												1770719	
Parameter	Units	40177402015 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Toluene-d8 (S)	%						100	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.: 40177409

---

### 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 and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

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

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 Superior Refining Co

Pace Project No.: 40177409

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40177409012	MW-1/T68	EPA 8260	302883		
40177409013	MW-2/T68	EPA 8260	302883		
40177409014	MW-4/T68	EPA 8260	303011		
40177409015	MW-5/T66	EPA 8260	302883		
40177409016	MW-6/T68	EPA 8260	302883		
40177409022	TRIP BLANK	EPA 8260	302883		
40177409001	MW-1/CW	EPA 8260	302885		
40177409002	MW-2/CW	EPA 8260	302885		
40177409003	MW-3/CW	EPA 8260	302885		
40177409004	MW-4/CW	EPA 8260	302885		
40177409005	MW-1/T40	EPA 8260	302885		
40177409006	MW-2/T40	EPA 8260	302885		
40177409007	MW-4/T40	EPA 8260	302885		
40177409008	MW-5/T40	EPA 8260	302885		
40177409009	MW-6/T40	EPA 8260	302885		
40177409010	MW-7/T40	EPA 8260	302885		
40177409011	TS-1/T40	EPA 8260	302931		
40177409017	MW-2R/T70	EPA 8260	302931		
40177409018	MW-3/T70	EPA 8260	303005		
40177409019	MW-4/T70	EPA 8260	302931		
40177409020	MW-5/T70	EPA 8260	303005		
40177409021	MW-6/T70	EPA 8260	302931		

### 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): *[Signature]*  
 PO #:   
 Regulatory Program:



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

COC No. 40177409

### 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

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

Y/N	N	N	N															
Pick Letter	B	B	B															
Analyses Requested	PVOCs (8260)	PVOCs/Naph (8260)	VOCs (Method 8260)															

Quote #: Pace 2018  
 Mail To Contact: Cliff Wright  
 Mail To Company: Gannett Fleming  
 Mail To Address: 8025 Excelsior Dr. Madison, WI 53717  
 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 #

**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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW-1/CW	10-9	13:30	GW
002	MW-2/CW		13:25	
003	MW-3/CW		13:35	
004	MW-4/CW		13:20	
005	MW-1/T40		14:25	
006	MW-2/T40		14:00	
007	MW-4/T40		14:30	
008	MW-5/T40		14:05	
009	MW-6/T40		14:20	
010	MW-7/T40		14:15	
011	TS-1/T40		14:10	
012	MW-1/T68		14:40	
013	MW-2/T68		14:50	

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)  
 Date Needed:   
 Relinquished By: *[Signature]* Date/Time: 10/9/1700  
 Received By: *[Signature]* Date/Time:   
 PACE Project No. 40177409  
 Transmit Prelim Rush Results by (complete what you want):   
 Relinquished By: *Feder* Date/Time: 10/10/18 0950  
 Received By: *[Signature]* Date/Time: 10/10/18 0950  
 Receipt Temp = *20.2* °C  
 Email #1:   
 Email #2:   
 Telephone:   
 Fax:   
 Samples on HOLD are subject to special pricing and release of liability  
 Relinquished By:   
 Date/Time:   
 Received By:   
 Date/Time:   
 Sample Receipt pH OK / Adjusted  
 Cooler Custody *Seen*  
 Present / Not Present  
 Intact / Not Intact

(Please Print Clearly)

UPPER MIDWEST REGION

MN: 612-607-1700 WI: 920-469-2436

**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 C. Mussey  
**Sampled By (Sign):** *[Signature]*



COC No. 40277409

# 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

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

Y/N	N	N																
Pick Letter	B	B																
Analyses Requested	PVOCs/Naph (8260)	VOCs (Method 8260)																
		3																
		3																
		3																
		3																
		3																
		3																
		3																
		2																

**Regulatory Program:**

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

**MS/MSD** (billable)  
 On your sample  
 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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
014	MW-4/T68	10-9	14:45	GW
015	MW-5/T66			
016	MW-5/T66	10-9	15:05	GW
017	MW-6/T68		15:00	
018	MW-2R/T70		15:20	
019	MW-3/T70		15:10	
020	MW-4/T70		15:15	
021	MW-5/T70		15:25	
022	MW-6/T70		15:30	
023	Trip blank			

**Quote #:** Pace 2018  
**Mail To Contact:** Cliff Wright  
**Mail To Company:** Gannett Fleming  
**Mail To Address:** 8025 Excelsior Dr. Madison, WI 53717  
**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 #

DS 10/10/08

<b>Rush Turnaround Time Requested - Prelims</b> (Rush TAT subject to approval/surcharge) Date Needed: Transmit Prelim Rush Results by (complete what you want): <b>Email #1:</b> <b>Email #2:</b> <b>Telephone:</b> <b>Fax:</b> Samples on HOLD are subject to special pricing and release of liability	Relinquished By: <i>[Signature]</i> Date/Time: 10/9, 1700	Received By: Date/Time:	PACE Project No. 40277409 Receipt Temp = 10.2 °C Sample Receipt pH OK / Adjusted Cooler Custody Seal Present / Not Present Intact / Not Intact
	Relinquished By: <i>Feder</i> Date/Time: 10/10/08 0950	Received By: <i>[Signature]</i> Date/Time: 10/10/08 0950	
	Relinquished By: Date/Time:	Received By: Date/Time:	
	Relinquished By: Date/Time:	Received By: Date/Time:	
	Relinquished By: Date/Time:	Received By: Date/Time:	

### Sample Preservation Receipt Form

Client Name: Gannett Fleming Project # 40177409

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	BP3C	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

<b>AG1U</b>	1 liter amber glass	<b>BP1U</b>	1 liter plastic unpres	<b>DG9A</b>	40 mL amber ascorbic	<b>JGFU</b>	4 oz amber jar unpres
<b>AG1H</b>	1 liter amber glass HCL	<b>BP2N</b>	500 mL plastic HNO3	<b>DG9T</b>	40 mL amber Na Thio	<b>WGFU</b>	4 oz clear jar unpres
<b>AG4S</b>	125 mL amber glass H2SO4	<b>BP2Z</b>	500 mL plastic NaOH, Znact	<b>VG9U</b>	40 mL clear vial unpres	<b>WPFU</b>	4 oz plastic jar unpres
<b>AG4U</b>	120 mL amber glass unpres	<b>BP3U</b>	250 mL plastic unpres	<b>VG9H</b>	40 mL clear vial HCL		
<b>AG5U</b>	100 mL amber glass unpres	<b>BP3C</b>	250 mL plastic NaOH	<b>VG9M</b>	40 mL clear vial MeOH	<b>SP5T</b>	120 mL plastic Na Thiosulfate
<b>AG2S</b>	500 mL amber glass H2SO4	<b>BP3N</b>	250 mL plastic HNO3	<b>VG9D</b>	40 mL clear vial DI	<b>ZPLC</b>	ziploc bag
<b>BG3U</b>	250 mL clear glass unpres	<b>BP3S</b>	250 mL plastic H2SO4			<b>GN:</b>	




 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: Garnett Fleming Project #: \_\_\_\_\_  
 Courier:  CS Logistics  Fed Ex  Speedee  UPS  Walco  
 Client  Pace Other: \_\_\_\_\_  
 Tracking #: 8133 9386 2421  
 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 - 30    Type of Ice:  Wet  Blue Dry None  Samples on ice, cooling process has begun  
 Cooler Temperature    Uncorr: 3    ICorr: 3

**WO# : 40177409**



40177409

Temp Blank Present:  yes  no    Biological Tissue is Frozen:  yes  no  
 Temp should be above freezing to 6°C.  
 Biota Samples may be received at ≤ 0°C.

Person examining contents:
Date: <u>10/10/18</u>
Initials: <u>PS</u>

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 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>407</u>		

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

Project Manager Review: CH FZ DM    Date: 10/10/18



## CERTIFICATIONS

Project: 34265.003 SRC

Pace Project No.: 40170716

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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 SRC

Pace Project No.: 40170716

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40170716001	MW-1/T40	Water	06/12/18 08:05	06/13/18 09:20
40170716002	MW-2/T40	Water	06/12/18 07:35	06/13/18 09:20
40170716003	MW-4/T40	Water	06/12/18 08:00	06/13/18 09:20
40170716004	MW-5/T40	Water	06/12/18 07:40	06/13/18 09:20
40170716005	MW-6/T40	Water	06/12/18 07:50	06/13/18 09:20
40170716006	MW-7/T40	Water	06/12/18 07:55	06/13/18 09:20
40170716007	TS-1/T40	Water	06/12/18 07:52	06/13/18 09:20
40170716008	MW-1/T68	Water	06/12/18 08:10	06/13/18 09:20
40170716009	MW-2/T68	Water	06/12/18 08:20	06/13/18 09:20
40170716010	MW-4/T68	Water	06/12/18 08:15	06/13/18 09:20
40170716011	MW-5/T66	Water	06/12/18 08:30	06/13/18 09:20
40170716012	MW-6/T68	Water	06/12/18 08:25	06/13/18 09:20
40170716013	MW-2R/T70	Water	06/12/18 08:40	06/13/18 09:20
40170716014	MW-3/T70	Water	06/12/18 08:52	06/13/18 09:20
40170716015	MW-4/T70	Water	06/12/18 08:55	06/13/18 09:20
40170716016	MW-5/T70	Water	06/12/18 08:45	06/13/18 09:20
40170716017	MW-6/T70	Water	06/12/18 08:50	06/13/18 09:20
40170716018	MW-11	Water	06/12/18 09:20	06/13/18 09:20
40170716019	PZ-11	Water	06/12/18 09:22	06/13/18 09:20
40170716020	MW-12	Water	06/12/18 09:35	06/13/18 09:20
40170716021	MW-13	Water	06/12/18 09:45	06/13/18 09:20
40170716022	PZ-13	Water	06/12/18 09:47	06/13/18 09:20
40170716023	MW-14	Water	06/12/18 09:55	06/13/18 09:20
40170716024	TRIP BLANK	Water	06/12/18 00:00	06/13/18 09:20

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 34265.003 SRC

Pace Project No.: 40170716

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40170716001	MW-1/T40	EPA 8260	HNW	11	PASI-G
40170716002	MW-2/T40	EPA 8260	HNW	11	PASI-G
40170716003	MW-4/T40	EPA 8260	HNW	11	PASI-G
40170716004	MW-5/T40	EPA 8260	HNW	11	PASI-G
40170716005	MW-6/T40	EPA 8260	LAP	11	PASI-G
40170716006	MW-7/T40	EPA 8260	LAP	11	PASI-G
40170716007	TS-1/T40	EPA 8260	LAP	11	PASI-G
40170716008	MW-1/T68	EPA 8260	HNW	63	PASI-G
40170716009	MW-2/T68	EPA 8260	HNW	63	PASI-G
40170716010	MW-4/T68	EPA 8260	HNW	63	PASI-G
40170716011	MW-5/T66	EPA 8260	HNW	63	PASI-G
40170716012	MW-6/T68	EPA 8260	HNW	63	PASI-G
40170716013	MW-2R/T70	EPA 8260	LAP	12	PASI-G
40170716014	MW-3/T70	EPA 8260	LAP	12	PASI-G
40170716015	MW-4/T70	EPA 8260	LAP	12	PASI-G
40170716016	MW-5/T70	EPA 8260	LAP	12	PASI-G
40170716017	MW-6/T70	EPA 8260	LAP	12	PASI-G
40170716018	MW-11	EPA 8021	ALD	10	PASI-G
40170716019	PZ-11	EPA 8021	ALD	10	PASI-G
40170716020	MW-12	EPA 8021	ALD	10	PASI-G
40170716021	MW-13	EPA 8021	ALD	10	PASI-G
40170716022	PZ-13	EPA 8021	ALD	10	PASI-G
40170716023	MW-14	EPA 8021	ALD	10	PASI-G
40170716024	TRIP BLANK	EPA 8260	HNW	63	PASI-G

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### SUMMARY OF DETECTION

Project: 34265.003 SRC

Pace Project No.: 40170716

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40170716007</b>	<b>TS-1/T40</b>					
EPA 8260	Benzene	20.9	ug/L	1.0	06/14/18 12:09	
EPA 8260	Ethylbenzene	2.2	ug/L	1.0	06/14/18 12:09	
EPA 8260	m&p-Xylene	1.5J	ug/L	2.0	06/14/18 12:09	
<b>40170716009</b>	<b>MW-2/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	2160	ug/L	200	06/14/18 10:45	
EPA 8260	1,2-Dichloroethane	1240	ug/L	200	06/14/18 10:45	
EPA 8260	1,3,5-Trimethylbenzene	543	ug/L	200	06/14/18 10:45	
EPA 8260	Benzene	24200	ug/L	200	06/14/18 10:45	
EPA 8260	Ethylbenzene	1550	ug/L	200	06/14/18 10:45	
EPA 8260	Isopropylbenzene (Cumene)	32.8J	ug/L	200	06/14/18 10:45	
EPA 8260	Toluene	25500	ug/L	200	06/14/18 10:45	
EPA 8260	m&p-Xylene	13200	ug/L	400	06/14/18 10:45	
EPA 8260	o-Xylene	5850	ug/L	200	06/14/18 10:45	
<b>40170716010</b>	<b>MW-4/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	548	ug/L	50.0	06/14/18 13:56	
EPA 8260	1,3,5-Trimethylbenzene	49.7J	ug/L	50.0	06/14/18 13:56	
EPA 8260	Benzene	3770	ug/L	50.0	06/14/18 13:56	
EPA 8260	Ethylbenzene	531	ug/L	50.0	06/14/18 13:56	
EPA 8260	m&p-Xylene	1280	ug/L	100	06/14/18 13:56	
<b>40170716011</b>	<b>MW-5/T66</b>					
EPA 8260	1,2,4-Trimethylbenzene	2600	ug/L	50.0	06/14/18 14:18	
EPA 8260	1,3,5-Trimethylbenzene	643	ug/L	50.0	06/14/18 14:18	
EPA 8260	Benzene	5630	ug/L	50.0	06/14/18 14:18	
EPA 8260	Ethylbenzene	2240	ug/L	50.0	06/14/18 14:18	
EPA 8260	Isopropylbenzene (Cumene)	40.9J	ug/L	50.0	06/14/18 14:18	
EPA 8260	Naphthalene	276	ug/L	250	06/14/18 14:18	
EPA 8260	Toluene	8760	ug/L	50.0	06/14/18 14:18	
EPA 8260	m&p-Xylene	12100	ug/L	100	06/14/18 14:18	
EPA 8260	n-Propylbenzene	147	ug/L	50.0	06/14/18 14:18	
EPA 8260	o-Xylene	4710	ug/L	50.0	06/14/18 14:18	
<b>40170716012</b>	<b>MW-6/T68</b>					
EPA 8260	1,2,4-Trimethylbenzene	2840	ug/L	50.0	06/14/18 14:41	
EPA 8260	1,2-Dichloroethane	209	ug/L	50.0	06/14/18 14:41	
EPA 8260	1,3,5-Trimethylbenzene	715	ug/L	50.0	06/14/18 14:41	
EPA 8260	Benzene	23300	ug/L	250	06/14/18 18:16	
EPA 8260	Ethylbenzene	2100	ug/L	50.0	06/14/18 14:41	
EPA 8260	Isopropylbenzene (Cumene)	37.1J	ug/L	50.0	06/14/18 14:41	
EPA 8260	Naphthalene	290	ug/L	250	06/14/18 14:41	
EPA 8260	Toluene	25200	ug/L	250	06/14/18 18:16	
EPA 8260	m&p-Xylene	15700	ug/L	100	06/14/18 14:41	
EPA 8260	n-Propylbenzene	111	ug/L	50.0	06/14/18 14:41	
EPA 8260	o-Xylene	6950	ug/L	50.0	06/14/18 14:41	
<b>40170716013</b>	<b>MW-2R/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	3400	ug/L	250	06/15/18 01:33	

### REPORT OF LABORATORY ANALYSIS

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### SUMMARY OF DETECTION

Project: 34265.003 SRC  
Pace Project No.: 40170716

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
<b>40170716013</b>	<b>MW-2R/T70</b>					
EPA 8260	1,3,5-Trimethylbenzene	1010	ug/L	250	06/15/18 01:33	
EPA 8260	Benzene	16300	ug/L	250	06/15/18 01:33	
EPA 8260	Ethylbenzene	2000	ug/L	250	06/15/18 01:33	
EPA 8260	Toluene	24400	ug/L	250	06/15/18 01:33	
EPA 8260	m&p-Xylene	14900	ug/L	500	06/15/18 01:33	
EPA 8260	o-Xylene	6800	ug/L	250	06/15/18 01:33	
<b>40170716014</b>	<b>MW-3/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	61.2	ug/L	10.0	06/15/18 01:55	
EPA 8260	1,3,5-Trimethylbenzene	34.6	ug/L	10.0	06/15/18 01:55	
EPA 8260	Benzene	441	ug/L	10.0	06/15/18 01:55	
EPA 8260	Ethylbenzene	9.5J	ug/L	10.0	06/15/18 01:55	
EPA 8260	Toluene	12.5	ug/L	10.0	06/15/18 01:55	
EPA 8260	m&p-Xylene	210	ug/L	20.0	06/15/18 01:55	
EPA 8260	o-Xylene	89.7	ug/L	10.0	06/15/18 01:55	
<b>40170716015</b>	<b>MW-4/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	3290	ug/L	100	06/15/18 02:16	
EPA 8260	1,3,5-Trimethylbenzene	862	ug/L	100	06/15/18 02:16	
EPA 8260	Benzene	12200	ug/L	100	06/15/18 02:16	
EPA 8260	Ethylbenzene	1560	ug/L	100	06/15/18 02:16	
EPA 8260	Naphthalene	681	ug/L	500	06/15/18 02:16	
EPA 8260	Toluene	15900	ug/L	100	06/15/18 02:16	
EPA 8260	m&p-Xylene	14900	ug/L	200	06/15/18 02:16	
EPA 8260	o-Xylene	6650	ug/L	100	06/15/18 02:16	
<b>40170716016</b>	<b>MW-5/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	10.1	ug/L	2.0	06/15/18 02:38	
EPA 8260	1,3,5-Trimethylbenzene	4.2	ug/L	2.0	06/15/18 02:38	
EPA 8260	Benzene	2.0	ug/L	2.0	06/15/18 02:38	
EPA 8260	Ethylbenzene	10.5	ug/L	2.0	06/15/18 02:38	
EPA 8260	Naphthalene	32.4	ug/L	10.0	06/15/18 02:38	
EPA 8260	Toluene	5.7	ug/L	2.0	06/15/18 02:38	
EPA 8260	m&p-Xylene	15.8	ug/L	4.0	06/15/18 02:38	
EPA 8260	o-Xylene	14.9	ug/L	2.0	06/15/18 02:38	
<b>40170716017</b>	<b>MW-6/T70</b>					
EPA 8260	1,2,4-Trimethylbenzene	4.1	ug/L	1.0	06/15/18 08:47	
EPA 8260	1,3,5-Trimethylbenzene	8.9	ug/L	1.0	06/15/18 08:47	
EPA 8260	Benzene	42.3	ug/L	1.0	06/15/18 08:47	
EPA 8260	Naphthalene	3.0J	ug/L	5.0	06/15/18 08:47	
EPA 8260	Toluene	2.3	ug/L	1.0	06/15/18 08:47	
EPA 8260	m&p-Xylene	41.7	ug/L	2.0	06/15/18 08:47	
EPA 8260	o-Xylene	24.3	ug/L	1.0	06/15/18 08:47	

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 34265.003 SRC

Pace Project No.: 40170716

---

**Method:** EPA 8021

**Description:** 8021 GCV Short List

**Client:** Gannett Fleming Inc.

**Date:** June 15, 2018

**General Information:**

6 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 SRC  
Pace Project No.: 40170716

---

**Method:** EPA 8260  
**Description:** 8260 MSV  
**Client:** Gannett Fleming Inc.  
**Date:** June 15, 2018

### General Information:

6 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: 291810

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40170694021

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

- MS (Lab ID: 1706474)
  - Trichloroethene
- MSD (Lab ID: 1706475)
  - Trichloroethene

### Additional Comments:

Analyte Comments:

QC Batch: 291810

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

- MS (Lab ID: 1706474)
  - Trichloroethene

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## PROJECT NARRATIVE

Project: 34265.003 SRC

Pace Project No.: 40170716

---

**Method:** EPA 8260

**Description:** 8260 MSV

**Client:** Gannett Fleming Inc.

**Date:** June 15, 2018

Analyte Comments:

QC Batch: 291810

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

- MSD (Lab ID: 1706475)
- Trichloroethene

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## PROJECT NARRATIVE

Project: 34265.003 SRC  
Pace Project No.: 40170716

---

**Method:** EPA 8260  
**Description:** 8260 MSV UST  
**Client:** Gannett Fleming Inc.  
**Date:** June 15, 2018

### 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: 291809

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40170716005

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

- MS (Lab ID: 1707185)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene
- MSD (Lab ID: 1707186)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene

### Additional Comments:

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## PROJECT NARRATIVE

Project: 34265.003 SRC

Pace Project No.: 40170716

---

**Method:** EPA 8260

**Description:** 8260 MSV UST

**Client:** Gannett Fleming Inc.

**Date:** June 15, 2018

Analyte Comments:

QC Batch: 291809

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

- MS (Lab ID: 1707185)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene
- MSD (Lab ID: 1707186)
  - Benzene
  - Ethylbenzene
  - m&p-Xylene

QC Batch: 291893

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW-5/T70 (Lab ID: 40170716016)
  - Dibromofluoromethane (S)

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 SRC

Pace Project No.: 40170716

**Sample: MW-2R/T70**      **Lab ID: 40170716013**      Collected: 06/12/18 08:40      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>3400</b>	ug/L	250	125	250		06/15/18 01:33	95-63-6	
1,3,5-Trimethylbenzene	<b>1010</b>	ug/L	250	125	250		06/15/18 01:33	108-67-8	
Benzene	<b>16300</b>	ug/L	250	125	250		06/15/18 01:33	71-43-2	
Ethylbenzene	<b>2000</b>	ug/L	250	125	250		06/15/18 01:33	100-41-4	
Methyl-tert-butyl ether	<b>&lt;43.6</b>	ug/L	250	43.6	250		06/15/18 01:33	1634-04-4	
Naphthalene	<b>&lt;625</b>	ug/L	1250	625	250		06/15/18 01:33	91-20-3	
Toluene	<b>24400</b>	ug/L	250	125	250		06/15/18 01:33	108-88-3	
m&p-Xylene	<b>14900</b>	ug/L	500	250	250		06/15/18 01:33	179601-23-1	
o-Xylene	<b>6800</b>	ug/L	250	125	250		06/15/18 01:33	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	106	%	70-130		250		06/15/18 01:33	1868-53-7	
Toluene-d8 (S)	95	%	70-130		250		06/15/18 01:33	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		250		06/15/18 01:33	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: MW-3/T70**      **Lab ID: 40170716014**      Collected: 06/12/18 08:52      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>61.2</b>	ug/L	10.0	5.0	10		06/15/18 01:55	95-63-6	
1,3,5-Trimethylbenzene	<b>34.6</b>	ug/L	10.0	5.0	10		06/15/18 01:55	108-67-8	
Benzene	<b>441</b>	ug/L	10.0	5.0	10		06/15/18 01:55	71-43-2	
Ethylbenzene	<b>9.5J</b>	ug/L	10.0	5.0	10		06/15/18 01:55	100-41-4	
Methyl-tert-butyl ether	<b>&lt;1.7</b>	ug/L	10.0	1.7	10		06/15/18 01:55	1634-04-4	
Naphthalene	<b>&lt;25.0</b>	ug/L	50.0	25.0	10		06/15/18 01:55	91-20-3	
Toluene	<b>12.5</b>	ug/L	10.0	5.0	10		06/15/18 01:55	108-88-3	
m&p-Xylene	<b>210</b>	ug/L	20.0	10.0	10		06/15/18 01:55	179601-23-1	
o-Xylene	<b>89.7</b>	ug/L	10.0	5.0	10		06/15/18 01:55	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	109	%	70-130		10		06/15/18 01:55	1868-53-7	
Toluene-d8 (S)	95	%	70-130		10		06/15/18 01:55	2037-26-5	
4-Bromofluorobenzene (S)	92	%	70-130		10		06/15/18 01:55	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: MW-4/T70**      **Lab ID: 40170716015**      Collected: 06/12/18 08:55      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<b>3290</b>	ug/L	100	50.0	100		06/15/18 02:16	95-63-6	
1,3,5-Trimethylbenzene	<b>862</b>	ug/L	100	50.0	100		06/15/18 02:16	108-67-8	
Benzene	<b>12200</b>	ug/L	100	50.0	100		06/15/18 02:16	71-43-2	
Ethylbenzene	<b>1560</b>	ug/L	100	50.0	100		06/15/18 02:16	100-41-4	
Methyl-tert-butyl ether	<b>&lt;17.4</b>	ug/L	100	17.4	100		06/15/18 02:16	1634-04-4	
Naphthalene	<b>681</b>	ug/L	500	250	100		06/15/18 02:16	91-20-3	
Toluene	<b>15900</b>	ug/L	100	50.0	100		06/15/18 02:16	108-88-3	
m&p-Xylene	<b>14900</b>	ug/L	200	100	100		06/15/18 02:16	179601-23-1	
o-Xylene	<b>6650</b>	ug/L	100	50.0	100		06/15/18 02:16	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	106	%	70-130		100		06/15/18 02:16	1868-53-7	
Toluene-d8 (S)	92	%	70-130		100		06/15/18 02:16	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		100		06/15/18 02:16	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: MW-5/T70**      **Lab ID: 40170716016**      Collected: 06/12/18 08:45      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	10.1	ug/L	2.0	1.0	2		06/15/18 02:38	95-63-6	
1,3,5-Trimethylbenzene	4.2	ug/L	2.0	1.0	2		06/15/18 02:38	108-67-8	
Benzene	2.0	ug/L	2.0	1.0	2		06/15/18 02:38	71-43-2	
Ethylbenzene	10.5	ug/L	2.0	1.0	2		06/15/18 02:38	100-41-4	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		06/15/18 02:38	1634-04-4	
Naphthalene	32.4	ug/L	10.0	5.0	2		06/15/18 02:38	91-20-3	
Toluene	5.7	ug/L	2.0	1.0	2		06/15/18 02:38	108-88-3	
m&p-Xylene	15.8	ug/L	4.0	2.0	2		06/15/18 02:38	179601-23-1	
o-Xylene	14.9	ug/L	2.0	1.0	2		06/15/18 02:38	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	105	%	70-130		2		06/15/18 02:38	1868-53-7	D3
Toluene-d8 (S)	97	%	70-130		2		06/15/18 02:38	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		2		06/15/18 02:38	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: MW-6/T70**      **Lab ID: 40170716017**      Collected: 06/12/18 08:50      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV UST</b>									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	4.1	ug/L	1.0	0.50	1		06/15/18 08:47	95-63-6	
1,3,5-Trimethylbenzene	8.9	ug/L	1.0	0.50	1		06/15/18 08:47	108-67-8	
Benzene	42.3	ug/L	1.0	0.50	1		06/15/18 08:47	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/15/18 08:47	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/15/18 08:47	1634-04-4	
Naphthalene	3.0J	ug/L	5.0	2.5	1		06/15/18 08:47	91-20-3	
Toluene	2.3	ug/L	1.0	0.50	1		06/15/18 08:47	108-88-3	
m&p-Xylene	41.7	ug/L	2.0	1.0	1		06/15/18 08:47	179601-23-1	
o-Xylene	24.3	ug/L	1.0	0.50	1		06/15/18 08:47	95-47-6	
<b>Surrogates</b>									
Dibromofluoromethane (S)	103	%	70-130		1		06/15/18 08:47	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		06/15/18 08:47	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1		06/15/18 08:47	460-00-4	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: TRIP BLANK**      **Lab ID: 40170716024**      Collected: 06/12/18 00:00      Received: 06/13/18 09:20      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	<0.18	ug/L	1.0	0.18	1		06/14/18 12:49	630-20-6	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	71-55-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		06/14/18 12:49	79-34-5	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		06/14/18 12:49	79-00-5	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		06/14/18 12:49	75-34-3	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		06/14/18 12:49	75-35-4	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		06/14/18 12:49	563-58-6	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		06/14/18 12:49	87-61-6	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	96-18-4	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		06/14/18 12:49	120-82-1	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	95-63-6	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		06/14/18 12:49	96-12-8	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		06/14/18 12:49	106-93-4	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	95-50-1	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		06/14/18 12:49	107-06-2	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		06/14/18 12:49	78-87-5	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	108-67-8	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	541-73-1	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	142-28-9	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	106-46-7	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		06/14/18 12:49	594-20-7	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		06/14/18 12:49	106-43-4	
Benzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		06/14/18 12:49	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		06/14/18 12:49	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		06/14/18 12:49	74-83-9	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		06/14/18 12:49	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		06/14/18 12:49	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	74-87-3	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	124-48-1	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		06/14/18 12:49	74-95-3	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		06/14/18 12:49	75-71-8	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		06/14/18 12:49	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		06/14/18 12:49	98-82-8	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/14/18 12:49	1634-04-4	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		06/14/18 12:49	75-09-2	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/14/18 12:49	91-20-3	
Styrene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	100-42-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	108-88-3	

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### ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40170716

**Sample: TRIP BLANK**      **Lab ID: 40170716024**      Collected: 06/12/18 00:00      Received: 06/13/18 09:20      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV</b>									
Analytical Method: EPA 8260									
Trichloroethene	<0.33	ug/L	1.0	0.33	1		06/14/18 12:49	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		06/14/18 12:49	75-69-4	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		06/14/18 12:49	75-01-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/14/18 12:49	156-59-2	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	10061-01-5	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/14/18 12:49	179601-23-1	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	104-51-8	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	103-65-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	95-47-6	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		06/14/18 12:49	99-87-6	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		06/14/18 12:49	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		06/14/18 12:49	98-06-6	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/14/18 12:49	156-60-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		06/14/18 12:49	10061-02-6	
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	97	%	70-130		1		06/14/18 12:49	460-00-4	
Dibromofluoromethane (S)	106	%	70-130		1		06/14/18 12:49	1868-53-7	
Toluene-d8 (S)	103	%	70-130		1		06/14/18 12:49	2037-26-5	

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### QUALITY CONTROL DATA

Project: 34265.003 SRC  
Pace Project No.: 40170716

QC Batch: 291834 Analysis Method: EPA 8021  
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX  
Associated Lab Samples: 40170716018, 40170716019, 40170716020, 40170716021, 40170716022, 40170716023

METHOD BLANK: 1706491 Matrix: Water  
Associated Lab Samples: 40170716018, 40170716019, 40170716020, 40170716021, 40170716022, 40170716023

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	06/14/18 09:15	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	06/14/18 09:15	
Benzene	ug/L	<0.31	1.0	06/14/18 09:15	
Ethylbenzene	ug/L	<0.33	1.1	06/14/18 09:15	
m&p-Xylene	ug/L	<0.66	2.2	06/14/18 09:15	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	06/14/18 09:15	
Naphthalene	ug/L	<0.51	1.7	06/14/18 09:15	
o-Xylene	ug/L	<0.32	1.0	06/14/18 09:15	
Toluene	ug/L	<0.49	1.6	06/14/18 09:15	
a,a,a-Trifluorotoluene (S)	%	102	85-115	06/14/18 09:15	

LABORATORY CONTROL SAMPLE & LCSD: 1706492 1706493

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	20.8	21.5	104	107	85-115	3	20	
1,3,5-Trimethylbenzene	ug/L	20	20.1	20.8	101	104	85-115	3	20	
Benzene	ug/L	20	19.8	19.9	99	100	85-115	1	20	
Ethylbenzene	ug/L	20	20.4	20.9	102	104	85-115	2	20	
m&p-Xylene	ug/L	40	40.1	41.2	100	103	85-115	3	20	
Methyl-tert-butyl ether	ug/L	20	19.4	20.0	97	100	85-115	3	20	
Naphthalene	ug/L	20	20.9	22.6	105	113	86-121	8	20	
o-Xylene	ug/L	20	20.1	20.7	100	103	85-115	3	20	
Toluene	ug/L	20	20.0	20.2	100	101	85-115	1	20	
a,a,a-Trifluorotoluene (S)	%				103	104	85-115			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1706756 1706757

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40170716018 Result	Spike Conc.	Spike Conc.	MS Result						
1,2,4-Trimethylbenzene	ug/L	<0.34	20	20	23.7	22.8	119	114	51-160	4	20
1,3,5-Trimethylbenzene	ug/L	<0.33	20	20	23.0	22.1	115	111	56-146	4	20
Benzene	ug/L	<0.31	20	20	22.3	21.1	112	105	71-137	6	20
Ethylbenzene	ug/L	<0.33	20	20	23.5	22.5	118	113	71-141	4	20
m&p-Xylene	ug/L	<0.66	40	40	46.0	44.2	115	111	66-141	4	20
Methyl-tert-butyl ether	ug/L	<0.32	20	20	21.6	20.0	108	100	82-116	8	20
Naphthalene	ug/L	<0.51	20	20	24.2	23.4	121	117	67-138	3	20
o-Xylene	ug/L	<0.32	20	20	23.0	22.0	115	110	75-133	4	20
Toluene	ug/L	<0.49	20	20	22.9	21.8	114	109	76-134	5	20

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1706756		1706757									
Parameter	Units	40170716018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
a,a,a-Trifluorotoluene (S)	%						103	103	85-115				

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

QC Batch: 291810

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV

Associated Lab Samples: 40170716008, 40170716009, 40170716010, 40170716011, 40170716012, 40170716024

METHOD BLANK: 1706443

Matrix: Water

Associated Lab Samples: 40170716008, 40170716009, 40170716010, 40170716011, 40170716012, 40170716024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/14/18 07:23	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/14/18 07:23	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/14/18 07:23	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/14/18 07:23	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/14/18 07:23	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/14/18 07:23	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/14/18 07:23	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/14/18 07:23	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/14/18 07:23	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/14/18 07:23	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 07:23	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/14/18 07:23	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/14/18 07:23	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/14/18 07:23	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/14/18 07:23	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/14/18 07:23	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 07:23	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/14/18 07:23	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/14/18 07:23	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/14/18 07:23	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/14/18 07:23	
2-Chlorotoluene	ug/L	<0.50	1.0	06/14/18 07:23	
4-Chlorotoluene	ug/L	<0.21	1.0	06/14/18 07:23	
Benzene	ug/L	<0.50	1.0	06/14/18 07:23	
Bromobenzene	ug/L	<0.23	1.0	06/14/18 07:23	
Bromochloromethane	ug/L	<0.34	1.0	06/14/18 07:23	
Bromodichloromethane	ug/L	<0.50	1.0	06/14/18 07:23	
Bromoform	ug/L	<0.50	1.0	06/14/18 07:23	
Bromomethane	ug/L	<2.4	5.0	06/14/18 07:23	
Carbon tetrachloride	ug/L	<0.50	1.0	06/14/18 07:23	
Chlorobenzene	ug/L	<0.50	1.0	06/14/18 07:23	
Chloroethane	ug/L	<0.37	1.0	06/14/18 07:23	
Chloroform	ug/L	<2.5	5.0	06/14/18 07:23	
Chloromethane	ug/L	<0.50	1.0	06/14/18 07:23	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/14/18 07:23	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/14/18 07:23	
Dibromochloromethane	ug/L	<0.50	1.0	06/14/18 07:23	
Dibromomethane	ug/L	<0.43	1.0	06/14/18 07:23	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/14/18 07:23	
Ethylbenzene	ug/L	<0.50	1.0	06/14/18 07:23	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/14/18 07:23	

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

METHOD BLANK: 1706443

Matrix: Water

Associated Lab Samples: 40170716008, 40170716009, 40170716010, 40170716011, 40170716012, 40170716024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/14/18 07:23	
m&p-Xylene	ug/L	<1.0	2.0	06/14/18 07:23	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/14/18 07:23	
Methylene Chloride	ug/L	<0.23	1.0	06/14/18 07:23	
n-Butylbenzene	ug/L	<0.50	1.0	06/14/18 07:23	
n-Propylbenzene	ug/L	<0.50	1.0	06/14/18 07:23	
Naphthalene	ug/L	<2.5	5.0	06/14/18 07:23	
o-Xylene	ug/L	<0.50	1.0	06/14/18 07:23	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/14/18 07:23	
sec-Butylbenzene	ug/L	<2.2	5.0	06/14/18 07:23	
Styrene	ug/L	<0.50	1.0	06/14/18 07:23	
tert-Butylbenzene	ug/L	<0.18	1.0	06/14/18 07:23	
Tetrachloroethene	ug/L	<0.50	1.0	06/14/18 07:23	
Toluene	ug/L	<0.50	1.0	06/14/18 07:23	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/14/18 07:23	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/14/18 07:23	
Trichloroethene	ug/L	<0.33	1.0	06/14/18 07:23	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/14/18 07:23	
Vinyl chloride	ug/L	<0.18	1.0	06/14/18 07:23	
4-Bromofluorobenzene (S)	%	97	70-130	06/14/18 07:23	
Dibromofluoromethane (S)	%	102	70-130	06/14/18 07:23	
Toluene-d8 (S)	%	103	70-130	06/14/18 07:23	

LABORATORY CONTROL SAMPLE: 1706444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.9	110	70-133	
1,1,2,2-Tetrachloroethane	ug/L	50	51.0	102	67-130	
1,1,2-Trichloroethane	ug/L	50	60.3	121	70-130	
1,1-Dichloroethane	ug/L	50	55.4	111	70-134	
1,1-Dichloroethene	ug/L	50	59.1	118	75-132	
1,2,4-Trichlorobenzene	ug/L	50	44.8	90	68-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.0	94	60-126	
1,2-Dibromoethane (EDB)	ug/L	50	54.0	108	70-130	
1,2-Dichlorobenzene	ug/L	50	47.4	95	70-130	
1,2-Dichloroethane	ug/L	50	49.9	100	73-134	
1,2-Dichloropropane	ug/L	50	58.6	117	79-128	
1,3-Dichlorobenzene	ug/L	50	45.9	92	70-130	
1,4-Dichlorobenzene	ug/L	50	48.5	97	70-130	
Benzene	ug/L	50	52.9	106	69-137	
Bromodichloromethane	ug/L	50	60.2	120	70-130	
Bromoform	ug/L	50	60.2	120	64-133	
Bromomethane	ug/L	50	49.3	99	29-123	
Carbon tetrachloride	ug/L	50	53.9	108	73-142	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

LABORATORY CONTROL SAMPLE: 1706444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	55.8	112	70-130	
Chloroethane	ug/L	50	53.8	108	59-133	
Chloroform	ug/L	50	58.5	117	80-129	
Chloromethane	ug/L	50	34.3	69	27-125	
cis-1,2-Dichloroethene	ug/L	50	54.8	110	70-134	
cis-1,3-Dichloropropene	ug/L	50	57.4	115	70-130	
Dibromochloromethane	ug/L	50	53.1	106	70-130	
Dichlorodifluoromethane	ug/L	50	46.7	93	12-127	
Ethylbenzene	ug/L	50	59.6	119	86-127	
Isopropylbenzene (Cumene)	ug/L	50	55.4	111	70-130	
m&p-Xylene	ug/L	100	115	115	70-131	
Methyl-tert-butyl ether	ug/L	50	54.5	109	65-136	
Methylene Chloride	ug/L	50	57.9	116	72-133	
o-Xylene	ug/L	50	56.3	113	70-130	
Styrene	ug/L	50	58.7	117	70-130	
Tetrachloroethene	ug/L	50	59.0	118	70-130	
Toluene	ug/L	50	59.1	118	84-124	
trans-1,2-Dichloroethene	ug/L	50	56.8	114	70-133	
trans-1,3-Dichloropropene	ug/L	50	54.0	108	67-130	
Trichloroethene	ug/L	50	59.0	118	70-130	
Trichlorofluoromethane	ug/L	50	61.9	124	69-147	
Vinyl chloride	ug/L	50	52.4	105	48-134	
4-Bromofluorobenzene (S)	%			112	70-130	
Dibromofluoromethane (S)	%			103	70-130	
Toluene-d8 (S)	%			106	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1706474 1706475

Parameter	Units	MS 40170694021		MSD		MS 1706475		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	MSD Result	MSD % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	<12.5	500	500	567	578	113	116	70-136	2	20		
1,1,2,2-Tetrachloroethane	ug/L	<6.2	500	500	528	528	106	106	67-133	0	20		
1,1,2-Trichloroethane	ug/L	<4.9	500	500	615	612	123	122	70-130	0	20		
1,1-Dichloroethane	ug/L	<6.0	500	500	566	560	113	112	70-139	1	20		
1,1-Dichloroethene	ug/L	<10.3	500	500	604	602	121	120	72-137	0	20		
1,2,4-Trichlorobenzene	ug/L	<55.2	500	500	470	476	93	94	68-130	1	20		
1,2-Dibromo-3-chloropropane	ug/L	<54.1	500	500	489	479	98	96	60-130	2	21		
1,2-Dibromoethane (EDB)	ug/L	<4.4	500	500	555	549	111	110	70-130	1	20		
1,2-Dichlorobenzene	ug/L	<12.5	500	500	481	483	96	97	70-130	1	20		
1,2-Dichloroethane	ug/L	<4.2	500	500	522	521	104	104	71-137	0	20		
1,2-Dichloropropane	ug/L	<5.8	500	500	599	600	120	120	78-130	0	20		
1,3-Dichlorobenzene	ug/L	<12.5	500	500	472	469	94	94	70-130	1	20		
1,4-Dichlorobenzene	ug/L	<12.5	500	500	499	499	99	99	70-130	0	20		
Benzene	ug/L	<12.5	500	500	536	537	107	107	66-143	0	20		

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

Parameter	Units	1706474		1706475		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40170694021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Bromodichloromethane	ug/L	<12.5	500	500	610	616	122	123	70-130	1	20		
Bromoform	ug/L	<12.5	500	500	611	608	122	122	64-134	1	20		
Bromomethane	ug/L	<60.9	500	500	537	551	107	110	29-136	3	25		
Carbon tetrachloride	ug/L	<12.5	500	500	546	551	109	110	73-142	1	20		
Chlorobenzene	ug/L	<12.5	500	500	567	561	113	112	70-130	1	20		
Chloroethane	ug/L	<9.4	500	500	544	539	109	108	58-138	1	20		
Chloroform	ug/L	<62.5	500	500	592	596	118	119	80-131	1	20		
Chloromethane	ug/L	<12.5	500	500	342	341	68	68	24-125	0	20		
cis-1,2-Dichloroethene	ug/L	195	500	500	761	758	113	113	68-137	0	22		
cis-1,3-Dichloropropene	ug/L	<12.5	500	500	583	594	117	119	70-130	2	20		
Dibromochloromethane	ug/L	<12.5	500	500	540	538	108	108	70-131	0	20		
Dichlorodifluoromethane	ug/L	<5.6	500	500	460	463	92	93	10-127	1	20		
Ethylbenzene	ug/L	<12.5	500	500	600	600	120	120	81-136	0	20		
Isopropylbenzene (Cumene)	ug/L	<3.6	500	500	565	557	113	111	70-132	1	20		
m&p-Xylene	ug/L	<25.0	1000	1000	1160	1150	116	115	70-135	1	20		
Methyl-tert-butyl ether	ug/L	<4.4	500	500	559	557	112	111	58-142	0	23		
Methylene Chloride	ug/L	<5.8	500	500	587	583	117	117	69-137	1	20		
o-Xylene	ug/L	<12.5	500	500	564	560	113	112	70-132	1	20		
Styrene	ug/L	<12.5	500	500	593	587	119	117	70-130	1	20		
Tetrachloroethene	ug/L	<12.5	500	500	606	600	121	120	70-132	1	20		
Toluene	ug/L	<12.5	500	500	602	597	120	119	81-130	1	20		
trans-1,2-Dichloroethene	ug/L	7.2J	500	500	580	581	115	115	70-136	0	20		
trans-1,3-Dichloropropene	ug/L	<5.7	500	500	558	550	112	110	67-130	2	20		
Trichloroethene	ug/L	2380	500	500	3520	3360	227	196	70-131	5	20	E,M1	
Trichlorofluoromethane	ug/L	<4.6	500	500	629	627	126	125	66-150	0	20		
Vinyl chloride	ug/L	<4.4	500	500	533	530	107	106	46-134	1	20		
4-Bromofluorobenzene (S)	%						112	111	70-130				
Dibromofluoromethane (S)	%						103	105	70-130				
Toluene-d8 (S)	%						105	105	70-130				

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### QUALITY CONTROL DATA

Project: 34265.003 SRC  
Pace Project No.: 40170716

QC Batch: 291808 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40170716001, 40170716002, 40170716003, 40170716004

METHOD BLANK: 1706439 Matrix: Water  
Associated Lab Samples: 40170716001, 40170716002, 40170716003, 40170716004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 07:24	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 07:24	
Benzene	ug/L	<0.50	1.0	06/14/18 07:24	
Ethylbenzene	ug/L	<0.50	1.0	06/14/18 07:24	
m&p-Xylene	ug/L	<1.0	2.0	06/14/18 07:24	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/14/18 07:24	
o-Xylene	ug/L	<0.50	1.0	06/14/18 07:24	
Toluene	ug/L	<0.50	1.0	06/14/18 07:24	
4-Bromofluorobenzene (S)	%	97	70-130	06/14/18 07:24	
Dibromofluoromethane (S)	%	97	70-130	06/14/18 07:24	
Toluene-d8 (S)	%	103	70-130	06/14/18 07:24	

LABORATORY CONTROL SAMPLE: 1706440

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	46.6	93	69-137	
Ethylbenzene	ug/L	50	51.0	102	86-127	
m&p-Xylene	ug/L	100	102	102	70-131	
Methyl-tert-butyl ether	ug/L	50	45.7	91	65-136	
o-Xylene	ug/L	50	50.6	101	70-130	
Toluene	ug/L	50	49.0	98	84-124	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1706476 1706477

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40170736006 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	987	500	500	1400	1390	83	81	66-143	1	20
Ethylbenzene	ug/L	923	500	500	1400	1410	96	97	81-136	0	20
m&p-Xylene	ug/L	1150	1000	1000	2180	2190	103	104	70-135	0	20
Methyl-tert-butyl ether	ug/L	<10.0	500	500	488	461	98	92	58-142	6	23
o-Xylene	ug/L	94.8	500	500	633	636	108	108	70-132	1	20
Toluene	ug/L	25.3	500	500	538	543	102	103	81-130	1	20
4-Bromofluorobenzene (S)	%						102	101	70-130		
Dibromofluoromethane (S)	%						103	101	70-130		
Toluene-d8 (S)	%						101	101	70-130		

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### QUALITY CONTROL DATA

Project: 34265.003 SRC  
Pace Project No.: 40170716

QC Batch: 291809 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40170716005, 40170716006, 40170716007

METHOD BLANK: 1706441 Matrix: Water  
Associated Lab Samples: 40170716005, 40170716006, 40170716007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 08:45	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 08:45	
Benzene	ug/L	<0.50	1.0	06/14/18 08:45	
Ethylbenzene	ug/L	<0.50	1.0	06/14/18 08:45	
m&p-Xylene	ug/L	<1.0	2.0	06/14/18 08:45	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/14/18 08:45	
o-Xylene	ug/L	<0.50	1.0	06/14/18 08:45	
Toluene	ug/L	<0.50	1.0	06/14/18 08:45	
4-Bromofluorobenzene (S)	%	97	70-130	06/14/18 08:45	
Dibromofluoromethane (S)	%	109	70-130	06/14/18 08:45	
Toluene-d8 (S)	%	103	70-130	06/14/18 08:45	

LABORATORY CONTROL SAMPLE: 1706442

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	66.5	133	69-137	
Ethylbenzene	ug/L	50	58.5	117	86-127	
m&p-Xylene	ug/L	100	115	115	70-131	
Methyl-tert-butyl ether	ug/L	50	63.8	128	65-136	
o-Xylene	ug/L	50	57.3	115	70-130	
Toluene	ug/L	50	58.2	116	84-124	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			109	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1707185 1707186

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40170716005 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	1180	50	50	1110	1160	-142	-35	66-143	5	20	E,M1
Ethylbenzene	ug/L	662	50	50	742	733	160	143	81-136	1	20	E,M1
m&p-Xylene	ug/L	822	100	100	1020	1010	201	192	70-135	1	20	E,M1
Methyl-tert-butyl ether	ug/L	<0.17	50	50	63.7	60.2	127	120	58-142	6	23	
o-Xylene	ug/L	2.3	50	50	58.6	56.5	113	108	70-132	4	20	
Toluene	ug/L	<0.50	50	50	56.9	54.8	114	110	81-130	4	20	
4-Bromofluorobenzene (S)	%						104	103	70-130			
Dibromofluoromethane (S)	%						108	111	70-130			
Toluene-d8 (S)	%						102	100	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 SRC  
Pace Project No.: 40170716

QC Batch: 291893 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 40170716013, 40170716014, 40170716015, 40170716016, 40170716017

METHOD BLANK: 1706810 Matrix: Water  
Associated Lab Samples: 40170716013, 40170716014, 40170716015, 40170716016, 40170716017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 16:52	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/14/18 16:52	
Benzene	ug/L	<0.50	1.0	06/14/18 16:52	
Ethylbenzene	ug/L	<0.50	1.0	06/14/18 16:52	
m&p-Xylene	ug/L	<1.0	2.0	06/14/18 16:52	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/14/18 16:52	
Naphthalene	ug/L	<2.5	5.0	06/14/18 16:52	
o-Xylene	ug/L	<0.50	1.0	06/14/18 16:52	
Toluene	ug/L	<0.50	1.0	06/14/18 16:52	
4-Bromofluorobenzene (S)	%	88	70-130	06/14/18 16:52	
Dibromofluoromethane (S)	%	110	70-130	06/14/18 16:52	
Toluene-d8 (S)	%	99	70-130	06/14/18 16:52	

LABORATORY CONTROL SAMPLE: 1706811

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	45.4	91	69-137	
Ethylbenzene	ug/L	50	55.2	110	86-127	
m&p-Xylene	ug/L	100	115	115	70-131	
Methyl-tert-butyl ether	ug/L	50	54.9	110	65-136	
o-Xylene	ug/L	50	55.2	110	70-130	
Toluene	ug/L	50	51.6	103	84-124	
4-Bromofluorobenzene (S)	%			107	70-130	
Dibromofluoromethane (S)	%			109	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1707203 1707204

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10435016001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	13.1J	1000	1000	936	954	92	94	66-143	2	20	
Ethylbenzene	ug/L	17.7J	1000	1000	1140	1150	112	113	81-136	1	20	
m&p-Xylene	ug/L	101	2000	2000	2440	2430	117	116	70-135	0	20	
Methyl-tert-butyl ether	ug/L	<3.5	1000	1000	1120	1140	112	114	58-142	2	23	
o-Xylene	ug/L	164	1000	1000	1370	1380	120	122	70-132	1	20	
Toluene	ug/L	53.5	1000	1000	1090	1090	104	103	81-130	1	20	
4-Bromofluorobenzene (S)	%						107	109	70-130			
Dibromofluoromethane (S)	%						101	102	70-130			

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### QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40170716

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1707203		1707204									
Parameter	Units	10435016001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						95	95	70-130				

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## QUALIFIERS

Project: 34265.003 SRC  
Pace Project No.: 40170716

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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 and percent moisture.  
LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.  
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

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.  
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.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SRC  
Pace Project No.: 40170716

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40170716018	MW-11	EPA 8021	291834		
40170716019	PZ-11	EPA 8021	291834		
40170716020	MW-12	EPA 8021	291834		
40170716021	MW-13	EPA 8021	291834		
40170716022	PZ-13	EPA 8021	291834		
40170716023	MW-14	EPA 8021	291834		
40170716008	MW-1/T68	EPA 8260	291810		
40170716009	MW-2/T68	EPA 8260	291810		
40170716010	MW-4/T68	EPA 8260	291810		
40170716011	MW-5/T66	EPA 8260	291810		
40170716012	MW-6/T68	EPA 8260	291810		
40170716024	TRIP BLANK	EPA 8260	291810		
40170716001	MW-1/T40	EPA 8260	291808		
40170716002	MW-2/T40	EPA 8260	291808		
40170716003	MW-4/T40	EPA 8260	291808		
40170716004	MW-5/T40	EPA 8260	291808		
40170716005	MW-6/T40	EPA 8260	291809		
40170716006	MW-7/T40	EPA 8260	291809		
40170716007	TS-1/T40	EPA 8260	291809		
40170716013	MW-2R/T70	EPA 8260	291893		
40170716014	MW-3/T70	EPA 8260	291893		
40170716015	MW-4/T70	EPA 8260	291893		
40170716016	MW-5/T70	EPA 8260	291893		
40170716017	MW-6/T70	EPA 8260	291893		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

(Please Print Clearly)

Company Name: Gannett Fleming  
 Branch/Location: Madison, WI  
 Project Contact: Cliff Wright  
 Phone: 608-836-1500  
 Project Number: 34265.003  
 Project Name: 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

40170716

### 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

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

Y/N	N	N	N						
Pick Letter	B	B	B						
Analyses Requested	PVOCs 8260	VOCs 8260	PVOC/Naph. 8260						

**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	
001	MW-1/T40	6/12	805	GW
002	MW-2/T40		735	
003	MW-4/T40		800	
004	MW-5/T40		740	
005	MW-6/T40		750	
006	MW-7/T40		755	
007	TS-1/T40		752	
008	MW-1/T68		810	
009	MW-2/T68		820	
010	MW-4/T68		815	
011	MW-5/T66		830	
012	MW-6/T68		825	
013	MW-2R/T70		840	

**Quote #:** \_\_\_\_\_  
**Mail To Contact:** cwright@gfnet.com  
**Mail To Company:** Gannett Fleming  
**Mail To Address:** 8025 Excelsior Dr  
 Madison, WI 53717  
**Invoice To Contact:** ↑  
**Invoice To Company:** \_\_\_\_\_  
**Invoice To Address:** \_\_\_\_\_  
**Invoice To Phone:** 608-836-1500  
**CLIENT COMMENTS:** \_\_\_\_\_  
**LAB COMMENTS (Lab Use Only):** \_\_\_\_\_  
**Profile #:** \_\_\_\_\_

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

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

Relinquished By: <i>[Signature]</i>	Date/Time: 6/12, 1520	Received By: Fedex	Date/Time: _____
Relinquished By: Fed Ex	Date/Time: 6/13/18 0920	Received By: <i>[Signature]</i>	Date/Time: 6/13/18 0920
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____

PACE Project No. 40170716  
 Receipt Temp = ROT °C  
 Sample Receipt pH OK / Adjusted  
 Cooler Custody Seal Present / Not Present Intact / Not Intact

(Please Print Clearly)



# 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

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

Y/N	N	N																	
Pick Letter	B	B																	
Analyses Requested	PVOC/Naph.	PVOC/Naph.																	
	8760	8021																	
	1208																		

40170716

Company Name: \_\_\_\_\_  
 Branch/Location: *see*  
 Project Contact: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Project Number: *page*  
 Project Name: \_\_\_\_\_  
 Project State: *I*  
 Sampled By (Print): \_\_\_\_\_  
 Sampled By (Sign): \_\_\_\_\_  
 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 B = Biota C = Charcoal O = Oil S = Soil SI = Sludge  
 W = Water DW = Drinking Water GW = Ground Water SW = Surface Water WW = Waste Water WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
014	MW-3/T70	6/12	852	GW
015	MW-4/T70		855	
016	MW-5/T70		845	
017	MW-6/T70		850	
018	MW-11		920	
019	PZ-11		922	
020	MW-12		935	
021	MW-13		945	
022	PZ-13		947	
023	MW-14		955	
024	Trip Blank			

Quote #: \_\_\_\_\_  
 Mail To Contact: \_\_\_\_\_  
 Mail To Company: \_\_\_\_\_  
 Mail To Address: \_\_\_\_\_  
 Invoice To Contact: \_\_\_\_\_  
 Invoice To Company: \_\_\_\_\_  
 Invoice To Address: \_\_\_\_\_  
 Invoice To Phone: \_\_\_\_\_  
 CLIENT COMMENTS: \_\_\_\_\_ LAB COMMENTS (Lab Use Only): \_\_\_\_\_ Profile #: \_\_\_\_\_

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <i>[Signature]</i> Date/Time: 6/12/18 1520	Received By: _____ Date/Time: _____	PACE Project No. 40170716
	Transmit Prelim Rush Results by (complete what you want): Fed Ex 6/13/18 0920	Received By: <i>[Signature]</i> Date/Time: 6/13/18 0920	
Email #1:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Sample Receipt pH OK / Adjusted
Email #2:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Cooler Custody Seal Present / Not Present Intact / Not Intact
Telephone:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Fax:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

### Sample Preservation Receipt Form

Client Name: Garnett Fleming

Project # 40170716

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	BP3C	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU								WPFU	SP5T	ZPLC
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
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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

<b>AG1U</b>	1 liter amber glass	<b>BP1U</b>	1 liter plastic unpres	<b>DG9A</b>	40 mL amber ascorbic	<b>JGFU</b>	4 oz amber jar unpres
<b>AG1H</b>	1 liter amber glass HCL	<b>BP2N</b>	500 mL plastic HNO3	<b>DG9T</b>	40 mL amber Na Thio	<b>WGFU</b>	4 oz clear jar unpres
<b>AG4S</b>	125 mL amber glass H2SO4	<b>BP2Z</b>	500 mL plastic NaOH, Znact	<b>VG9U</b>	40 mL clear vial unpres	<b>WPFU</b>	4 oz plastic jar unpres
<b>AG4U</b>	120 mL amber glass unpres	<b>BP3U</b>	250 mL plastic unpres	<b>VG9H</b>	40 mL clear vial HCL		
<b>AG5U</b>	100 mL amber glass unpres	<b>BP3C</b>	250 mL plastic NaOH	<b>VG9M</b>	40 mL clear vial MeOH	<b>SP5T</b>	120 mL plastic Na Thiosulfate
<b>AG2S</b>	500 mL amber glass H2SO4	<b>BP3N</b>	250 mL plastic HNO3	<b>VG9D</b>	40 mL clear vial DI	<b>ZPLC</b>	ziploc bag
<b>BG3U</b>	250 mL clear glass unpres	<b>BP3S</b>	250 mL plastic H2SO4			<b>GN:</b>	

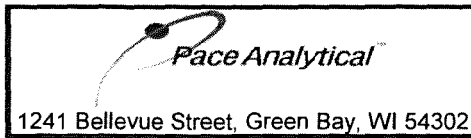


### Sample Preservation Receipt Form

Client Name: Gannett Fleming

Project #: 40170716

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	BP3C	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
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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

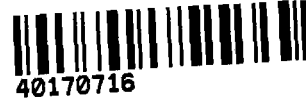
**Sample Condition Upon Receipt Form (SCUR)**

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

Client Name: Garnott Fleming

**WO#: 40170716**

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



Tracking #: 8130 1610 8130

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: ROP ICorr: \_\_\_\_\_

Temp Blank Present:  yes  no

Biological Tissue is Frozen:  yes  no

Person examining contents:  
 Date: 6/13/18  
 Initials: SSM

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. page 2 has missed mail to info invoice info, & page # SSM 6/13/18
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. page 1 only SSM 6/13/18
Samples Arrived within Hold Time: - VOA Samples frozen upon receipt	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No	5. 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: 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		8.
Correct Containers Used: -Pace Containers Used: -Pace IR Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9.
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: -Includes date/time/ID/Analysis Matrix: <u>W</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): <u>40d</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

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

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

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

Project Manager Review: RNR for DM

Date: 6/13/18