



Gannett Fleming

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November 18, 2019

File #34265.003

Mr. John Sager

Wisconsin Department of Natural Resources

1701 North 4th Street

Superior, WI 54880

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DNR - SUPERIOR

Re: Facility-Wide ERP Groundwater Monitoring Report for 2019
Superior Refining Company LLC, Superior, WI
WDNR BRRTS# 16-16-559511 and Facility ID: 816009590

Dear John:

On behalf of Superior Refining Company LLC (SRC), Gannett Fleming, Inc. (GF) is submitting the 2019 annual report for the facility-wide groundwater monitoring network (WDNR BRRTS# 02-16-559511) at the subject refinery in Superior. The report summarizes network field activities completed in 2019, the groundwater sampling protocol used, and laboratory analytical results. In addition, it includes pertinent site background information for reference.

Periodic reporting of site remediation 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

Figure 1 is a location map showing the refinery, its approximate property boundary, and the area around the refinery and was prepared using the most recent USGS topographic map. The refinery occupies portions of Sections 25, 26, 30, and 36; Township 49 North; Range 14 West; in Superior Township of Douglas County. Figure 2 shows the locations of the 23 monitoring wells (MW-1, MW-1/T67, MW-2, MW-2/T66, MW-3/T50, MW-3D, MW-5/T40, MW-5/T70, MW-7, MW-8R, MW-9B, and MW-11 through MW-22) and 8 piezometers (PZ-2/T66, PZ-3D, PZ-8R, PZ-11, PZ-13, PZ-16, PZ17, and PZ-21) in the network.

The topography at the refinery slopes gently to the east. Surface elevations range from approximately 650 to 660 feet above mean sea level (MSL). The closest natural surface water body is Newton Creek, located approximately 850 feet east of the refinery's closest

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aboveground storage tank (AST), as shown on Figure 1. The creek flows about 1.5 miles to Hog Island Inlet, which connects to Lake Superior Bay. Storm water retention and fire water ponds, along with two artificial wetlands for wastewater treatment plant discharge polishing, are located just northwest of the Newton Creek headwaters, near the intersection of Stinson/24th Avenue and Bardon Avenue.

Other than the process areas, which are generally paved, most of the refinery property is unpaved. Depending on time of year and topography, the depth to groundwater in the network monitoring wells ranges from <1.0 to >5.9 feet below ground surface (bgs). The direction of shallow groundwater flow below the refinery is to the east (see Figure 2).

The hydraulic conductivity of the native clay underlying the refinery is on the order of 10^{-7} centimeters per second. Assuming a horizontal hydraulic gradient of 0.003 and effective porosity of 0.06, the estimated horizontal groundwater flow velocity is approximately 0.01 foot per year (ft/yr). The red-brown lean clay till is relatively homogenous and extends to approximately 100 feet bgs beneath the site.

On October 1, 2011, Calumet Superior LLC (Calumet) acquired the refinery from Murphy Oil (Murphy). In May 2014, the WDNR approved Calumet's April 2014 *Site Investigation and Remedial Action Plan* (SI/RAP) for the refinery. Effective November 8, 2017, Husky Superior Refining Holding Corp (Husky Superior) purchased Calumet and changed its legal name to Superior Refining Company LLC. Effective April 4, 2018, the April 2014 SI/RAP became a component of the March 2018 Negotiated Agreement between SRC and the WDNR.

In conjunction with the SI/RAP, a network of 23 wells and 8 piezometers for monitoring overall groundwater quality was established. Twice a year, starting in 2015, all wells and piezometers in the network are gauged (to check for free product, track seasonal changes in water levels, and prepare groundwater contour maps), and the perimeter wells and all piezometers are purged and sampled.

As part of the Negotiated Agreement, a single new refinery-wide Environmental Repair Program (ERP) site was created at the refinery, and this site is referred to as a facility-wide ERP. Table 1 provides a summary of ERP well locations, designations, and monitoring parameters for reference. Note that:

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1. MW-1, MW-2, MW-3D, MW-8R, and MW-9B are also classified as “pond” wells. Once a year, samples from these wells are analyzed for volatile organic compounds (VOCs) using Method 8260 and select inorganics, in conjunction with wastewater treatment Ponds 1 and 6 post-closure monitoring. As stipulated by the WDNR Groundwater and Environmental Monitoring System (GEMS) program, MW-8R serves as an upgradient monitoring well, located approximately 2,500 feet southwest of the ponds.
2. MW-1/T67, MW-2/T66, MW-3/T50, MW-5/T40, and MW-5/T70 are gauged along with the perimeter wells and piezometers. However, they are not routinely purged and sampled as part of the ERP monitoring program. Consequently, these wells are not classified as perimeter wells and are designated as “other” wells in Table 1.
3. The piezometers and perimeter wells are purged using a modified purge method, as approved by the WDNR in 2015. All the piezometers and perimeter wells are purged twice prior to sampling. At each perimeter well, field staff either bail the well dry or stop purging at a volume of 4 gallons per visit, or up to 8 gallons total after the second time. At each piezometer, field staff either bail the piezometer dry or stop purging at a volume of 6.5 gallons per visit, or up to 13 gallons total after the second time. This modified method replaces the practice of simply bailing all wells and piezometers dry each time, as described on page 16 of the April 2014 SI/RAP, and increases the probability that the wells and piezometers will reach static conditions between gauging and purging events.
4. Field work is generally conducted by staff from Insight Environmental of Superior and/or GF of Madison. Insight Environmental typically conducts the routine gauging and purging. GF joins Insight Environmental twice a year for the groundwater sampling events.
5. In April 2018, there was an explosion and fire at the refinery. During response activities, the 4-inch-diameter steel pipe that serves as a protective cover for MW-7 (constructed of 2-inch-diameter, Schedule 40 PVC) was bent. As a precautionary measure, SRC plans to abandon the well and install MW-7R to replace MW-7 in 2020. Originally planned for 2019, the well abandonment/installation work was delayed due to implementation of a new policy on ground disturbance at the refinery.

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Dates and Descriptions of Field Activities in 2019

- On April 23, Insight Environmental gauged the entire network of wells and piezometers for the first time in 2019 (see Table 2). In addition, on April 23-24 and May 7-8, Insight Environmental purged the perimeter wells and all the piezometers prior to sampling.
- On May 20, GF and Insight Environmental completed the first round of groundwater monitoring in 2019 and sampled the piezometers and perimeter wells for petroleum volatile organic compounds (PVOCs) and naphthalene.
- On September 9, Insight Environmental gauged all the wells and piezometers for the second time (see Table 2). In addition, on September 9 and 23, Insight Environmental purged the perimeter wells and all the piezometers prior to sampling.
- On October 8, GF and Insight Environmental completed the second round of groundwater monitoring and sampled the piezometers and perimeter wells for PVOCs and naphthalene. Samples from the five pond wells (i.e., MW-1, MW-2, MW-3D, MW-8R, and MW-9B) were analyzed for VOCs and select inorganics for the GEMS program, as described in the *Pertinent Site Background* section (Note #1) above.

Groundwater Sample Collection/Preservation and Laboratory Analytical Results

GF and Insight Environmental used a new disposable polyethylene bailer with nylon rope to collect each groundwater sample and immediately transferred the sample into laboratory-supplied vials pre-filled with the appropriate volume of hydrochloric acid preservative. The sample vials were labelled, placed on ice stored in a cooler, shipped overnight to Pace Analytical of Green Bay (Wisconsin laboratory certification #405132750), and analyzed for PVOCs and naphthalene using Method 8021 (or 8260 for the pond wells, once a year).

The PVOC/naphthalene analytical results for 2019 (with MW-1, MW-2, MW-3D, MW-8R, and MW-9B flagged as *ERP and GEMS* well locations) are summarized in Table 3. Only the PVOC/naphthalene data for 2019 are presented in this report; complete VOC and inorganic analytical results for the five pond wells were submitted to WDNR GEMS program staff on November 5, 2019. Attachment A includes copies of the laboratory reports and chain of custody records for the groundwater samples collected in 2019.

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Findings

Results from the fifth year of ERP groundwater monitoring in 2019 document that:

- The depth to groundwater in the perimeter wells ranged from 2.12 to 11.12 feet below top of casing (i.e., from approximately -0.5 to 8.1 feet bgs), and no free product was observed. Calculated vertical gradients were all negative/downward and ranged from 0.05 to 0.50. All water level elevation data are presented in Table 2. Negative vertical gradients are shown in parenthesis in red.
- The direction of shallow groundwater flow below the refinery is to the east (see Figure 2), which is consistent with previously determined groundwater flow directions. Likewise, the range of horizontal gradients (i.e., from 0.003 to 0.008) is consistent with those previously observed.
- All analytical results were non-detect for PVOCs and naphthalene in 2019, and the detection limits for PVOCs and naphthalene were all below their respective PALs, as shown in Table 3. PVOC/naphthalene analytical results were also all non-detect in 2015-2018, except the toluene concentration in the sample collected from MW-7 on October 9, 2018, was 1.9 micrograms per liter ($\mu\text{g}/\ell$). This is nearly two orders of magnitude below toluene's NR 140 preventative action limit (PAL) of 160 $\mu\text{g}/\ell$.

2020 Replacement Well Installation and Monitoring Plan

In 2020, SRC will:

- Properly abandon MW-7 and install MW-7R to replace the bent well. The March 1994 boring log for MW-7, a copy of which is included in Appendix A to the April 2014 SI/RAP on file with the WDNR, documents that subsurface conditions consisted of unimpacted, native red-brown lean clay till. In addition, no known releases of petroleum hydrocarbons have occurred in the immediate area. Consequently, MW-7R will be blind drilled following protocol used in October 2014 when perimeter wells MW-15 through MW-22 and the eight network piezometers were installed. Following completion, MW-7R will be developed prior to gauging and sampling the new well, its top of casing elevation and location will be surveyed, and paperwork on state-approved forms for the abandonment of MW-7 and drilling and installation of MW-7R will be submitted to you.
- Continue to gauge fluid levels in all the wells and piezometers, and purge and sample all the piezometers and perimeter wells twice a year.

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- Continue to use a modified purge method, as described in the *Pertinent Site Background* section (Note #3) above.
- Continue to lab analyze the groundwater samples for PVOCs/naphthalene using:
 - Method 8021 on a routine basis.
 - Method 8260 when monitoring the five pond wells for VOCs once a year.

Contact Matt Turner at SRC or me if you have any questions or need additional information.

Sincerely,

GANNETT FLEMING, INC.




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

CCW/jec
Enc.

ecc: Matt Turner (Superior Refining Company LLC)
Tony Miller and Dennis Kugle (GF)

ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS

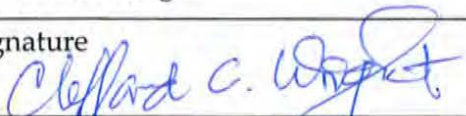
I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the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

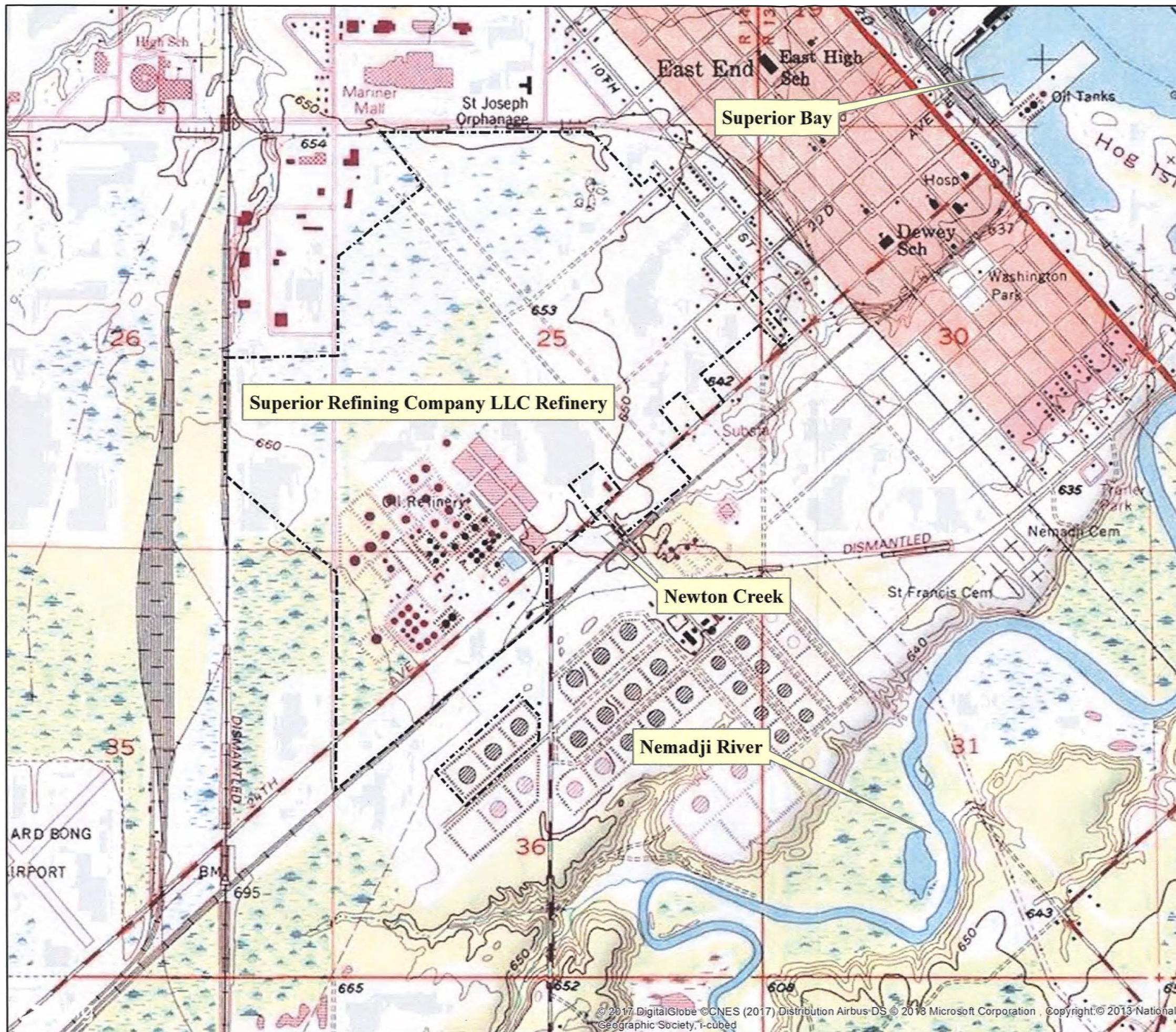
Print Name Clifford C. Wright	Title Project Engineer
Signature 	Date 11/18/2019

P.E. Seal for E-31265:



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

Print Name Clifford C. Wright	Title Project Geologist
Signature 	Date 11/18/2019




Legend

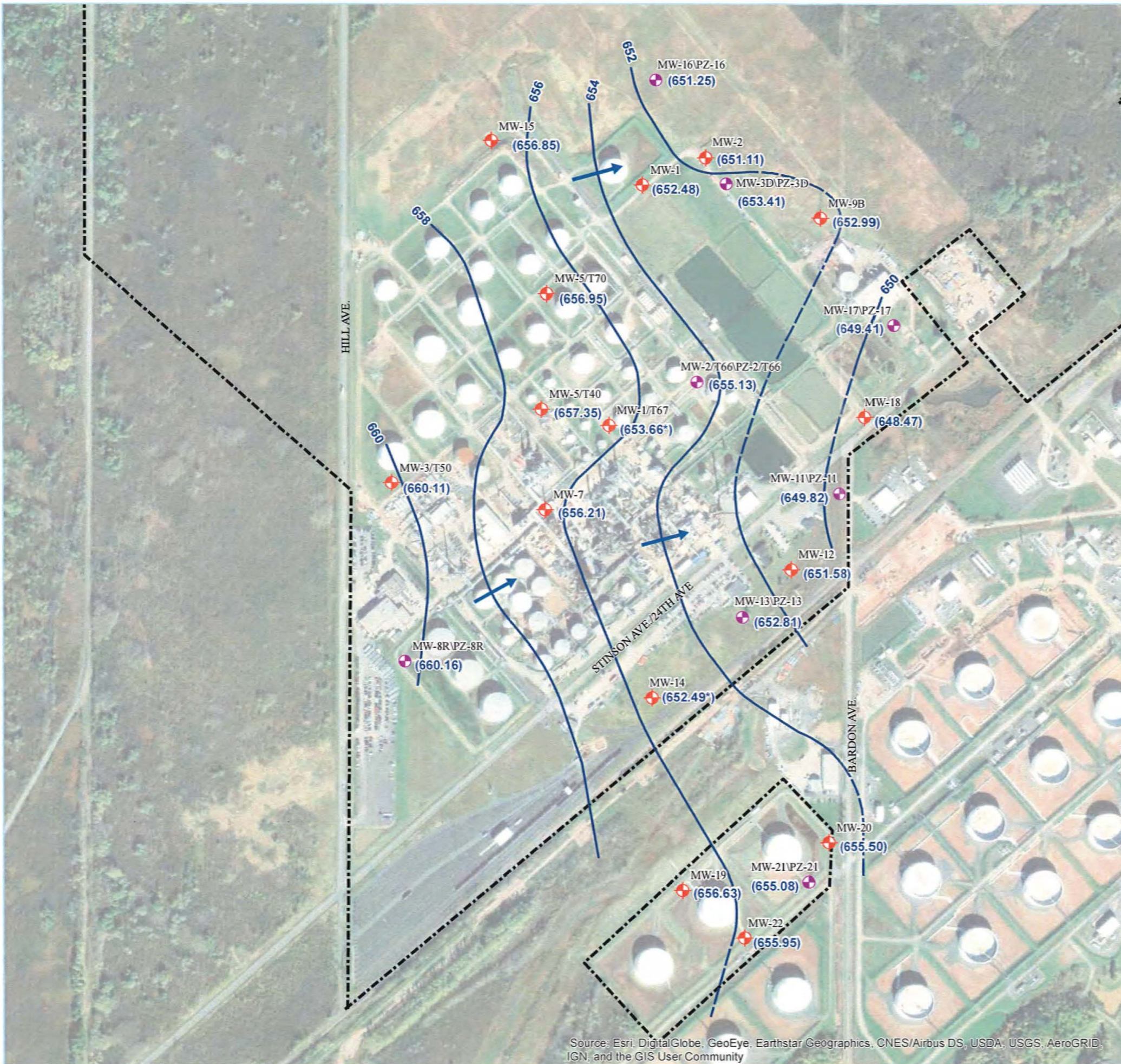
----- Approximate Refinery Property Boundary

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 SUPERIOR, WISCONSIN	
	Gannett Fleming, Inc. 8040 Excelsior Drive Madison WI 53717-1338 (608) 836-1500 www.gannettfleming.com
Project No. 34265.003	Date 1/8/18 Figure 1



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

656 — Groundwater Contour (dashed where inferred)

→ Groundwater Flow Direction

(654.30) Groundwater Elevation (ft MSL)

Monitoring Well

Monitoring Well\Piezometer Pair (groundwater elevation shown is for monitoring well)

--- Approximate Facility Property Boundary

Notes:

1. The data from MW-1/T67 and MW-14 were not used to develop the contour map.
2. Site datum = mean sea level (MSL).
3. Well\Piezometer locations based on 02/06/15 survey by TKDA using a Trimble GNSS RTK GPS R8 Model 3.



Groundwater Flow Map (April 2019)

SUPERIOR REFINING COMPANY LLC REFINERY
SUPERIOR, WISCONSIN



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SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN

TABLE 1

ERP WELL LOCATION, DESIGNATION, AND MONITORING PARAMETER SUMMARY

Well ID	Well Location	Well Designation(s)			ERP Monitoring Parameter(s)	
		Perimeter	Pond/GEMS	Other	Water Level	PVOC/Naphthalene
MW-1	Northeast corner of refinery	X	X		X	X
MW-1/T67	Tank 67 basin			X	X	
MW-2	Northeast corner of refinery	X	X		X	X
MW-2/T66	Southeast of Tank 65 basin			X	X	
MW-3D	Northeast corner of refinery	X	X		X	X
MW-3/T50	Tank 50 basin			X	X	
MW-5/T40	Tank 40 basin			X	X	
MW-5/T70	Tank 70 basin			X	X	
MW-7	Central area of refinery	X			X	X
MW-8R	Tanks 106/112/114; SW corner of refinery	X	X		X	X
MW-9B	Northwest of wastewater treatment plant	X	X		X	X
MW-11	Near intersection of Stinson & Bardon Ave.	X			X	X
MW-12	South central property boundary	X			X	X
MW-13	South central property boundary	X			X	X
MW-14	South central property boundary	X			X	X
MW-15	North of refinery	X			X	X
MW-16	Northeast corner of refinery	X			X	X
MW-17	Southeast of wastewater treatment plant	X			X	X
MW-18	Near intersection of Stinson & Bardon Ave.	X			X	X
MW-19	South tank farm	X			X	X
MW-20	South tank farm	X			X	X
MW-21	South tank farm	X			X	X
MW-22	South tank farm	X			X	X

NOTES:

Water Level = Measure depth to water, twice a year, for groundwater elevation.

PVOC/Naphthalene = Sample, twice a year, for petroleum volatile organic compounds/naphthalene.

ERP = Wisconsin Department of Natural Resources (WDNR) Environmental Repair Program.

GEMS = WDNR Groundwater and Environmental Monitoring System.

SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN

TABLE 2

WATER LEVEL ELEVATION DATA FOR ERP WELLS AND PIEZOMETERS (2016-2019)

Description	Monitoring Well ID and Reference Information													
	MW-1	MW-1/T67	MW-2	MW-2/T66	PZ-2/T66	MW-3D	PZ-3D	MW-3/T50	MW-5/T40	MW-5/T70	MW-7	MW-8R	PZ-8R	MW-9B
Top of casing (ft MSL)	659.46	657.75	658.03	659.51	659.07	655.53	656.29	663.73	660.62	660.37	661.12	663.75	664.19	655.82
Ground surface (ft MSL)	655.43	656.41	654.99	657.01	656.30	653.79	653.49	659.96	658.03	657.86	659.59	661.45	661.38	654.38
Top of screen (ft MSL)	649.0	653.4	648.5	654.4	621.6	650.3	618.8	659.2	655.2	655.4	654.7	659.8	626.7	651.1
Bottom of well (ft MSL)	633.8	638.4	633.5	639.4	616.6	635.3	613.8	649.2	645.2	645.4	639.5	649.8	621.7	636.1
Measurement Date	Depth to Water from Top of Casing (feet)													
05/04/16	6.61	2.54	5.21	4.41	12.88	3.32	14.31	6.04	3.75	3.81	4.25	4.91	9.69	3.19
09/07/16	8.24	2.15	7.71	6.06	16.20	3.65	17.15	4.75	3.51	3.69	5.09	4.91	11.17	6.58
04/26/17	6.91	2.08	4.59	3.17	12.66	1.81	13.77	4.30	3.20	3.43	4.11	2.58	6.56	2.62
09/27/17	6.31	1.84	4.28	3.23	14.31	1.99	15.50	4.37	3.15	3.74	3.95	2.72	10.35	3.75
05/21/18	6.96	2.74	7.10	4.82	12.20	3.13	13.19	6.53	4.75	4.29	4.39	3.35	9.20	3.02
09/10/18	8.21	2.29	5.28	4.35	17.30	3.18	18.18	6.48	3.45	2.83	4.62	3.78	12.44	7.87
04/23/19	6.98	4.09	6.92	4.38	13.50	2.12	13.67	3.62	3.27	3.42	4.91	3.59	10.38	2.83
09/09/19	8.46	6.42	7.81	5.27	15.75	2.48	16.62	5.02	3.62	4.22	nm	5.06	10.46	7.68
	Water Elevation (ft MSL)													
05/04/16	652.85	655.21	652.82	655.10	646.19	652.21	641.98	657.69	656.87	656.56	656.87	658.84	654.50	652.63
09/07/16	651.22	655.60	650.32	653.45	642.87	651.88	639.14	658.98	657.11	656.68	656.03	658.84	653.02	649.24
04/26/17	652.55	655.67	653.44	656.34	646.41	653.72	642.52	659.43	657.42	656.94	657.01	661.17	657.63	653.20
09/27/17	653.15	655.91	653.75	656.28	644.76	653.54	640.79	659.36	657.47	656.63	657.17	661.03	653.84	652.07
05/21/18	652.50	655.01	650.93	654.69	646.87	652.40	643.10	657.20	655.87	656.08	656.73	660.40	654.99	652.80
09/10/18	651.25	655.46	652.75	655.16	641.77	652.35	638.11	657.25	657.17	657.54	656.50	659.97	651.75	647.95
04/23/19	652.48	653.66	651.11	655.13	645.57	653.41	642.62	660.11	657.35	656.95	656.21	660.16	653.81	652.99
09/09/19	651.00	651.33	650.22	654.24	643.32	653.05	639.67	658.71	657.00	656.15	nm	658.69	653.73	648.14
	Calculated Vertical Gradient													
05/04/16	--	--	--	--	(0.32)	--	(0.39)	--	--	--	--	--	(0.14)	--
09/07/16	--	--	--	--	(0.39)	--	(0.48)	--	--	--	--	--	(0.19)	--
04/26/17	--	--	--	--	(0.36)	--	(0.42)	--	--	--	--	--	(0.12)	--
09/27/17	--	--	--	--	(0.41)	--	(0.48)	--	--	--	--	--	(0.24)	--
05/21/18	--	--	--	--	(0.28)	--	(0.35)	--	--	--	--	--	(0.18)	--
09/10/18	--	--	--	--	(0.48)	--	(0.54)	--	--	--	--	--	(0.27)	--
04/23/19	--	--	--	--	(0.34)	--	(0.41)	--	--	--	--	--	(0.21)	--
09/09/19	--	--	--	--	(0.39)	--	(0.50)	--	--	--	--	--	(0.17)	--

TABLE 2

WATER LEVEL ELEVATION DATA FOR ERP WELLS AND PIEZOMETERS (2016-2019)

Description	Monitoring Well ID and Reference Information																
	MW-11	PZ-11	MW-12	MW-13	PZ-13	MW-14	MW-15	MW-16	PZ-16	MW-17	PZ-17	MW-18	MW-19	MW-20	MW-21	PZ-21	MW-22
Top of casing (ft MSL)	654.98	655.25	656.70	659.10	658.97	661.16	659.89	658.85	658.65	654.30	654.58	651.89	658.94	659.06	659.29	659.52	659.19
Ground surface (ft MSL)	652.44	652.61	653.92	656.08	656.13	658.14	657.55	655.86	655.79	651.47	651.79	649.36	656.85	655.99	656.73	656.72	657.07
Top of screen (ft MSL)	647.7	617.8	649.0	651.3	621.5	653.1	654.4	653.4	621.2	648.8	617.1	646.4	653.4	653.6	653.8	622.0	653.7
Bottom of well (ft MSL)	632.7	612.8	634.0	636.3	616.5	638.1	639.4	638.4	616.2	633.8	612.1	631.4	638.4	638.6	638.8	617.0	638.7
Measurement Date	Depth to Water from Top of Casing (feet)																
05/04/16	4.42	12.01	4.30	4.46	11.70	4.39	3.65	3.40	16.96	5.09	13.91	4.72	3.65	4.49	3.76	11.62	4.26
09/07/16	7.51	12.55	9.05	9.02	12.48	4.57	3.44	5.56	20.57	5.40	16.86	5.98	4.59	4.60	4.80	12.96	5.91
04/26/17	3.16	11.49	4.78	3.71	11.42	2.48	2.88	3.31	16.43	4.91	13.75	2.85	2.36	3.78	4.49	11.25	2.62
09/27/17	3.70	11.71	4.22	3.53	11.55	3.52	3.00	3.31	18.98	4.93	15.69	3.10	2.31	3.41	3.11	12.02	2.69
05/21/18	3.90	11.22	5.27	5.09	11.08	8.47	2.08	3.31	16.22	6.40	13.30	4.71	3.61	4.67	3.82	11.15	3.80
09/10/18	9.46	12.45	5.43	3.95	12.91	3.81	3.46	5.05	22.96	4.60	18.85	4.91	4.30	4.76	7.05	13.29	4.95
04/23/19	5.16	11.20	5.12	6.29	11.14	8.67	3.04	7.60	16.40	4.89	13.56	3.42	2.31	3.56	4.21	11.62	3.24
09/09/19	9.72	11.62	6.40	11.12	12.10	4.00	6.19	6.44	18.92	6.02	16.04	4.72	3.69	4.96	4.68	13.06	4.72
	Water Elevation (ft MSL)																
05/04/16	650.56	643.24	652.40	654.64	647.27	656.77	656.24	655.45	641.69	649.21	640.67	647.17	655.29	654.57	655.53	647.90	654.93
09/07/16	647.47	642.70	647.65	650.08	646.49	656.59	656.45	653.29	638.08	648.90	637.72	645.91	654.35	654.46	654.49	646.56	653.28
04/26/17	651.82	643.76	651.92	655.39	647.55	658.68	657.01	655.54	642.22	649.39	640.83	649.04	656.58	655.28	654.80	648.27	656.57
09/27/17	651.28	643.54	652.48	655.57	647.42	657.64	656.89	655.54	639.67	649.37	638.89	648.79	656.63	655.65	656.18	647.50	656.50
05/21/18	651.08	644.03	651.43	654.01	647.89	652.69	657.81	655.54	642.43	647.90	641.28	647.18	655.33	654.39	655.47	648.37	655.39
09/10/18	645.52	642.80	651.27	655.15	646.06	657.35	656.43	653.80	635.69	649.70	635.73	646.98	654.64	654.30	652.24	646.23	654.24
04/23/19	649.82	644.05	651.58	652.81	647.83	652.49	656.85	651.25	642.25	649.41	641.02	648.47	656.63	655.50	655.08	647.90	655.95
09/09/19	645.26	643.63	650.30	647.98	646.87	657.16	653.70	652.41	639.73	648.28	638.54	647.17	655.25	654.10	654.61	646.46	654.47
	Calculated Vertical Gradient																
05/04/16	--	(0.29)	--	--	(0.30)	--	--	--	(0.51)	--	(0.32)	--	--	--	--	(0.29)	--
09/07/16	--	(0.19)	--	--	(0.15)	--	--	--	(0.56)	--	(0.42)	--	--	--	--	(0.30)	--
04/26/17	--	(0.32)	--	--	(0.32)	--	--	--	(0.49)	--	(0.32)	--	--	--	--	(0.24)	--
09/27/17	--	(0.31)	--	--	(0.33)	--	--	--	(0.58)	--	(0.39)	--	--	--	--	(0.32)	--
05/21/18	--	(0.28)	--	--	(0.25)	--	--	--	(0.48)	--	(0.25)	--	--	--	--	(0.27)	--
09/10/18	--	(0.11)	--	--	(0.37)	--	--	--	(0.67)	--	(0.52)	--	--	--	--	(0.23)	--
04/23/19	--	(0.23)	--	--	(0.20)	--	--	--	(0.34)	--	(0.31)	--	--	--	--	(0.27)	--
09/09/19	--	(0.07)	--	--	(0.05)	--	--	--	(0.47)	--	(0.37)	--	--	--	--	(0.30)	--

NOTES:

Site datum = NAVD 88 feet above mean sea level (ft MSL). No measurable thickness of free product observed in any of the monitoring wells.

Negative/downward calculated vertical gradients are enclosed in parenthesis and (red).

-- = Not applicable.

SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN

TABLE 3

PVOC/NAPHTHALENE DATA FOR ERP PIEZOMETERS AND PERIMETER WELLS (2019)

Sample ID	Substance Concentration (µg/l) and Results Qualifier (if any)								
Sample Date	Benzene	Ethylbenzene	Methyl tert butyl ether	Naphthalene	Toluene	Trimethylbenzenes	Xylenes		
NR 140 PAL	0.5	140	12	10	160	96	400		
NR 140 ES	5.0	700	60	100	800	480	RQ	2,000	RQ
MW-1 (ERP and GEMS)									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.25	<0.22	<1.2	<1.2	<0.17	1.71	U	0.73	U
MW-2 (ERP and GEMS)									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.25	<0.22	<1.2	<1.2	<0.17	1.71	U	0.73	U
PZ-2/T66									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-3D (ERP and GEMS) ⁽¹⁾									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.25	<0.22	<1.2	<1.2	<0.17	1.71	U	0.73	U
PZ-3D									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-7									
2019	Well not sampled due to bent casing and suspect surface water infiltration								
MW-8R (ERP and GEMS)									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.25	<0.22	<1.2	<1.2	<0.17	1.71	U	0.73	U
PZ-8R									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-9B (ERP and GEMS) ⁽²⁾									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.25	<0.22	<1.2	<1.2	<0.17	1.71	U	0.73	U
MW-11									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
PZ-11									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-12									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-13									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
PZ-13									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-14									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-15									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U

TABLE 3

PVOC/NAPHTHALENE DATA FOR ERP PIEZOMETERS AND PERIMETER WELLS (2019)

Sample ID	Substance Concentration ($\mu\text{g}/\ell$) and Results Qualifier (if any)								
Sample Date	Benzene	Ethylbenzene	Methyl tert butyl ether	Naphthalene	Toluene	Trimethylbenzenes	Xylenes		
NR 140 PAL	0.5	140	12	10	160	96	400		
NR 140 ES	5.0	700	60	100	800	480	RQ	2,000	RQ
MW-16									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
PZ-16									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-17									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
PZ-17									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-18									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-19									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-20									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-21									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
PZ-21									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U
MW-22									
05/20/19	<0.31	<0.33	<0.32	<0.51	<0.49	0.67	U	0.98	U
10/08/19	<0.31	<0.33	<0.32	<0.51	<0.16	0.67	U	0.47	U

NOTES:

Concentrations are in micrograms per liter ($\mu\text{g}/\ell$). No results are at or above an NR 140 ES or PAL.

NR 140 ES = Wisconsin Administrative Code NR 140 Enforcement Standard.

NR 140 PAL = Wisconsin Administrative Code NR 140 Preventative Action Limit.

RQ = Results qualifier.

U = Compound not detected at or above the detection limit, which is the value shown.

FOOTNOTES:

(1) MW-3D is a replacement for MW-3B.

(2) MW-9B is a replacement for MW-9.

ATTACHMENT A

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

May 24, 2019

Project #34265.003
SRC ERP GW
Reviewed by CCW
5/24/19

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

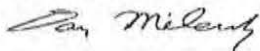
RE: Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on May 21, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40187985001	MW-1	Water	05/20/19 11:00	05/21/19 08:37
40187985002	MW-2	Water	05/20/19 11:30	05/21/19 08:37
40187985003	PZ-2/T66	Water	05/20/19 12:25	05/21/19 08:37
40187985004	MW-3D	Water	05/20/19 11:45	05/21/19 08:37
40187985005	PZ-3D	Water	05/20/19 11:40	05/21/19 08:37
40187985006	MW-8R	Water	05/20/19 10:30	05/21/19 08:37
40187985007	PZ-8R	Water	05/20/19 10:35	05/21/19 08:37
40187985008	MW-9B	Water	05/20/19 11:55	05/21/19 08:37
40187985009	MW-11	Water	05/20/19 14:45	05/21/19 08:37
40187985010	PZ-11	Water	05/20/19 14:50	05/21/19 08:37
40187985011	MW-12	Water	05/20/19 14:40	05/21/19 08:37
40187985012	MW-13	Water	05/20/19 14:30	05/21/19 08:37
40187985013	PZ-13	Water	05/20/19 14:25	05/21/19 08:37
40187985014	MW-14	Water	05/20/19 14:15	05/21/19 08:37
40187985015	MW-15	Water	05/20/19 10:50	05/21/19 08:37
40187985016	MW-16	Water	05/20/19 11:20	05/21/19 08:37
40187985017	PZ-16	Water	05/20/19 11:15	05/21/19 08:37
40187985018	MW-17	Water	05/20/19 12:10	05/21/19 08:37
40187985019	PZ-17	Water	05/20/19 12:05	05/21/19 08:37
40187985020	MW-18	Water	05/20/19 12:15	05/21/19 08:37
40187985021	MW-19	Water	05/20/19 15:05	05/21/19 08:37
40187985022	MW-20	Water	05/20/19 15:30	05/21/19 08:37
40187985023	MW-21	Water	05/20/19 15:25	05/21/19 08:37
40187985024	PZ-21	Water	05/20/19 15:20	05/21/19 08:37
40187985025	MW-22	Water	05/20/19 15:10	05/21/19 08:37
40187985026	TRIP BLANK	Water	05/20/19 00:00	05/21/19 08:37

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SAMPLE ANALYTE COUNT

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40187985001	MW-1	EPA 8021	ALD	10	PASI-G
40187985002	MW-2	EPA 8021	ALD	10	PASI-G
40187985003	PZ-2/T66	EPA 8021	ALD	10	PASI-G
40187985004	MW-3D	EPA 8021	ALD	10	PASI-G
40187985005	PZ-3D	EPA 8021	ALD	10	PASI-G
40187985006	MW-8R	EPA 8021	ALD	10	PASI-G
40187985007	PZ-8R	EPA 8021	ALD	10	PASI-G
40187985008	MW-9B	EPA 8021	ALD	10	PASI-G
40187985009	MW-11	EPA 8021	ALD	10	PASI-G
40187985010	PZ-11	EPA 8021	ALD	10	PASI-G
40187985011	MW-12	EPA 8021	ALD	10	PASI-G
40187985012	MW-13	EPA 8021	ALD	10	PASI-G
40187985013	PZ-13	EPA 8021	ALD	10	PASI-G
40187985014	MW-14	EPA 8021	ALD	10	PASI-G
40187985015	MW-15	EPA 8021	ALD	10	PASI-G
40187985016	MW-16	EPA 8021	ALD	10	PASI-G
40187985017	PZ-16	EPA 8021	ALD	10	PASI-G
40187985018	MW-17	EPA 8021	ALD	10	PASI-G
40187985019	PZ-17	EPA 8021	ALD	10	PASI-G
40187985020	MW-18	EPA 8021	ALD	10	PASI-G
40187985021	MW-19	EPA 8021	ALD	10	PASI-G
40187985022	MW-20	EPA 8021	ALD	10	PASI-G
40187985023	MW-21	EPA 8021	ALD	10	PASI-G
40187985024	PZ-21	EPA 8021	ALD	10	PASI-G
40187985025	MW-22	EPA 8021	ALD	10	PASI-G
40187985026	TRIP BLANK	EPA 8021	ALD	10	PASI-G

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PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Method: EPA 8021
Description: 8021 GCV Short List
Client: Gannett Fleming Inc.
Date: May 24, 2019

General Information:

26 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:

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.: 40187985

Sample: MW-1 Lab ID: 40187985001 Collected: 05/20/19 11:00 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 18:44	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 18:44	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 18:44	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 18:44	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 18:44	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 18:44	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 18:44	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 18:44	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 18:44	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 18:44	98-08-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-2 Lab ID: 40187985002 Collected: 05/20/19 11:30 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 19:10	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 19:10	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 19:10	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 19:10	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 19:10	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 19:10	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 19:10	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 19:10	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 19:10	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 19:10	98-08-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: PZ-2/T66 Lab ID: 40187985003 Collected: 05/20/19 12:25 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 19:35	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 19:35	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 19:35	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 19:35	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 19:35	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 19:35	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 19:35	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 19:35	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 19:35	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		05/22/19 19:35	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-3D Lab ID: 40187985004 Collected: 05/20/19 11:45 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 20:01	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:01	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 20:01	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 20:01	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 20:01	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 20:01	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:01	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 20:01	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 20:01	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 20:01	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-3D Lab ID: 40187985005 Collected: 05/20/19 11:40 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 20:26	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:26	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 20:26	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 20:26	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 20:26	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 20:26	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:26	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 20:26	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 20:26	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 20:26	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-8R Lab ID: 40187985006 Collected: 05/20/19 10:30 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 20:52	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:52	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 20:52	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 20:52	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 20:52	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 20:52	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 20:52	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 20:52	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 20:52	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		05/22/19 20:52	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-8R Lab ID: 40187985007 Collected: 05/20/19 10:35 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 21:18	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 21:18	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 21:18	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 21:18	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 21:18	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 21:18	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 21:18	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 21:18	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 21:18	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 21:18	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-9B Lab ID: 40187985008 Collected: 05/20/19 11:55 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/22/19 21:43	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 21:43	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/22/19 21:43	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/22/19 21:43	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/22/19 21:43	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/22/19 21:43	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/22/19 21:43	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/22/19 21:43	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/22/19 21:43	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/22/19 21:43	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-11 Lab ID: 40187985009 Collected: 05/20/19 14:45 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 11:52	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 11:52	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 11:52	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 11:52	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 11:52	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 11:52	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 11:52	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 11:52	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 11:52	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 11:52	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: PZ-11 Lab ID: 40187985010 Collected: 05/20/19 14:50 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 12:18	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 12:18	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 12:18	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 12:18	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 12:18	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 12:18	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 12:18	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 12:18	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 12:18	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 12:18	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-12 Lab ID: 40187985011 Collected: 05/20/19 14:40 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 12:43	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 12:43	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 12:43	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 12:43	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 12:43	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 12:43	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 12:43	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 12:43	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 12:43	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 12:43	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-13 Lab ID: 40187985012 Collected: 05/20/19 14:30 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 13:09	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 13:09	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 13:09	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 13:09	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 13:09	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 13:09	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 13:09	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 13:09	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 13:09	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	103	%	85-115		1		05/23/19 13:09	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-13 Lab ID: 40187985013 Collected: 05/20/19 14:25 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 13:35	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 13:35	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 13:35	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 13:35	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 13:35	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 13:35	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 13:35	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 13:35	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 13:35	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 13:35	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-14 Lab ID: 40187985014 Collected: 05/20/19 14:15 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 14:00	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:00	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 14:00	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 14:00	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 14:00	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 14:00	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:00	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 14:00	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 14:00	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		05/23/19 14:00	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-15 Lab ID: 40187985015 Collected: 05/20/19 10:50 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 14:26	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:26	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 14:26	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 14:26	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 14:26	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 14:26	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:26	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 14:26	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 14:26	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 14:26	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-16 Lab ID: 40187985016 Collected: 05/20/19 11:20 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 14:51	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:51	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 14:51	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 14:51	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 14:51	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 14:51	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 14:51	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 14:51	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 14:51	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		05/23/19 14:51	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-16 Lab ID: 40187985017 Collected: 05/20/19 11:15 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 15:17	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 15:17	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 15:17	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 15:17	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 15:17	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 15:17	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 15:17	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 15:17	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 15:17	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 15:17	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-17 Lab ID: 40187985018 Collected: 05/20/19 12:10 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 15:42	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 15:42	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 15:42	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 15:42	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 15:42	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 15:42	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 15:42	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 15:42	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 15:42	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 15:42	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-17 Lab ID: 40187985019 Collected: 05/20/19 12:05 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 16:59	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 16:59	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 16:59	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 16:59	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 16:59	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 16:59	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 16:59	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 16:59	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 16:59	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 16:59	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-18 Lab ID: 40187985020 Collected: 05/20/19 12:15 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 17:25	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 17:25	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 17:25	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 17:25	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 17:25	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 17:25	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 17:25	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 17:25	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 17:25	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 17:25	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-19 Lab ID: 40187985021 Collected: 05/20/19 15:05 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 17:51	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 17:51	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 17:51	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 17:51	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 17:51	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 17:51	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 17:51	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 17:51	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 17:51	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 17:51	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

Sample: MW-20 Lab ID: 40187985022 Collected: 05/20/19 15:30 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 18:16	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 18:16	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 18:16	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 18:16	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 18:16	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 18:16	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 18:16	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 18:16	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 18:16	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 18:16	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-21 Lab ID: 40187985023 Collected: 05/20/19 15:25 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 18:42	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 18:42	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 18:42	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 18:42	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 18:42	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 18:42	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 18:42	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 18:42	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 18:42	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		05/23/19 18:42	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: PZ-21 Lab ID: 40187985024 Collected: 05/20/19 15:20 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 19:07	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:07	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 19:07	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 19:07	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 19:07	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 19:07	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:07	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 19:07	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 19:07	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 19:07	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: MW-22 Lab ID: 40187985025 Collected: 05/20/19 15:10 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 19:33	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:33	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 19:33	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 19:33	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 19:33	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 19:33	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:33	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 19:33	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 19:33	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/23/19 19:33	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Sample: TRIP BLANK Lab ID: 40187985026 Collected: 05/20/19 00:00 Received: 05/21/19 08:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		05/23/19 19:58	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:58	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		05/23/19 19:58	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		05/23/19 19:58	91-20-3	
Toluene	<0.49	ug/L	1.6	0.49	1		05/23/19 19:58	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		05/23/19 19:58	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		05/23/19 19:58	108-67-8	
m&p-Xylene	<0.66	ug/L	2.2	0.66	1		05/23/19 19:58	179601-23-1	
o-Xylene	<0.32	ug/L	1.0	0.32	1		05/23/19 19:58	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	85-115		1		05/23/19 19:58	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40187985

QC Batch: 322026 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40187985001, 40187985002, 40187985003, 40187985004, 40187985005, 40187985006, 40187985007, 40187985008

METHOD BLANK: 1870034 Matrix: Water
Associated Lab Samples: 40187985001, 40187985002, 40187985003, 40187985004, 40187985005, 40187985006, 40187985007, 40187985008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	05/22/19 10:20	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	05/22/19 10:20	
Benzene	ug/L	<0.31	1.0	05/22/19 10:20	
Ethylbenzene	ug/L	<0.33	1.1	05/22/19 10:20	
m&p-Xylene	ug/L	<0.66	2.2	05/22/19 10:20	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	05/22/19 10:20	
Naphthalene	ug/L	<0.51	1.7	05/22/19 10:20	
o-Xylene	ug/L	<0.32	1.0	05/22/19 10:20	
Toluene	ug/L	<0.49	1.6	05/22/19 10:20	
a,a,a-Trifluorotoluene (S)	%	101	85-115	05/22/19 10:20	

LABORATORY CONTROL SAMPLE & LCSD: 1870035

1870036

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	21.7	20.2	108	101	87-118	7	20	
1,3,5-Trimethylbenzene	ug/L	20	21.5	20.1	107	100	84-115	7	20	
Benzene	ug/L	20	21.8	21.0	109	105	85-115	4	20	
Ethylbenzene	ug/L	20	21.9	20.5	109	103	85-115	6	20	
m&p-Xylene	ug/L	40	44.0	41.1	110	103	85-115	7	20	
Methyl-tert-butyl ether	ug/L	20	21.6	20.3	108	102	85-115	6	20	
Naphthalene	ug/L	20	21.2	20.3	106	102	83-119	4	20	
o-Xylene	ug/L	20	21.6	20.2	108	101	85-115	7	20	
Toluene	ug/L	20	21.9	20.8	109	104	85-115	5	20	
a,a,a-Trifluorotoluene (S)	%				102	100	85-115			

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.

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

QC Batch: 322193 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40187985009, 40187985010, 40187985011, 40187985012, 40187985013, 40187985014, 40187985015, 40187985016, 40187985017, 40187985018, 40187985019, 40187985020, 40187985021, 40187985022, 40187985023, 40187985024, 40187985025, 40187985026

METHOD BLANK: 1870815 Matrix: Water
Associated Lab Samples: 40187985009, 40187985010, 40187985011, 40187985012, 40187985013, 40187985014, 40187985015, 40187985016, 40187985017, 40187985018, 40187985019, 40187985020, 40187985021, 40187985022, 40187985023, 40187985024, 40187985025, 40187985026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	05/23/19 10:10	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	05/23/19 10:10	
Benzene	ug/L	<0.31	1.0	05/23/19 10:10	
Ethylbenzene	ug/L	<0.33	1.1	05/23/19 10:10	
m&p-Xylene	ug/L	<0.66	2.2	05/23/19 10:10	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	05/23/19 10:10	
Naphthalene	ug/L	<0.51	1.7	05/23/19 10:10	
o-Xylene	ug/L	<0.32	1.0	05/23/19 10:10	
Toluene	ug/L	<0.49	1.6	05/23/19 10:10	
a,a,a-Trifluorotoluene (S)	%	102	85-115	05/23/19 10:10	

Parameter	Units	LABORATORY CONTROL SAMPLE & LCSD: 1870816 1870817									
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
1,2,4-Trimethylbenzene	ug/L	20	19.9	20.2	100	101	87-118	1	20		
1,3,5-Trimethylbenzene	ug/L	20	19.9	20.2	100	101	84-115	1	20		
Benzene	ug/L	20	21.0	21.3	105	107	85-115	2	20		
Ethylbenzene	ug/L	20	20.4	20.7	102	103	85-115	1	20		
m&p-Xylene	ug/L	40	40.9	41.4	102	103	85-115	1	20		
Methyl-tert-butyl ether	ug/L	20	19.7	20.1	98	101	85-115	2	20		
Naphthalene	ug/L	20	18.4	19.6	92	98	83-119	6	20		
o-Xylene	ug/L	20	20.2	20.5	101	102	85-115	1	20		
Toluene	ug/L	20	20.8	21.1	104	106	85-115	2	20		
a,a,a-Trifluorotoluene (S)	%				101	101	85-115				

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1871407 1871408											
		MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40187985009 Result	Spike Conc.	Spike Conc.	MSD Conc.								
1,2,4-Trimethylbenzene	ug/L	<0.34	20	20	21.9	22.7	110	113	72-135	3	20		
1,3,5-Trimethylbenzene	ug/L	<0.33	20	20	21.9	22.5	110	112	67-134	3	20		
Benzene	ug/L	<0.31	20	20	22.4	23.0	112	115	85-122	3	20		
Ethylbenzene	ug/L	<0.33	20	20	22.5	23.0	113	115	85-129	2	20		
m&p-Xylene	ug/L	<0.66	40	40	45.1	46.3	113	116	85-124	2	20		
Methyl-tert-butyl ether	ug/L	<0.32	20	20	20.8	21.8	104	109	85-118	5	20		

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1871407			1871408			MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40187985009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Naphthalene	ug/L	<0.51	20	20	20.0	22.1	100	111	78-132	10	20		
o-Xylene	ug/L	<0.32	20	20	22.1	22.7	111	114	85-124	3	20		
Toluene	ug/L	<0.49	20	20	22.6	23.2	113	116	85-122	2	20		
a,a,a-Trifluorotoluene (S)	%						102	102	85-115				

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.: 40187985

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above LOD.
J - Estimated concentration at or above the LOD and below the LOQ.
LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.
LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40187985

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40187985001	MW-1	EPA 8021	322026		
40187985002	MW-2	EPA 8021	322026		
40187985003	PZ-2/T66	EPA 8021	322026		
40187985004	MW-3D	EPA 8021	322026		
40187985005	PZ-3D	EPA 8021	322026		
40187985006	MW-8R	EPA 8021	322026		
40187985007	PZ-8R	EPA 8021	322026		
40187985008	MW-9B	EPA 8021	322026		
40187985009	MW-11	EPA 8021	322193		
40187985010	PZ-11	EPA 8021	322193		
40187985011	MW-12	EPA 8021	322193		
40187985012	MW-13	EPA 8021	322193		
40187985013	PZ-13	EPA 8021	322193		
40187985014	MW-14	EPA 8021	322193		
40187985015	MW-15	EPA 8021	322193		
40187985016	MW-16	EPA 8021	322193		
40187985017	PZ-16	EPA 8021	322193		
40187985018	MW-17	EPA 8021	322193		
40187985019	PZ-17	EPA 8021	322193		
40187985020	MW-18	EPA 8021	322193		
40187985021	MW-19	EPA 8021	322193		
40187985022	MW-20	EPA 8021	322193		
40187985023	MW-21	EPA 8021	322193		
40187985024	PZ-21	EPA 8021	322193		
40187985025	MW-22	EPA 8021	322193		
40187985026	TRIP BLANK	EPA 8021	322193		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

UPPER MIDWEST REGION

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



COC No. 40187985

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:

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	Pick Letter	Analyses Requested
N	B	3021 120 PVOCS / Naph
		3
		2

Quote #: Pace 2019
 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	
014	MW-14	5/20	14:15	GW
015	MW-15		10:50	
016	MW-16		11:20	
017	PZ-16		11:15	
018	MW-17		12:10	
019	PZ-17		12:05	
020	MW-18		12:15	
021	MW-19		15:05	
022	MW-20		15:30	
023	MW-21		15:25	
024	PZ-21		15:20	
025	MW-22		15:10	
026	Trip Blank			

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)
 Date Needed:
 Relinquished By: Marcus Mussey Date/Time: 5/20/19 17:00
 Received By: Gina Postal Date/Time:
 Transmit Prelim Rush Results by (complete what you want):
 Relinquished By: Ted G Date/Time: 5/21/19 0835
 Received By: Susan Miller Date/Time: 5/21/19 0852
 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:
 PACE Project No. 40187985
 Receipt Temp = 2 °C
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present Intact / Not Intact

Sample Preservation Receipt Form

Client Name: Garrett Fleming Project # 60187985

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 ≤	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤	pH after adjusted	Volume (mL)				
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T	ZPLC								GN			
001																																				2.5 / 5 / 10
002																																				2.5 / 5 / 10
003																																				2.5 / 5 / 10
004																																				2.5 / 5 / 10
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020																																				2.5 / 5 / 10

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

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic HNO3	DG9T	40 mL amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			GN:	

Client Name: Garrett Fleming Sample Preservation Receipt Form
 Project #: 60187985

Pace Lab #	Glass							Plastic						Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)					
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T								ZPLC	GN			
021																	3																			2.5 / 5 / 10
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0 3/21/19 SKN																																				2.5 / 5 / 10
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 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Gannett Fleming Project #:

WO#: 40187985

Courier: CS Logistics Fed Ex Speedee UPS Waltec
 Client Pace Other: _____



Tracking #: 81469026 7785

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

Cooler Temperature Uncorr: 1.5 ICorr: 2

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

Person examining contents:
 Date: 5-21-19
 Initials: [Signature]

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

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input 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: <u>stuffed</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>015 - 1 vial IQ NW - packaged with others</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>		<u>5-21-19</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 type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>4231</u>		

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

Project Manager Review: Rup for pm Date: 05/21/19

October 15, 2019

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

Project #34256.003
SRC Oct 2019
Reviewed by CCW
10/15/19

RE: Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40196877001	PZ-2/T66	Water	10/08/19 14:30	10/09/19 09:10
40196877002	PZ-3D	Water	10/08/19 11:35	10/09/19 09:10
40196877003	PZ-8R	Water	10/08/19 10:50	10/09/19 09:10
40196877004	MW-11	Water	10/08/19 09:35	10/09/19 09:10
40196877005	PZ-11	Water	10/08/19 09:40	10/09/19 09:10
40196877006	MW-12	Water	10/08/19 09:20	10/09/19 09:10
40196877007	MW-13	Water	10/08/19 09:10	10/09/19 09:10
40196877008	PZ-13	Water	10/08/19 09:15	10/09/19 09:10
40196877009	MW-14	Water	10/08/19 09:00	10/09/19 09:10
40196877010	MW-15	Water	10/08/19 13:40	10/09/19 09:10
40196877011	MW-16	Water	10/08/19 13:50	10/09/19 09:10
40196877012	MW-17	Water	10/08/19 14:10	10/09/19 09:10
40196877013	MW-18	Water	10/08/19 14:25	10/09/19 09:10
40196877014	MW-19	Water	10/08/19 09:45	10/09/19 09:10
40196877015	MW-20	Water	10/08/19 10:20	10/09/19 09:10
40196877016	MW-21	Water	10/08/19 10:10	10/09/19 09:10
40196877017	PZ-21	Water	10/08/19 10:15	10/09/19 09:10
40196877018	MW-1/CW	Water	10/08/19 08:20	10/09/19 09:10
40196877019	MW-2/CW	Water	10/08/19 08:15	10/09/19 09:10
40196877020	MW-3/CW	Water	10/08/19 08:25	10/09/19 09:10
40196877021	MW-4/CW	Water	10/08/19 08:10	10/09/19 09:10
40196877022	TRIP BLANK	Water	10/08/19 00:00	10/09/19 09:10
40196877023	PZ-16	Water	10/08/19 13:55	10/09/19 09:10
40196877024	PZ-17	Water	10/08/19 14:15	10/09/19 09:10
40196877025	MW-22	Water	10/08/19 10:00	10/09/19 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40196877001	PZ-2/T66	EPA 8021	ALD	10	PASI-G
40196877002	PZ-3D	EPA 8021	ALD	10	PASI-G
40196877003	PZ-8R	EPA 8021	ALD	10	PASI-G
40196877004	MW-11	EPA 8021	ALD	10	PASI-G
40196877005	PZ-11	EPA 8021	ALD	10	PASI-G
40196877006	MW-12	EPA 8021	ALD	10	PASI-G
40196877007	MW-13	EPA 8021	ALD	10	PASI-G
40196877008	PZ-13	EPA 8021	ALD	10	PASI-G
40196877009	MW-14	EPA 8021	ALD	10	PASI-G
40196877010	MW-15	EPA 8021	ALD	10	PASI-G
40196877011	MW-16	EPA 8021	ALD	10	PASI-G
40196877012	MW-17	EPA 8021	ALD	10	PASI-G
40196877013	MW-18	EPA 8021	ALD	10	PASI-G
40196877014	MW-19	EPA 8021	ALD	10	PASI-G
40196877015	MW-20	EPA 8021	ALD	10	PASI-G
40196877016	MW-21	EPA 8021	ALD	10	PASI-G
40196877017	PZ-21	EPA 8021	ALD	10	PASI-G
40196877018	MW-1/CW	EPA 8260	HNW	12	PASI-G
40196877019	MW-2/CW	EPA 8260	HNW	12	PASI-G
40196877020	MW-3/CW	EPA 8260	HNW	12	PASI-G
40196877021	MW-4/CW	EPA 8260	HNW	12	PASI-G
40196877022	TRIP BLANK	EPA 8021	ALD	10	PASI-G
40196877023	PZ-16	EPA 8021	ALD	10	PASI-G
40196877024	PZ-17	EPA 8021	ALD	10	PASI-G
40196877025	MW-22	EPA 8021	ALD	10	PASI-G

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SUMMARY OF DETECTION

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40196877020	MW-3/CW					
EPA 8260	1,2,4-Trimethylbenzene	802	ug/L	140	10/11/19 01:12	
EPA 8260	1,3,5-Trimethylbenzene	167	ug/L	146	10/11/19 01:12	
EPA 8260	Benzene	4140	ug/L	50.0	10/11/19 01:12	
EPA 8260	Ethylbenzene	1060	ug/L	50.0	10/11/19 01:12	
EPA 8260	Naphthalene	83.7J	ug/L	250	10/11/19 01:12	
EPA 8260	Toluene	85.9J	ug/L	250	10/11/19 01:12	
EPA 8260	m&p-Xylene	1850	ug/L	100	10/11/19 01:12	
EPA 8260	o-Xylene	176	ug/L	50.0	10/11/19 01:12	
40196877021	MW-4/CW					
EPA 8260	1,2,4-Trimethylbenzene	1.6J	ug/L	2.8	10/11/19 02:16	
EPA 8260	1,3,5-Trimethylbenzene	11.9	ug/L	2.9	10/11/19 02:16	
EPA 8260	Benzene	96.2	ug/L	1.0	10/11/19 02:16	
EPA 8260	Ethylbenzene	0.52J	ug/L	1.0	10/11/19 02:16	
EPA 8260	Toluene	0.97J	ug/L	5.0	10/11/19 02:16	
EPA 8260	m&p-Xylene	19.0	ug/L	2.0	10/11/19 02:16	
EPA 8260	o-Xylene	11.2	ug/L	1.0	10/11/19 02:16	

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PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Method: EPA 8021
Description: 8021 GCV Short List
Client: Gannett Fleming Inc.
Date: October 15, 2019

General Information:

21 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:

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PROJECT NARRATIVE

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Method: EPA 8260
Description: 8260 MSV UST
Client: Gannett Fleming Inc.
Date: October 15, 2019

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

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

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: PZ-2/T66 Lab ID: 40196877001 Collected: 10/08/19 14:30 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 12:45	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 12:45	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 12:45	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 12:45	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 12:45	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 12:45	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 12:45	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 12:45	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 12:45	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 12:45	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: PZ-3D Lab ID: 40196877002 Collected: 10/08/19 11:35 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 13:11	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 13:11	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 13:11	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 13:11	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 13:11	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 13:11	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 13:11	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 13:11	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 13:11	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 13:11	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: PZ-8R Lab ID: 40196877003 Collected: 10/08/19 10:50 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 13:37	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 13:37	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 13:37	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 13:37	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 13:37	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 13:37	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 13:37	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 13:37	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 13:37	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	85-115		1		10/11/19 13:37	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-11 Lab ID: 40196877004 Collected: 10/08/19 09:35 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 14:02	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:02	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 14:02	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 14:02	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 14:02	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 14:02	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:02	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 14:02	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 14:02	95-47-6	
Surrogates									
a.a.a-Trifluorotoluene (S)	96	%	85-115		1		10/11/19 14:02	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: PZ-11 Lab ID: 40196877005 Collected: 10/08/19 09:40 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 14:28	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:28	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 14:28	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 14:28	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 14:28	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 14:28	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:28	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 14:28	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 14:28	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 14:28	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-12 Lab ID: 40196877006 Collected: 10/08/19 09:20 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 14:53	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:53	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 14:53	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 14:53	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 14:53	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 14:53	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 14:53	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 14:53	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 14:53	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 14:53	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-13 Lab ID: 40196877007 Collected: 10/08/19 09:10 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 15:19	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 15:19	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 15:19	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 15:19	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 15:19	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 15:19	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 15:19	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 15:19	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 15:19	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 15:19	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: PZ-13 Lab ID: 40196877008 Collected: 10/08/19 09:15 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 15:44	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 15:44	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 15:44	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 15:44	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 15:44	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 15:44	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 15:44	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 15:44	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 15:44	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 15:44	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-14 Lab ID: 40196877009 Collected: 10/08/19 09:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 16:10	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 16:10	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 16:10	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 16:10	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 16:10	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 16:10	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 16:10	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 16:10	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 16:10	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 16:10	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-15 Lab ID: 40196877010 Collected: 10/08/19 13:40 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 17:52	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 17:52	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 17:52	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 17:52	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 17:52	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 17:52	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 17:52	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 17:52	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 17:52	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	85-115		1		10/11/19 17:52	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-16 Lab ID: 40196877011 Collected: 10/08/19 13:50 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 18:17	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 18:17	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 18:17	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 18:17	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 18:17	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 18:17	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 18:17	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 18:17	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 18:17	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	85-115		1		10/11/19 18:17	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: MW-17 Lab ID: 40196877012 Collected: 10/08/19 14:10 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 18:43	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 18:43	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 18:43	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 18:43	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 18:43	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 18:43	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 18:43	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 18:43	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 18:43	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 18:43	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: MW-18 Lab ID: 40196877013 Collected: 10/08/19 14:25 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 19:08	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:08	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 19:08	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 19:08	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 19:08	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 19:08	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:08	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 19:08	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 19:08	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 19:08	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: MW-19 Lab ID: 40196877014 Collected: 10/08/19 09:45 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 19:34	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:34	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 19:34	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 19:34	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 19:34	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 19:34	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:34	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 19:34	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 19:34	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 19:34	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-20 Lab ID: 40196877015 Collected: 10/08/19 10:20 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 19:59	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:59	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 19:59	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 19:59	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 19:59	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 19:59	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 19:59	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 19:59	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 19:59	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	85-115		1		10/11/19 19:59	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: MW-21 Lab ID: 40196877016 Collected: 10/08/19 10:10 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 20:25	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 20:25	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 20:25	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 20:25	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 20:25	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 20:25	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 20:25	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 20:25	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 20:25	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 20:25	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: PZ-21 Lab ID: 40196877017 Collected: 10/08/19 10:15 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 20:50	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 20:50	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 20:50	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 20:50	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 20:50	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 20:50	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 20:50	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 20:50	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 20:50	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98	%	85-115		1		10/11/19 20:50	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: TRIP BLANK Lab ID: 40196877022 Collected: 10/08/19 00:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 16:35	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 16:35	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 16:35	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 16:35	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 16:35	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 16:35	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 16:35	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 16:35	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 16:35	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 16:35	98-08-8	HS

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: PZ-16 Lab ID: 40196877023 Collected: 10/08/19 13:55 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List	Analytical Method: EPA 8021								
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 21:16	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 21:16	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 21:16	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 21:16	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 21:16	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 21:16	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 21:16	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 21:16	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 21:16	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 21:16	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Sample: PZ-17 Lab ID: 40196877024 Collected: 10/08/19 14:15 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 21:42	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 21:42	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 21:42	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 21:42	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 21:42	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 21:42	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 21:42	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 21:42	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 21:42	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	97	%	85-115		1		10/11/19 21:42	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

Sample: MW-22 Lab ID: 40196877025 Collected: 10/08/19 10:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.31	ug/L	1.0	0.31	1		10/11/19 11:13	71-43-2	
Ethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 11:13	100-41-4	
Methyl-tert-butyl ether	<0.32	ug/L	1.1	0.32	1		10/11/19 11:13	1634-04-4	
Naphthalene	<0.51	ug/L	1.7	0.51	1		10/11/19 11:13	91-20-3	
Toluene	<0.16	ug/L	1.0	0.16	1		10/11/19 11:13	108-88-3	
1,2,4-Trimethylbenzene	<0.34	ug/L	1.1	0.34	1		10/11/19 11:13	95-63-6	
1,3,5-Trimethylbenzene	<0.33	ug/L	1.1	0.33	1		10/11/19 11:13	108-67-8	
m&p-Xylene	<0.32	ug/L	2.0	0.32	1		10/11/19 11:13	179601-23-1	
o-Xylene	<0.15	ug/L	1.0	0.15	1		10/11/19 11:13	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	99	%	85-115		1		10/11/19 11:13	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

QC Batch: 337099 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40196877001, 40196877002, 40196877003, 40196877004, 40196877005, 40196877006, 40196877007, 40196877008, 40196877009, 40196877010, 40196877011, 40196877012, 40196877013, 40196877014, 40196877015, 40196877016, 40196877017, 40196877022, 40196877023, 40196877024

METHOD BLANK: 1957929 Matrix: Water
Associated Lab Samples: 40196877001, 40196877002, 40196877003, 40196877004, 40196877005, 40196877006, 40196877007, 40196877008, 40196877009, 40196877010, 40196877011, 40196877012, 40196877013, 40196877014, 40196877015, 40196877016, 40196877017, 40196877022, 40196877023, 40196877024

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	10/11/19 09:38	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	10/11/19 09:38	
Benzene	ug/L	<0.31	1.0	10/11/19 09:38	
Ethylbenzene	ug/L	<0.33	1.1	10/11/19 09:38	
m&p-Xylene	ug/L	<0.32	2.0	10/11/19 09:38	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	10/11/19 09:38	
Naphthalene	ug/L	<0.51	1.7	10/11/19 09:38	
o-Xylene	ug/L	<0.15	1.0	10/11/19 09:38	
Toluene	ug/L	<0.16	1.0	10/11/19 09:38	
a,a,a-Trifluorotoluene (S)	%	104	85-115	10/11/19 09:38	

LABORATORY CONTROL SAMPLE & LCSD: 1957930 1957931

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	22.8	19.4	114	97	87-118	16	20	
1,3,5-Trimethylbenzene	ug/L	20	22.2	18.8	111	94	84-115	17	20	
Benzene	ug/L	20	22.4	18.7	112	93	85-115	18	20	
Ethylbenzene	ug/L	20	23.1	19.2	115	96	85-115	18	20	
m&p-Xylene	ug/L	40	44.8	37.7	112	94	85-115	17	20	
Methyl-tert-butyl ether	ug/L	20	21.5	18.9	107	94	85-115	13	20	
Naphthalene	ug/L	20	20.1	18.0	101	90	83-119	11	20	
o-Xylene	ug/L	20	22.3	18.8	111	94	85-115	17	20	
Toluene	ug/L	20	22.6	18.9	113	94	85-115	18	20	
a,a,a-Trifluorotoluene (S)	%				104	98	85-115			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1958315 1958316

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40196877001 Result	Spike Conc.	Spike Conc.	MSD Result						
1,2,4-Trimethylbenzene	ug/L	<0.34	20	20	20.6	21.0	103	105	72-135	2	20
1,3,5-Trimethylbenzene	ug/L	<0.33	20	20	20.1	20.5	101	102	67-134	2	20
Benzene	ug/L	<0.31	20	20	20.3	20.7	102	103	85-122	2	20
Ethylbenzene	ug/L	<0.33	20	20	21.0	21.4	105	107	85-129	2	20
m&p-Xylene	ug/L	<0.32	40	40	40.8	41.7	102	104	85-124	2	20
Methyl-tert-butyl ether	ug/L	<0.32	20	20	19.9	20.1	99	100	85-118	1	20

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

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Parameter	Units	1958315		1958316		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40196877001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Naphthalene	ug/L	<0.51	20	20	19.1	19.6	96	98	78-132	2	20		
o-Xylene	ug/L	<0.15	20	20	20.3	20.7	101	104	85-124	2	20		
Toluene	ug/L	<0.16	20	20	20.7	21.1	103	105	85-122	2	20		
a,a,a-Trifluorotoluene (S)	%						99	99	85-115				

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.

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

QC Batch: 337100 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40196877025

METHOD BLANK: 1957934 Matrix: Water
Associated Lab Samples: 40196877025

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.34	1.1	10/11/19 09:31	
1,3,5-Trimethylbenzene	ug/L	<0.33	1.1	10/11/19 09:31	
Benzene	ug/L	<0.31	1.0	10/11/19 09:31	
Ethylbenzene	ug/L	<0.33	1.1	10/11/19 09:31	
m&p-Xylene	ug/L	<0.32	2.0	10/11/19 09:31	
Methyl-tert-butyl ether	ug/L	<0.32	1.1	10/11/19 09:31	
Naphthalene	ug/L	<0.51	1.7	10/11/19 09:31	
o-Xylene	ug/L	<0.15	1.0	10/11/19 09:31	
Toluene	ug/L	<0.16	1.0	10/11/19 09:31	
a,a,a-Trifluorotoluene (S)	%	100	85-115	10/11/19 09:31	

LABORATORY CONTROL SAMPLE & LCSD: 1957935

1957936

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	19.3	19.4	96	97	87-118	1	20	
1,3,5-Trimethylbenzene	ug/L	20	19.4	19.5	97	97	84-115	0	20	
Benzene	ug/L	20	20.8	20.9	104	105	85-115	1	20	
Ethylbenzene	ug/L	20	20.0	20.1	100	100	85-115	0	20	
m&p-Xylene	ug/L	40	40.2	40.3	100	101	85-115	0	20	
Methyl-tert-butyl ether	ug/L	20	19.7	19.3	98	97	85-115	2	20	
Naphthalene	ug/L	20	18.1	18.2	90	91	83-119	1	20	
o-Xylene	ug/L	20	20.1	20.1	101	101	85-115	0	20	
Toluene	ug/L	20	21.0	21.0	105	105	85-115	0	20	
a,a,a-Trifluorotoluene (S)	%				102	101	85-115			

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.: 40196877

QC Batch: 336991 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40196877018, 40196877019, 40196877020, 40196877021

METHOD BLANK: 1957025 Matrix: Water
Associated Lab Samples: 40196877018, 40196877019, 40196877020, 40196877021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/10/19 18:46	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/10/19 18:46	
Benzene	ug/L	<0.25	1.0	10/10/19 18:46	
Ethylbenzene	ug/L	<0.22	1.0	10/10/19 18:46	
m&p-Xylene	ug/L	<0.47	2.0	10/10/19 18:46	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/10/19 18:46	
Naphthalene	ug/L	<1.2	5.0	10/10/19 18:46	
o-Xylene	ug/L	<0.26	1.0	10/10/19 18:46	
Toluene	ug/L	<0.17	5.0	10/10/19 18:46	
4-Bromofluorobenzene (S)	%	94	70-130	10/10/19 18:46	
Dibromofluoromethane (S)	%	101	70-130	10/10/19 18:46	
Toluene-d8 (S)	%	99	70-130	10/10/19 18:46	

LABORATORY CONTROL SAMPLE: 1957026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	51.1	102	70-130	
Ethylbenzene	ug/L	50	52.4	105	80-124	
m&p-Xylene	ug/L	100	104	104	70-130	
Methyl-tert-butyl ether	ug/L	50	41.8	84	54-137	
o-Xylene	ug/L	50	51.1	102	70-130	
Toluene	ug/L	50	50.2	100	80-126	
4-Bromofluorobenzene (S)	%			107	70-130	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1957038 1957252

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40196877018 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.25	50	50	51.4	52.3	103	105	70-130	2	20	
Ethylbenzene	ug/L	<0.22	50	50	54.6	54.2	109	108	80-125	1	20	
m&p-Xylene	ug/L	<0.47	100	100	108	106	108	106	70-130	3	20	
Methyl-tert-butyl ether	ug/L	<1.2	50	50	42.1	43.0	84	86	51-145	2	20	
o-Xylene	ug/L	<0.26	50	50	53.3	52.1	107	104	70-130	2	20	
Toluene	ug/L	<0.17	50	50	52.6	51.1	105	102	80-131	3	20	
4-Bromofluorobenzene (S)	%						106	107	70-130			
Dibromofluoromethane (S)	%						102	104	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 SUPERIOR REFINING CO
Pace Project No.: 40196877

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1957038	1957252									
Parameter	Units	40196877018 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	97	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.: 40196877

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above LOD.
J - Estimated concentration at or above the LOD and below the LOQ.
LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.
LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SUPERIOR REFINING CO

Pace Project No.: 40196877

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40196877001	PZ-2/T66	EPA 8021	337099		
40196877002	PZ-3D	EPA 8021	337099		
40196877003	PZ-8R	EPA 8021	337099		
40196877004	MW-11	EPA 8021	337099		
40196877005	PZ-11	EPA 8021	337099		
40196877006	MW-12	EPA 8021	337099		
40196877007	MW-13	EPA 8021	337099		
40196877008	PZ-13	EPA 8021	337099		
40196877009	MW-14	EPA 8021	337099		
40196877010	MW-15	EPA 8021	337099		
40196877011	MW-16	EPA 8021	337099		
40196877012	MW-17	EPA 8021	337099		
40196877013	MW-18	EPA 8021	337099		
40196877014	MW-19	EPA 8021	337099		
40196877015	MW-20	EPA 8021	337099		
40196877016	MW-21	EPA 8021	337099		
40196877017	PZ-21	EPA 8021	337099		
40196877022	TRIP BLANK	EPA 8021	337099		
40196877023	PZ-16	EPA 8021	337099		
40196877024	PZ-17	EPA 8021	337099		
40196877025	MW-22	EPA 8021	337100		
40196877018	MW-1/CW	EPA 8260	336991		
40196877019	MW-2/CW	EPA 8260	336991		
40196877020	MW-3/CW	EPA 8260	336991		
40196877021	MW-4/CW	EPA 8260	336991		

REPORT OF LABORATORY ANALYSIS

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Sample Preservation Receipt Form

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

Client Name: Gannett Fleming Project # 40196877

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

Lab Lot# of pH paper:

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

Initial when completed:

Date/Time:

Pace Lab #	Glass							Plastic						Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)			
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T								ZPLC	GN	
001													X				3																	2.5 / 5 / 10
002													X				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
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014																	3																	2.5 / 5 / 10
015																	3																	2.5 / 5 / 10
016																	3																	2.5 / 5 / 10
017																	3																	2.5 / 5 / 10
018																	3																	2.5 / 5 / 10
019																	3																	2.5 / 5 / 10
020																	3																	2.5 / 5 / 10

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

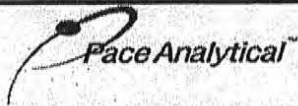
AG1U 1 liter amber glass	BP1U 1 liter plastic unpres	DG9A 40 mL amber ascorbic	JGFU 4 oz amber jar unpres
AG1H 1 liter amber glass HCL	BP2N 500 mL plastic HNO3	DG9T 40 mL amber Na Thio	WGFU 4 oz clear jar unpres
AG4S 125 mL amber glass H2SO4	BP2Z 500 mL plastic NaOH, Znact	VG9U 40 mL clear vial unpres	WPFU 4 oz plastic jar unpres
AG4U 120 mL amber glass unpres	BP3U 250 mL plastic unpres	VG9H 40 mL clear vial HCL	
AG5U 100 mL amber glass unpres	BP3B 250 mL plastic NaOH	VG9M 40 mL clear vial MeOH	SP5T 120 mL plastic Na Thiosulfate
AG2S 500 mL amber glass H2SO4	BP3N 250 mL plastic HNO3	VG9D 40 mL clear vial DI	ZPLC ziploc bag
BG3U 250 mL clear glass unpres	BP3S 250 mL plastic H2SO4		GN:

Sample Preservation Receipt Form

Client Name: Grant Fleming

Project #: 409687

Pace Lab #	Glass							Plastic							Vials					Jars			General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)			
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T	ZPLC								GN		
021																	3																		2.5 / 5 / 10
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1241 Bellevue Street, Green Bay, WI 54302

Document Name:
Sample Condition Upon Receipt (SCUR)

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

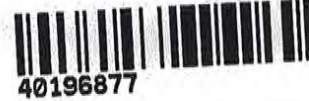
Document Revised: 25Apr2018

Issuing Authority:
Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40196877



Client Name: Gunneth Fleming

Courier: CS Logistics Fed Ex Speedee UPS Walco
 Client Pace Other: _____

Tracking #: 8149 6215 5835

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

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - NA Type of Ice: Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: Rol ICorr: _____

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: 10/9/19
Initials: RF

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3. <u>yr 10/9/19 RF</u>
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:	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. <u>Only two trip blanks in shipment one for each project. 10/11/19 RF</u>
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>014 V69H time 0955 10/9/19 RF</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>433</u>		

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HMP for DM

Date: 10/9/19

October 22, 2019

Project #34265.003
SRC GEMS
Reviewed by CCW
10/23/19

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

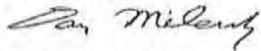
RE: Project: 34265.003 SRC
Pace Project No.: 40196879

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 SRC
Pace Project No.: 40196879

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 SRC
Pace Project No.: 40196879

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40196879001	MW-1	Water	10/08/19 11:15	10/09/19 09:10
40196879002	MW-2	Water	10/08/19 11:25	10/09/19 09:10
40196879003	MW-3D	Water	10/08/19 11:45	10/09/19 09:10
40196879004	MW-8R	Water	10/08/19 11:00	10/09/19 09:10
40196879005	MW-9B	Water	10/08/19 12:00	10/09/19 09:10
40196879006	TRIP BLANK	Water	10/08/19 00:00	10/09/19 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 SRC
Pace Project No.: 40196879

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40196879001	MW-1	EPA 6010	TXW	1	PASI-G
		EPA 6010	TXW	1	PASI-G
		EPA 8260	HNW	63	PASI-G
			AXL	4	PASI-G
		EPA 310.2	DAW	1	PASI-G
40196879002	MW-2	EPA 6010	TXW	1	PASI-G
		EPA 6010	TXW	1	PASI-G
		EPA 8260	HNW	63	PASI-G
			AXL	4	PASI-G
		EPA 310.2	DAW	1	PASI-G
40196879003	MW-3D	EPA 6010	TXW	1	PASI-G
		EPA 6010	TXW	1	PASI-G
		EPA 8260	HNW	63	PASI-G
			AXL	4	PASI-G
		EPA 310.2	DAW	1	PASI-G
40196879004	MW-8R	EPA 6010	TXW	1	PASI-G
		EPA 6010	TXW	1	PASI-G
		EPA 8260	HNW	63	PASI-G
			AXL	4	PASI-G
		EPA 310.2	DAW	1	PASI-G
40196879005	MW-9B	EPA 6010	TXW	1	PASI-G
		EPA 6010	TXW	1	PASI-G
		EPA 8260	HNW	63	PASI-G
			AXL	4	PASI-G
		EPA 310.2	DAW	1	PASI-G
40196879006	TRIP BLANK	EPA 8260	HNW	63	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 SRC
Pace Project No.: 40196879

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40196879001	MW-1					
EPA 6010	Total Hardness by 2340B	325000	ug/L	2000	10/14/19 18:43	
	Field pH	7.6	Std. Units		10/08/19 11:15	
	Field Specific Conductance	662	umhos/cm		10/08/19 11:15	
	Static Water Level	651.00	feet		10/08/19 11:15	
	Temperature, Water (C)	10.6	deg C		10/08/19 11:15	
EPA 310.2	Alkalinity, Total as CaCO3	420	mg/L	47.0	10/18/19 13:16	
40196879002	MW-2					
EPA 6010	Total Hardness by 2340B	389000	ug/L	2000	10/14/19 18:45	
	Field pH	7.5	Std. Units		10/08/19 11:25	
	Field Specific Conductance	814	umhos/cm		10/08/19 11:25	
	Static Water Level	650.22	feet		10/08/19 11:25	
	Temperature, Water (C)	12.0	deg C		10/08/19 11:25	
EPA 310.2	Alkalinity, Total as CaCO3	458	mg/L	47.0	10/18/19 13:17	
40196879003	MW-3D					
EPA 6010	Total Hardness by 2340B	412000	ug/L	2000	10/14/19 18:48	
	Field pH	7.6	Std. Units		10/08/19 11:45	
	Field Specific Conductance	711	umhos/cm		10/08/19 11:45	
	Static Water Level	653.05	feet		10/08/19 11:45	
	Temperature, Water (C)	12.7	deg C		10/08/19 11:45	
EPA 310.2	Alkalinity, Total as CaCO3	408	mg/L	47.0	10/18/19 13:18	
40196879004	MW-8R					
EPA 6010	Total Hardness by 2340B	353000	ug/L	2000	10/14/19 18:58	
	Field pH	7.3	Std. Units		10/08/19 11:00	
	Field Specific Conductance	1110	umhos/cm		10/08/19 11:00	
	Static Water Level	658.69	feet		10/08/19 11:00	
	Temperature, Water (C)	12.7	deg C		10/08/19 11:00	
EPA 310.2	Alkalinity, Total as CaCO3	603	mg/L	117	10/18/19 13:18	
40196879005	MW-9B					
EPA 6010	Total Hardness by 2340B	536000	ug/L	2000	10/14/19 18:55	
	Field pH	7.4	Std. Units		10/08/19 12:00	
	Field Specific Conductance	585	umhos/cm		10/08/19 12:00	
	Static Water Level	648.14	feet		10/08/19 12:00	
	Temperature, Water (C)	12.1	deg C		10/08/19 12:00	
EPA 310.2	Alkalinity, Total as CaCO3	351	mg/L	47.0	10/18/19 13:19	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 SRC
Pace Project No.: 40196879

Method: EPA 6010
Description: 6010 MET ICP
Client: Gannett Fleming Inc.
Date: October 22, 2019

General Information:

5 samples were analyzed for EPA 6010. 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.

Sample Preparation:

The samples were prepared in accordance with EPA 3010 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.

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.: 40196879

Method: EPA 6010
Description: 6010 MET ICP, Dissolved
Client: Gannett Fleming Inc.
Date: October 22, 2019

General Information:

5 samples were analyzed for EPA 6010. 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.

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.: 40196879

Method: EPA 8260
Description: 8260 MSV
Client: Gannett Fleming Inc.
Date: October 22, 2019

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 SRC
Pace Project No.: 40196879

Method:

Description: Field Data
Client: Gannett Fleming Inc.
Date: October 22, 2019

General Information:

5 samples were analyzed for . 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 SRC
Pace Project No.: 40196879

Method: EPA 310.2
Description: 310.2 Alkalinity
Client: Gannett Fleming Inc.
Date: October 22, 2019

General Information:

5 samples were analyzed for EPA 310.2. 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.

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: 337970

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40196871010,40196954005

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1962869)
 - Alkalinity, Total as CaCO₃
- MS (Lab ID: 1962871)
 - Alkalinity, Total as CaCO₃
- MSD (Lab ID: 1962870)
 - Alkalinity, Total as CaCO₃

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 SRC

Pace Project No.: 40196879

Sample: MW-1 Lab ID: 40196879001 Collected: 10/08/19 11:15 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP									
Analytical Method: EPA 6010 Preparation Method: EPA 3010									
Total Hardness by 2340B	325000	ug/L	2000	150	1	10/11/19 08:09	10/14/19 18:43		
6010 MET ICP, Dissolved									
Analytical Method: EPA 6010									
Lead, Dissolved	<6.4	ug/L	21.4	6.4	1		10/16/19 00:15	7439-92-1	
8260 MSV									
Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:07	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/19 00:07	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:07	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/19 00:07	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:07	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:07	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/19 00:07	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/19 00:07	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/19 00:07	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/19 00:07	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/19 00:07	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/19 00:07	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/19 00:07	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:07	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:07	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:07	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/19 00:07	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/19 00:07	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/19 00:07	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/19 00:07	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/19 00:07	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/19 00:07	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/19 00:07	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/19 00:07	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:07	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/19 00:07	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/19 00:07	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/19 00:07	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/19 00:07	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:07	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:07	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/19 00:07	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/19 00:07	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/19 00:07	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/19 00:07	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/19 00:07	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/19 00:07	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/19 00:07	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:07	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/19 00:07	98-82-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: MW-1 Lab ID: 40196879001 Collected: 10/08/19 11:15 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/19 00:07	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/19 00:07	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:07	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/19 00:07	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/19 00:07	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/19 00:07	108-88-3	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:07	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/19 00:07	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:07	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/19 00:07	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/19 00:07	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/19 00:07	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:07	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/19 00:07	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:07	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/19 00:07	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/19 00:07	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/19 00:07	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/19 00:07	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/19 00:07	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		10/11/19 00:07	460-00-4	
Dibromofluoromethane (S)	113	%	70-130		1		10/11/19 00:07	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		10/11/19 00:07	2037-26-5	
Field Data									
Analytical Method:									
Field pH	7.6	Std. Units			1		10/08/19 11:15		
Field Specific Conductance	662	umhos/cm			1		10/08/19 11:15		
Static Water Level	651.00	feet			1		10/08/19 11:15		
Temperature, Water (C)	10.6	deg C			1		10/08/19 11:15		
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	420	mg/L	47.0	14.1	2		10/18/19 13:16		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40196879

Sample: MW-2 Lab ID: 40196879002 Collected: 10/08/19 11:25 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Total Hardness by 2340B	389000	ug/L	2000	150	1	10/11/19 08:09	10/14/19 18:45		
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Lead, Dissolved	<6.4	ug/L	21.4	6.4	1		10/16/19 00:22	7439-92-1	
8260 MSV		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:29	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/19 00:29	71-55-6	
1,1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:29	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/19 00:29	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:29	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:29	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/19 00:29	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/19 00:29	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/19 00:29	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/19 00:29	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/19 00:29	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/19 00:29	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/19 00:29	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:29	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:29	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:29	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/19 00:29	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/19 00:29	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/19 00:29	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/19 00:29	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/19 00:29	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/19 00:29	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/19 00:29	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/19 00:29	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:29	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/19 00:29	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/19 00:29	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/19 00:29	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/19 00:29	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:29	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:29	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/19 00:29	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/19 00:29	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/19 00:29	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/19 00:29	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/19 00:29	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/19 00:29	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/19 00:29	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:29	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/19 00:29	98-82-8	

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ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40196879

Sample: MW-2 Lab ID: 40196879002 Collected: 10/08/19 11:25 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/19 00:29	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/19 00:29	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:29	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/19 00:29	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/19 00:29	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/19 00:29	108-88-3	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:29	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/19 00:29	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:29	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/19 00:29	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/19 00:29	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/19 00:29	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:29	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/19 00:29	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:29	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/19 00:29	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/19 00:29	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/19 00:29	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/19 00:29	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/19 00:29	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		10/11/19 00:29	460-00-4	
Dibromofluoromethane (S)	114	%	70-130		1		10/11/19 00:29	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		10/11/19 00:29	2037-26-5	
Field Data		Analytical Method:							
Field pH	7.5	Std. Units			1		10/08/19 11:25		
Field Specific Conductance	814	umhos/cm			1		10/08/19 11:25		
Static Water Level	650.22	feet			1		10/08/19 11:25		
Temperature, Water (C)	12.0	deg C			1		10/08/19 11:25		
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	458	mg/L	47.0	14.1	2		10/18/19 13:17		

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: MW-3D Lab ID: 40196879003 Collected: 10/08/19 11:45 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3010									
Total Hardness by 2340B	412000	ug/L	2000	150	1	10/11/19 08:09	10/14/19 18:48		
6010 MET ICP, Dissolved Analytical Method: EPA 6010									
Lead, Dissolved	<6.4	ug/L	21.4	6.4	1		10/16/19 00:25	7439-92-1	
8260 MSV Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:52	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/19 00:52	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:52	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/19 00:52	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 00:52	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:52	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/19 00:52	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/19 00:52	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/19 00:52	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/19 00:52	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/19 00:52	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/19 00:52	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/19 00:52	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:52	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:52	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/19 00:52	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/19 00:52	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/19 00:52	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/19 00:52	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/19 00:52	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/19 00:52	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/19 00:52	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/19 00:52	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/19 00:52	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/19 00:52	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/19 00:52	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/19 00:52	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/19 00:52	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/19 00:52	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:52	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:52	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/19 00:52	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/19 00:52	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/19 00:52	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/19 00:52	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/19 00:52	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/19 00:52	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/19 00:52	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:52	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/19 00:52	98-82-8	

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ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40196879

Sample: MW-3D Lab ID: 40196879003 Collected: 10/08/19 11:45 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/19 00:52	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/19 00:52	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/19 00:52	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/19 00:52	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/19 00:52	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/19 00:52	108-88-3	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:52	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/19 00:52	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/19 00:52	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/19 00:52	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/19 00:52	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/19 00:52	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 00:52	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/19 00:52	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/19 00:52	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/19 00:52	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/19 00:52	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/19 00:52	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/19 00:52	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/19 00:52	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		10/11/19 00:52	460-00-4	
Dibromofluoromethane (S)	114	%	70-130		1		10/11/19 00:52	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		10/11/19 00:52	2037-26-5	
Field Data		Analytical Method:							
Field pH	7.6	Std. Units			1		10/08/19 11:45		
Field Specific Conductance	711	umhos/cm			1		10/08/19 11:45		
Static Water Level	653.05	feet			1		10/08/19 11:45		
Temperature, Water (C)	12.7	deg C			1		10/08/19 11:45		
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	408	mg/L	47.0	14.1	2		10/18/19 13:18		

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ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40196879

Sample: MW-8R Lab ID: 40196879004 Collected: 10/08/19 11:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Total Hardness by 2340B	353000	ug/L	2000	150	1	10/11/19 08:09	10/14/19 18:58		
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Lead, Dissolved	<6.4	ug/L	21.4	6.4	1		10/16/19 00:27	7439-92-1	
8260 MSV		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 02:38	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/19 02:38	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:38	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/19 02:38	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 02:38	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/19 02:38	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/19 02:38	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/19 02:38	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/19 02:38	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/19 02:38	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/19 02:38	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/19 02:38	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/19 02:38	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:38	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:38	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:38	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/19 02:38	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/19 02:38	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/19 02:38	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/19 02:38	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/19 02:38	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/19 02:38	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/19 02:38	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/19 02:38	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/19 02:38	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/19 02:38	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/19 02:38	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/19 02:38	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/19 02:38	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/19 02:38	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:38	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/19 02:38	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/19 02:38	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/19 02:38	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/19 02:38	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/19 02:38	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/19 02:38	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/19 02:38	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/19 02:38	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/19 02:38	98-82-8	

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: MW-8R Lab ID: 40196879004 Collected: 10/08/19 11:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/19 02:38	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/19 02:38	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/19 02:38	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/19 02:38	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/19 02:38	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/19 02:38	108-88-3	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/11/19 02:38	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/19 02:38	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/19 02:38	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/19 02:38	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/19 02:38	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/19 02:38	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:38	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/19 02:38	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/19 02:38	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/19 02:38	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/19 02:38	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/19 02:38	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/19 02:38	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/19 02:38	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		10/11/19 02:38	460-00-4	
Dibromofluoromethane (S)	105	%	70-130		1		10/11/19 02:38	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/11/19 02:38	2037-26-5	
Field Data									
Analytical Method:									
Field pH	7.3	Std. Units			1		10/08/19 11:00		
Field Specific Conductance	1110	umhos/cm			1		10/08/19 11:00		
Static Water Level	658.69	feet			1		10/08/19 11:00		
Temperature, Water (C)	12.7	deg C			1		10/08/19 11:00		
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	603	mg/L	117	35.2	5		10/18/19 13:18		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: MW-9B Lab ID: 40196879005 Collected: 10/08/19 12:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3010							
Total Hardness by 2340B	536000	ug/L	2000	150	1	10/11/19 08:09	10/14/19 18:55		
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Lead, Dissolved	<6.4	ug/L	21.4	6.4	1		10/16/19 00:30	7439-92-1	
8260 MSV		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 02:59	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/11/19 02:59	71-55-6	
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:59	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/11/19 02:59	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/11/19 02:59	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/11/19 02:59	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/11/19 02:59	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/11/19 02:59	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/11/19 02:59	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/11/19 02:59	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/11/19 02:59	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/11/19 02:59	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/11/19 02:59	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:59	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:59	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/11/19 02:59	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/11/19 02:59	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/11/19 02:59	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/11/19 02:59	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/11/19 02:59	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/11/19 02:59	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/11/19 02:59	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/11/19 02:59	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/11/19 02:59	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/11/19 02:59	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/11/19 02:59	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/11/19 02:59	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/11/19 02:59	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/11/19 02:59	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/11/19 02:59	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:59	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/11/19 02:59	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/11/19 02:59	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/11/19 02:59	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/11/19 02:59	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/11/19 02:59	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/11/19 02:59	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/11/19 02:59	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/11/19 02:59	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/11/19 02:59	98-82-8	

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: MW-9B Lab ID: 40196879005 Collected: 10/08/19 12:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/11/19 02:59	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/11/19 02:59	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/11/19 02:59	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/11/19 02:59	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/11/19 02:59	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/11/19 02:59	108-88-3	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/11/19 02:59	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/11/19 02:59	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/11/19 02:59	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/11/19 02:59	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/11/19 02:59	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/11/19 02:59	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/11/19 02:59	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/11/19 02:59	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/11/19 02:59	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/11/19 02:59	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/11/19 02:59	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/11/19 02:59	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/11/19 02:59	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/11/19 02:59	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	70-130		1		10/11/19 02:59	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		10/11/19 02:59	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		10/11/19 02:59	2037-26-5	
Field Data									
Analytical Method:									
Field pH	7.4	Std. Units			1		10/08/19 12:00		
Field Specific Conductance	585	umhos/cm			1		10/08/19 12:00		
Static Water Level	648.14	feet			1		10/08/19 12:00		
Temperature, Water (C)	12.1	deg C			1		10/08/19 12:00		
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	351	mg/L	47.0	14.1	2		10/18/19 13:19		

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ANALYTICAL RESULTS

Project: 34265.003 SRC

Pace Project No.: 40196879

Sample: TRIP BLANK Lab ID: 40196879006 Collected: 10/08/19 00:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		10/10/19 22:42	630-20-6	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		10/10/19 22:42	71-55-6	
1,1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		10/10/19 22:42	79-34-5	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		10/10/19 22:42	79-00-5	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		10/10/19 22:42	75-34-3	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		10/10/19 22:42	75-35-4	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		10/10/19 22:42	563-58-6	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		10/10/19 22:42	87-61-6	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		10/10/19 22:42	96-18-4	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		10/10/19 22:42	120-82-1	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		10/10/19 22:42	95-63-6	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		10/10/19 22:42	96-12-8	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		10/10/19 22:42	106-93-4	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		10/10/19 22:42	95-50-1	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		10/10/19 22:42	107-06-2	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		10/10/19 22:42	78-87-5	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		10/10/19 22:42	108-67-8	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		10/10/19 22:42	541-73-1	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		10/10/19 22:42	142-28-9	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		10/10/19 22:42	106-46-7	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		10/10/19 22:42	594-20-7	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		10/10/19 22:42	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		10/10/19 22:42	106-43-4	
Benzene	<0.25	ug/L	1.0	0.25	1		10/10/19 22:42	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		10/10/19 22:42	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		10/10/19 22:42	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		10/10/19 22:42	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		10/10/19 22:42	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		10/10/19 22:42	74-83-9	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		10/10/19 22:42	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		10/10/19 22:42	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		10/10/19 22:42	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		10/10/19 22:42	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		10/10/19 22:42	74-87-3	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		10/10/19 22:42	124-48-1	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		10/10/19 22:42	74-95-3	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		10/10/19 22:42	75-71-8	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		10/10/19 22:42	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		10/10/19 22:42	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		10/10/19 22:42	98-82-8	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		10/10/19 22:42	1634-04-4	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		10/10/19 22:42	75-09-2	
Naphthalene	<1.2	ug/L	5.0	1.2	1		10/10/19 22:42	91-20-3	
Styrene	<0.47	ug/L	1.6	0.47	1		10/10/19 22:42	100-42-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		10/10/19 22:42	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		10/10/19 22:42	108-88-3	

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ANALYTICAL RESULTS

Project: 34265.003 SRC
Pace Project No.: 40196879

Sample: TRIP BLANK Lab ID: 40196879006 Collected: 10/08/19 00:00 Received: 10/09/19 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Trichloroethene	<0.26	ug/L	1.0	0.26	1		10/10/19 22:42	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		10/10/19 22:42	75-69-4	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		10/10/19 22:42	75-01-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		10/10/19 22:42	156-59-2	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		10/10/19 22:42	10061-01-5	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		10/10/19 22:42	179601-23-1	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		10/10/19 22:42	104-51-8	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		10/10/19 22:42	103-65-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		10/10/19 22:42	95-47-6	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		10/10/19 22:42	99-87-6	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		10/10/19 22:42	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		10/10/19 22:42	98-06-6	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		10/10/19 22:42	156-60-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		10/10/19 22:42	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		10/10/19 22:42	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		10/10/19 22:42	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/10/19 22:42	2037-26-5	

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

QC Batch: 337581 Analysis Method: EPA 6010
QC Batch Method: EPA 6010 Analysis Description: ICP Metals, Trace, Dissolved
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

METHOD BLANK: 1960966 Matrix: Water
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	<6.4	21.4	10/16/19 00:10	

LABORATORY CONTROL SAMPLE: 1960967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	500	484	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1960968 1960969

Parameter	Units	1960968		1960969		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40196879001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Lead, Dissolved	ug/L	<6.4	500	500	494	502	98	100	75-125	2	20

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

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

QC Batch: 337104 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

METHOD BLANK: 1957946 Matrix: Water
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Hardness by 2340B	ug/L	335J	2000	10/14/19 17:55	

LABORATORY CONTROL SAMPLE: 1957947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Hardness by 2340B	ug/L		34600			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1957948 1957949

Parameter	Units	12136482001		1957948		1957949		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Total Hardness by 2340B	ug/L	2030000			2140000	2080000			3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

QC Batch: 336973 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40196879001, 40196879002, 40196879003

METHOD BLANK: 1956910 Matrix: Water
Associated Lab Samples: 40196879001, 40196879002, 40196879003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	10/10/19 15:53	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	10/10/19 15:53	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	10/10/19 15:53	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	10/10/19 15:53	
1,1-Dichloroethane	ug/L	<0.27	1.0	10/10/19 15:53	
1,1-Dichloroethene	ug/L	<0.24	1.0	10/10/19 15:53	
1,1-Dichloropropene	ug/L	<0.54	1.8	10/10/19 15:53	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	10/10/19 15:53	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	10/10/19 15:53	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/10/19 15:53	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/10/19 15:53	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	10/10/19 15:53	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	10/10/19 15:53	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	10/10/19 15:53	
1,2-Dichloroethane	ug/L	<0.28	1.0	10/10/19 15:53	
1,2-Dichloropropane	ug/L	<0.28	1.0	10/10/19 15:53	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/10/19 15:53	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	10/10/19 15:53	
1,3-Dichloropropane	ug/L	<0.83	2.8	10/10/19 15:53	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	10/10/19 15:53	
2,2-Dichloropropane	ug/L	<2.3	7.6	10/10/19 15:53	
2-Chlorotoluene	ug/L	<0.93	5.0	10/10/19 15:53	
4-Chlorotoluene	ug/L	<0.76	2.5	10/10/19 15:53	
Benzene	ug/L	<0.25	1.0	10/10/19 15:53	
Bromobenzene	ug/L	<0.24	1.0	10/10/19 15:53	
Bromochloromethane	ug/L	<0.36	5.0	10/10/19 15:53	
Bromodichloromethane	ug/L	<0.36	1.2	10/10/19 15:53	
Bromoform	ug/L	<4.0	13.2	10/10/19 15:53	
Bromomethane	ug/L	<0.97	5.0	10/10/19 15:53	
Carbon tetrachloride	ug/L	<0.17	1.0	10/10/19 15:53	
Chlorobenzene	ug/L	<0.71	2.4	10/10/19 15:53	
Chloroethane	ug/L	<1.3	5.0	10/10/19 15:53	
Chloroform	ug/L	<1.3	5.0	10/10/19 15:53	
Chloromethane	ug/L	<2.2	7.3	10/10/19 15:53	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	10/10/19 15:53	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	10/10/19 15:53	
Dibromochloromethane	ug/L	<2.6	8.7	10/10/19 15:53	
Dibromomethane	ug/L	<0.94	3.1	10/10/19 15:53	
Dichlorodifluoromethane	ug/L	<0.50	5.0	10/10/19 15:53	
Ethylbenzene	ug/L	<0.22	1.0	10/10/19 15:53	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	10/10/19 15:53	

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

METHOD BLANK: 1956910 Matrix: Water
Associated Lab Samples: 40196879001, 40196879002, 40196879003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	10/10/19 15:53	
m&p-Xylene	ug/L	<0.47	2.0	10/10/19 15:53	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/10/19 15:53	
Methylene Chloride	ug/L	<0.58	5.0	10/10/19 15:53	
n-Butylbenzene	ug/L	<0.71	2.4	10/10/19 15:53	
n-Propylbenzene	ug/L	<0.81	5.0	10/10/19 15:53	
Naphthalene	ug/L	<1.2	5.0	10/10/19 15:53	
o-Xylene	ug/L	<0.26	1.0	10/10/19 15:53	
p-Isopropyltoluene	ug/L	<0.80	2.7	10/10/19 15:53	
sec-Butylbenzene	ug/L	<0.85	5.0	10/10/19 15:53	
Styrene	ug/L	<0.47	1.6	10/10/19 15:53	
tert-Butylbenzene	ug/L	<0.30	1.0	10/10/19 15:53	
Tetrachloroethene	ug/L	<0.33	1.1	10/10/19 15:53	
Toluene	ug/L	<0.17	5.0	10/10/19 15:53	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	10/10/19 15:53	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	10/10/19 15:53	
Trichloroethene	ug/L	<0.26	1.0	10/10/19 15:53	
Trichlorofluoromethane	ug/L	<0.21	1.0	10/10/19 15:53	
Vinyl chloride	ug/L	<0.17	1.0	10/10/19 15:53	
4-Bromofluorobenzene (S)	%	94	70-130	10/10/19 15:53	
Dibromofluoromethane (S)	%	113	70-130	10/10/19 15:53	
Toluene-d8 (S)	%	91	70-130	10/10/19 15:53	

LABORATORY CONTROL SAMPLE: 1956911

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	58.0	116	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	46.9	94	70-130	
1,1,2-Trichloroethane	ug/L	50	51.0	102	70-130	
1,1-Dichloroethane	ug/L	50	61.8	124	73-150	
1,1-Dichloroethene	ug/L	50	59.3	119	73-138	
1,2,4-Trichlorobenzene	ug/L	50	46.3	93	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	39.8	80	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	51.3	103	70-130	
1,2-Dichlorobenzene	ug/L	50	48.0	96	70-130	
1,2-Dichloroethane	ug/L	50	60.3	121	75-140	
1,2-Dichloropropane	ug/L	50	55.0	110	73-135	
1,3-Dichlorobenzene	ug/L	50	48.6	97	70-130	
1,4-Dichlorobenzene	ug/L	50	49.6	99	70-130	
Benzene	ug/L	50	55.0	110	70-130	
Bromodichloromethane	ug/L	50	54.4	109	70-130	
Bromoform	ug/L	50	50.9	102	68-129	
Bromomethane	ug/L	50	24.8	50	18-159	
Carbon tetrachloride	ug/L	50	57.8	116	70-130	

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QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40196879

LABORATORY CONTROL SAMPLE: 1956911

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	52.2	104	70-130	
Chloroethane	ug/L	50	43.3	87	53-147	
Chloroform	ug/L	50	57.6	115	74-136	
Chloromethane	ug/L	50	28.6	57	29-115	
cis-1,2-Dichloroethene	ug/L	50	56.2	112	70-130	
cis-1,3-Dichloropropene	ug/L	50	47.0	94	70-130	
Dibromochloromethane	ug/L	50	51.0	102	70-130	
Dichlorodifluoromethane	ug/L	50	22.6	45	10-130	
Ethylbenzene	ug/L	50	50.6	101	80-124	
Isopropylbenzene (Cumene)	ug/L	50	50.5	101	70-130	
m&p-Xylene	ug/L	100	105	105	70-130	
Methyl-tert-butyl ether	ug/L	50	45.4	91	54-137	
Methylene Chloride	ug/L	50	57.7	115	73-138	
o-Xylene	ug/L	50	51.3	103	70-130	
Styrene	ug/L	50	51.3	103	70-130	
Tetrachloroethene	ug/L	50	54.9	110	70-130	
Toluene	ug/L	50	50.2	100	80-126	
trans-1,2-Dichloroethene	ug/L	50	61.1	122	73-145	
trans-1,3-Dichloropropene	ug/L	50	43.6	87	70-130	
Trichloroethene	ug/L	50	56.9	114	70-130	
Trichlorofluoromethane	ug/L	50	52.4	105	76-147	
Vinyl chloride	ug/L	50	40.9	82	51-120	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			110	70-130	
Toluene-d8 (S)	%			91	70-130	

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

QC Batch: 336992 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40196879004, 40196879005, 40196879006

METHOD BLANK: 1957027 Matrix: Water
Associated Lab Samples: 40196879004, 40196879005, 40196879006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	10/10/19 18:46	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	10/10/19 18:46	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	10/10/19 18:46	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	10/10/19 18:46	
1,1-Dichloroethane	ug/L	<0.27	1.0	10/10/19 18:46	
1,1-Dichloroethene	ug/L	<0.24	1.0	10/10/19 18:46	
1,1-Dichloropropene	ug/L	<0.54	1.8	10/10/19 18:46	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	10/10/19 18:46	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	10/10/19 18:46	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/10/19 18:46	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	10/10/19 18:46	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	10/10/19 18:46	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	10/10/19 18:46	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	10/10/19 18:46	
1,2-Dichloroethane	ug/L	<0.28	1.0	10/10/19 18:46	
1,2-Dichloropropane	ug/L	<0.28	1.0	10/10/19 18:46	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	10/10/19 18:46	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	10/10/19 18:46	
1,3-Dichloropropane	ug/L	<0.83	2.8	10/10/19 18:46	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	10/10/19 18:46	
2,2-Dichloropropane	ug/L	<2.3	7.6	10/10/19 18:46	
2-Chlorotoluene	ug/L	<0.93	5.0	10/10/19 18:46	
4-Chlorotoluene	ug/L	<0.76	2.5	10/10/19 18:46	
Benzene	ug/L	<0.25	1.0	10/10/19 18:46	
Bromobenzene	ug/L	<0.24	1.0	10/10/19 18:46	
Bromochloromethane	ug/L	<0.36	5.0	10/10/19 18:46	
Bromodichloromethane	ug/L	<0.36	1.2	10/10/19 18:46	
Bromoform	ug/L	<4.0	13.2	10/10/19 18:46	
Bromomethane	ug/L	<0.97	5.0	10/10/19 18:46	
Carbon tetrachloride	ug/L	<0.17	1.0	10/10/19 18:46	
Chlorobenzene	ug/L	<0.71	2.4	10/10/19 18:46	
Chloroethane	ug/L	<1.3	5.0	10/10/19 18:46	
Chloroform	ug/L	<1.3	5.0	10/10/19 18:46	
Chloromethane	ug/L	<2.2	7.3	10/10/19 18:46	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	10/10/19 18:46	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	10/10/19 18:46	
Dibromochloromethane	ug/L	<2.6	8.7	10/10/19 18:46	
Dibromomethane	ug/L	<0.94	3.1	10/10/19 18:46	
Dichlorodifluoromethane	ug/L	<0.50	5.0	10/10/19 18:46	
Ethylbenzene	ug/L	<0.22	1.0	10/10/19 18:46	
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	10/10/19 18:46	

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QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40196879

METHOD BLANK: 1957027

Matrix: Water

Associated Lab Samples: 40196879004, 40196879005, 40196879006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	10/10/19 18:46	
m&p-Xylene	ug/L	<0.47	2.0	10/10/19 18:46	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	10/10/19 18:46	
Methylene Chloride	ug/L	<0.58	5.0	10/10/19 18:46	
n-Butylbenzene	ug/L	<0.71	2.4	10/10/19 18:46	
n-Propylbenzene	ug/L	<0.81	5.0	10/10/19 18:46	
Naphthalene	ug/L	<1.2	5.0	10/10/19 18:46	
o-Xylene	ug/L	<0.26	1.0	10/10/19 18:46	
p-Isopropyltoluene	ug/L	<0.80	2.7	10/10/19 18:46	
sec-Butylbenzene	ug/L	<0.85	5.0	10/10/19 18:46	
Styrene	ug/L	<0.47	1.6	10/10/19 18:46	
tert-Butylbenzene	ug/L	<0.30	1.0	10/10/19 18:46	
Tetrachloroethene	ug/L	<0.33	1.1	10/10/19 18:46	
Toluene	ug/L	<0.17	5.0	10/10/19 18:46	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	10/10/19 18:46	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	10/10/19 18:46	
Trichloroethene	ug/L	<0.26	1.0	10/10/19 18:46	
Trichlorofluoromethane	ug/L	<0.21	1.0	10/10/19 18:46	
Vinyl chloride	ug/L	<0.17	1.0	10/10/19 18:46	
4-Bromofluorobenzene (S)	%	94	70-130	10/10/19 18:46	
Dibromofluoromethane (S)	%	101	70-130	10/10/19 18:46	
Toluene-d8 (S)	%	99	70-130	10/10/19 18:46	

LABORATORY CONTROL SAMPLE: 1957028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.0	108	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	48.0	96	70-130	
1,1,2-Trichloroethane	ug/L	50	48.1	96	70-130	
1,1-Dichloroethane	ug/L	50	49.3	99	73-150	
1,1-Dichloroethene	ug/L	50	47.3	95	73-138	
1,2,4-Trichlorobenzene	ug/L	50	44.4	89	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	43.4	87	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	46.9	94	70-130	
1,2-Dichlorobenzene	ug/L	50	48.9	98	70-130	
1,2-Dichloroethane	ug/L	50	51.5	103	75-140	
1,2-Dichloropropane	ug/L	50	49.1	98	73-135	
1,3-Dichlorobenzene	ug/L	50	47.4	95	70-130	
1,4-Dichlorobenzene	ug/L	50	47.5	95	70-130	
Benzene	ug/L	50	51.1	102	70-130	
Bromodichloromethane	ug/L	50	50.0	100	70-130	
Bromoform	ug/L	50	45.7	91	68-129	
Bromomethane	ug/L	50	18.2	36	18-159	
Carbon tetrachloride	ug/L	50	48.8	98	70-130	

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QUALITY CONTROL DATA

Project: 34265.003 SRC

Pace Project No.: 40196879

LABORATORY CONTROL SAMPLE: 1957028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	49.8	100	70-130	
Chloroethane	ug/L	50	38.1	76	53-147	
Chloroform	ug/L	50	48.6	97	74-136	
Chloromethane	ug/L	50	24.3	49	29-115	
cis-1,2-Dichloroethene	ug/L	50	48.5	97	70-130	
cis-1,3-Dichloropropene	ug/L	50	50.4	101	70-130	
Dibromochloromethane	ug/L	50	51.7	103	70-130	
Dichlorodifluoromethane	ug/L	50	20.9	42	10-130	
Ethylbenzene	ug/L	50	52.4	105	80-124	
Isopropylbenzene (Cumene)	ug/L	50	52.0	104	70-130	
m&p-Xylene	ug/L	100	104	104	70-130	
Methyl-tert-butyl ether	ug/L	50	41.8	84	54-137	
Methylene Chloride	ug/L	50	47.6	95	73-138	
o-Xylene	ug/L	50	51.1	102	70-130	
Styrene	ug/L	50	46.2	92	70-130	
Tetrachloroethene	ug/L	50	45.3	91	70-130	
Toluene	ug/L	50	50.2	100	80-126	
trans-1,2-Dichloroethene	ug/L	50	49.1	98	73-145	
trans-1,3-Dichloropropene	ug/L	50	47.4	95	70-130	
Trichloroethene	ug/L	50	51.0	102	70-130	
Trichlorofluoromethane	ug/L	50	40.8	82	76-147	
Vinyl chloride	ug/L	50	32.6	65	51-120	
4-Bromofluorobenzene (S)	%			107	70-130	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: 34265.003 SRC
Pace Project No.: 40196879

QC Batch: 337970 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

METHOD BLANK: 1962867 Matrix: Water
Associated Lab Samples: 40196879001, 40196879002, 40196879003, 40196879004, 40196879005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	10/18/19 13:06	

LABORATORY CONTROL SAMPLE: 1962868

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	97.1	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1962869 1962870

Parameter	Units	40196871010		40196871010		40196871010		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					MS % Rec
Alkalinity, Total as CaCO3	mg/L	218	218	200	200	374	393	78	87	90-110	5	20 M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1962871 1962872

Parameter	Units	40196954005		40196954005		40196954005		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					MS % Rec
Alkalinity, Total as CaCO3	mg/L	402	402	500	500	834	856	87	91	90-110	3	20 M0

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 SRC
Pace Project No.: 40196879

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 SRC

Pace Project No.: 40196879

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40196879001	MW-1	EPA 3010	337104	EPA 6010	337207
40196879002	MW-2	EPA 3010	337104	EPA 6010	337207
40196879003	MW-3D	EPA 3010	337104	EPA 6010	337207
40196879004	MW-8R	EPA 3010	337104	EPA 6010	337207
40196879005	MW-9B	EPA 3010	337104	EPA 6010	337207
40196879001	MW-1	EPA 6010	337581		
40196879002	MW-2	EPA 6010	337581		
40196879003	MW-3D	EPA 6010	337581		
40196879004	MW-8R	EPA 6010	337581		
40196879005	MW-9B	EPA 6010	337581		
40196879001	MW-1	EPA 8260	336973		
40196879002	MW-2	EPA 8260	336973		
40196879003	MW-3D	EPA 8260	336973		
40196879004	MW-8R	EPA 8260	336992		
40196879005	MW-9B	EPA 8260	336992		
40196879006	TRIP BLANK	EPA 8260	336992		
40196879001	MW-1				
40196879002	MW-2				
40196879003	MW-3D				
40196879004	MW-8R				
40196879005	MW-9B				
40196879001	MW-1	EPA 310.2	337970		
40196879002	MW-2	EPA 310.2	337970		
40196879003	MW-3D	EPA 310.2	337970		
40196879004	MW-8R	EPA 310.2	337970		
40196879005	MW-9B	EPA 310.2	337970		

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: SRC (Superior Refining Company)
 Project State: WI
 Sampled By (Print): Marcus Mussey
 Sampled By (Sign): *[Signature]*

PO #: _____ Regulatory Program: _____

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW-1	10/8	11:15	GW
002	MW-2		11:25	
003	MW-3D		11:45	
004	MW-8R		11:00	
005	MW-9B		12:00	
006	Trip blank			



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

COC No. 40190879

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	Y
	B	A	D	D
Analyses Requested	VOCs (Method 8260)	Alkalinity	Hardness (as CaCO3)	Dissolved lead

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

GEMS; field data will follow		
"		
"		
"		
"		

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:
 Transmit Prelim Rush Results by (complete what you want):
 Email #1:
 Email #2:
 Telephone:
 Fax:
 Samples on HOLD are subject to special pricing and release of liability

Relinquished By: *[Signature]* Date/Time: 10/8/16 00
 Relinquished By: Fed Ex Date/Time: 10/11/16 0910
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____

Received By: Fedex Date/Time: _____
 Received By: *[Signature]* Date/Time: 10/11/16 0910
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

PACE Project No. 40190879
 Receipt Temp = 80.1 °C
 Sample Receipt pH (OK) Adjusted
 Cobble Custody Seal Present / Not Present Intact / Not Intact



1241 Bellevue Street, Green Bay, WI 54302

Document Name:
Sample Condition Upon Receipt (SCUR)

Document Revised: 25Apr2018

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

Issuing Authority:
Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Gunneth Fleming

WO#: **40196879**

Courier: CS Logistics Fed Ex Speedee UPS Walco
 Client Pace Other: _____



Tracking #: 8149 6215 5835

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

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used SR - NA Type of Ice: Ice Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: Rot / Corr: _____

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

Person examining contents:
Date: 10/9/19
Initials: RF

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

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3. <u>yr 10/9/19 RF</u>
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. <u>rec'd 2 trap blocks, split b/w two projects. 10/9/19 RF</u>
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>433</u>		

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

Project Manager Review: HMR for DM

Date: 10/9/19

