



Gannett Fleming

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April 5, 2018
File #34265.003

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

Re: Remediation Progress Report for Tank 70 Release Site (Sept. 2013 – Dec. 2017)
Superior Refining Company LLC Refinery, Superior, WI
WDNR BRRTS# 02-16-223154 and Facility ID: 816009590

Dear John:

On behalf of Superior Refining Company LLC (SRC), Gannett Fleming, Inc. (GF) is submitting this remediation progress report for the Murphy Oil (Murphy) Tank 70 release site (WDNR BRRTS# 02-16-223154) at the SRC refinery in Superior. The report summarizes remedial and monitoring activities conducted at the site from September 2013 through December 2017. In addition, it includes background information on the refinery, Tank 70 basin, and Tank 70 release site for reference. Periodic reporting of remediation site progress to the Wisconsin Department of Natural Resources (WDNR) is required pursuant to ss. NR 700.11(1) and 724.13(3), Wisconsin Administrative Code. A completed certification page for the report is also attached.

Pertinent Site Background and Tank 70 Basin Information

Figure 1 is a location map showing Tank 70, the refinery, its approximate property boundary, and the area around the refinery and was prepared using the most recent USGS topographic map. Figure 2 is a site plan of the Tank 70 basin, which is in the SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 25, Township 49 North, Range 14 West, Superior Township of Douglas County.

The land surrounding the basin is also owned by Calumet and is part of the refinery. The closest surface water is Newton Creek, located approximately 2,000 feet east, as shown on Figure 1. The Tank 70 basin is located on relatively level land in the north-central area of the refinery. The basin's ground surface is unpaved. Beneath an impermeable liner installed in June 2003, as described in the following section, the basin is underlain by native clay; the depth to groundwater ranges from approximately 1 to 4 feet below ground surface (bgs), based on

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John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-2-

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

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

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

Tank 70 Release Site Background and Remedial History (February 1999-August 2013)

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

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

John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-3-

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

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

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

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

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

John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-4-

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

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

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

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

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

Remedial and Monitoring Activities (September 2013 through December 2017)

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

- Test pits TP-2/T70 and TP-5/T70 were backfilled in June 2006.

John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-5-

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

Since the last update report was submitted to the WDNR on May 12, 2014, work in the Tank 70 basin has included the periodic monitoring and recovery of product from the on-site wells and collection of groundwater samples from select locations.

During the reporting period, measurable product was encountered in MP-1/T70 (0.23 foot) on 05/09/17 and in MP-2/T70 (0.06 foot), MP-4/T70 (0.64 foot), and MW-5/T70 (8.11 feet) on 10/10/17, as shown in Table 1, which includes fluid level monitoring data for September 2013 through December 2017. Otherwise, no measurable thickness of product was observed in MP-3/T70, the other six Tank 70 monitoring wells, or TP-1/T70.

Through December 2017, approximately 267 liters/71 gallons of product have been recovered, with almost all (i.e., >92%) of it coming from MP-1/T70, MP-4/T70, MW-1/T70, and MW-2/T70. Based on the total estimated product recovered, approximately 36% (26 gallons) was from MW-2/T70, 30% (21 gallons) from MP-1/T70, 17% (12 gallons) from MW-1/T70, and 9.4% (6.6 gallons) from MP-4/T70. From September 2013 through December 2017, approximately 0.04, 0.01, 0.10, and 1.3 gallons were recovered from MP-1/T70, MP-2/T70, MP-4/T70, and MW-5/T70, respectively. These are about 0.2%, <16%, about 1.6%, and 100% of the total volumes recovered from MP-1/T70, MP-2/T70, MP-4/T70, and MW-5/T70, respectively, to date.

SRC will continue to check for free product, but for all practical purposes, we believe free product has been recovered to the extent practical from the Tank 70 basin, and the site is ready for closure.

Groundwater samples were collected at the site during the reporting period in October 2014, June and October 2015, and May and October 2016 and 2017. Each well was purged dry twice and allowed to recover for at least 6 days, prior to the collection of the samples. Monitoring wells MW-1R/T70, MW-2R/T70, and MW-3/T70 through MW-6/T70 were routinely sampled. Gannett Fleming used new one-time-use polyethylene bailers with new nylon rope to collect each groundwater sample. The groundwater samples were sent to Pace Analytical of Green

John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-6-

Bay (Wisconsin laboratory certification #405132750) and analyzed for petroleum volatile organic compounds (PVOCs) and naphthalene (N). Four of the PVOCs of common concern include benzene, toluene, ethylbenzene, and xylenes (BTEX). The other PVOCs include the two trimethylbenzenes (TMBs) and methyl tert butyl ether (MTBE). Starting in October 2015, MW-7/T70 was not sampled due to damaged PVC casing/surface water infiltration.

Table 2 summarizes the analytical results of the groundwater samples in micrograms per liter ($\mu\text{g}/\ell$). As shown in Table 2, at least one PVOC compound has historically been present at a concentration at or above its applicable NR 140 enforcement standard (ES) in each well. However, because of the removal of accumulated free product over the years, PVOC and N concentrations in the wells have been stable or decreasing. For example, Figures 3 through 5 present trend analysis plots for BTEX, BTEX(+)N, and BTEX(+)N(+)TMBs concentrations in the groundwater at MW-1R/T70, MW-2R/T70, and MW-4/T70 through MW-7/T70. Note that the best-fit exponential trend lines were generated using Excel. As shown on Figures 3 through 5, dissolved-phase concentrations in the wells have followed a general downward trend. Attachment A provides copies of the laboratory reports and chain of custody records for the groundwater samples collected from September 2013 through December 2017.

Historically, a groundwater contour map for the Tank 70 release site has not been prepared because groundwater levels in the wells either are influenced by local surface/melt water in the spring or typically do not have sufficient time to reach static levels after they are bailed later in the year. Consequently, a groundwater contour map representing static conditions for the Tank 70 site cannot be created.

Future Work

Due to relatively shallow groundwater, cold weather, and snow, year-round access to wells at the refinery is not practical. During time periods when it's warm enough to allow access (i.e., from April/May through October/November), SRG's work plan for 2018 follows:

- Abandon MW-7/T70 since its PVC casing is damaged. A replacement well for MW-7/T70 will not be installed because product has not been measured in the well since November 2007, and historical data document that PVOC and N concentrations in MW-7/T70 are decreasing.

Gannett Fleming

John Sager
Wisconsin Department of Natural Resources
April 5, 2018

-7-

- Continue to manually bail product from the remaining six monitoring wells (MW-1R/T70 through MW-6/T70) and four monitoring points (MP-1/T70 through MP-4/T70) when free product is present. The purged product/water will continue to be treated in the refinery's No. 1 API oil/water separator/WWTP.
- Continue to gauge test pit sump TP-1/T70, along with the monitoring wells, etc. If product is observed in TP-1/T70, then pump the sump using an on-site vacuum truck. The pumped product/water would be treated in the refinery's No. 1 API oil/water separator/WWTP.
- If product is observed, then check the wells, points, and test pit sump monthly. If product is not observed, then check the wells, points, and sump quarterly.
- Collect groundwater samples from those monitoring wells without product biannually, and have the samples analyzed for PVOCs and N by a Wisconsin-certified laboratory using EPA Method 8260. Each monitoring well (but not TP-1/T70) will be purged dry twice and allowed to recover, prior to the collection of the samples.
- Document the proper abandonment of MW-7/T70, recovery of any product, and analytical results of the 2018 groundwater samples in our next remediation progress report to the WDNR by the end of January 2019.

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

Sincerely,

GANNETT FLEMING, INC.



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

CCW/jec


Enc.

ecc: Matt Turner (Husky Superior)

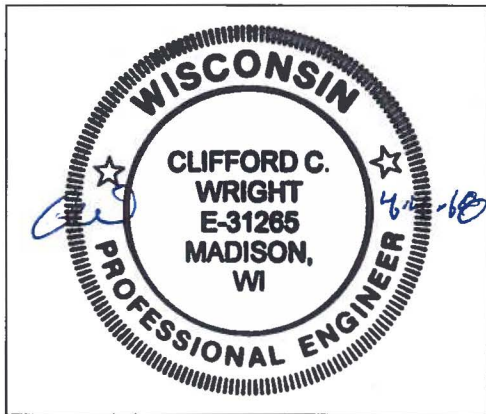
CERTIFICATION

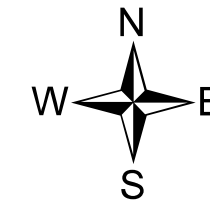
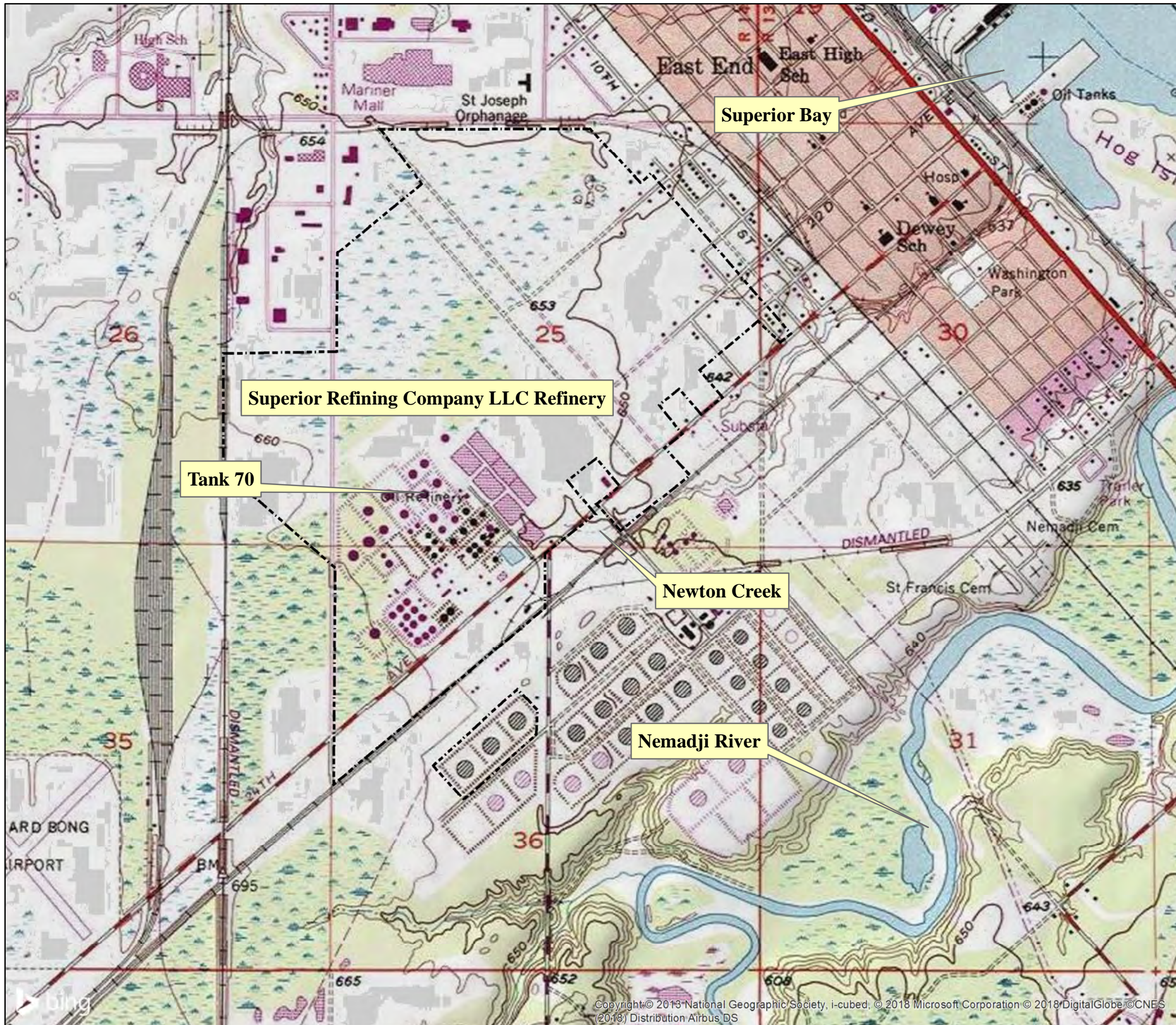
Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring, or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.

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

Print Name Clifford C. Wright	Title Project Engineer
Signature 	Date 7.4.18

Professional Seal, if applicable:



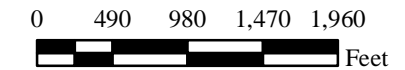


Legend

----- Approximate Property Boundary

Notes:

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

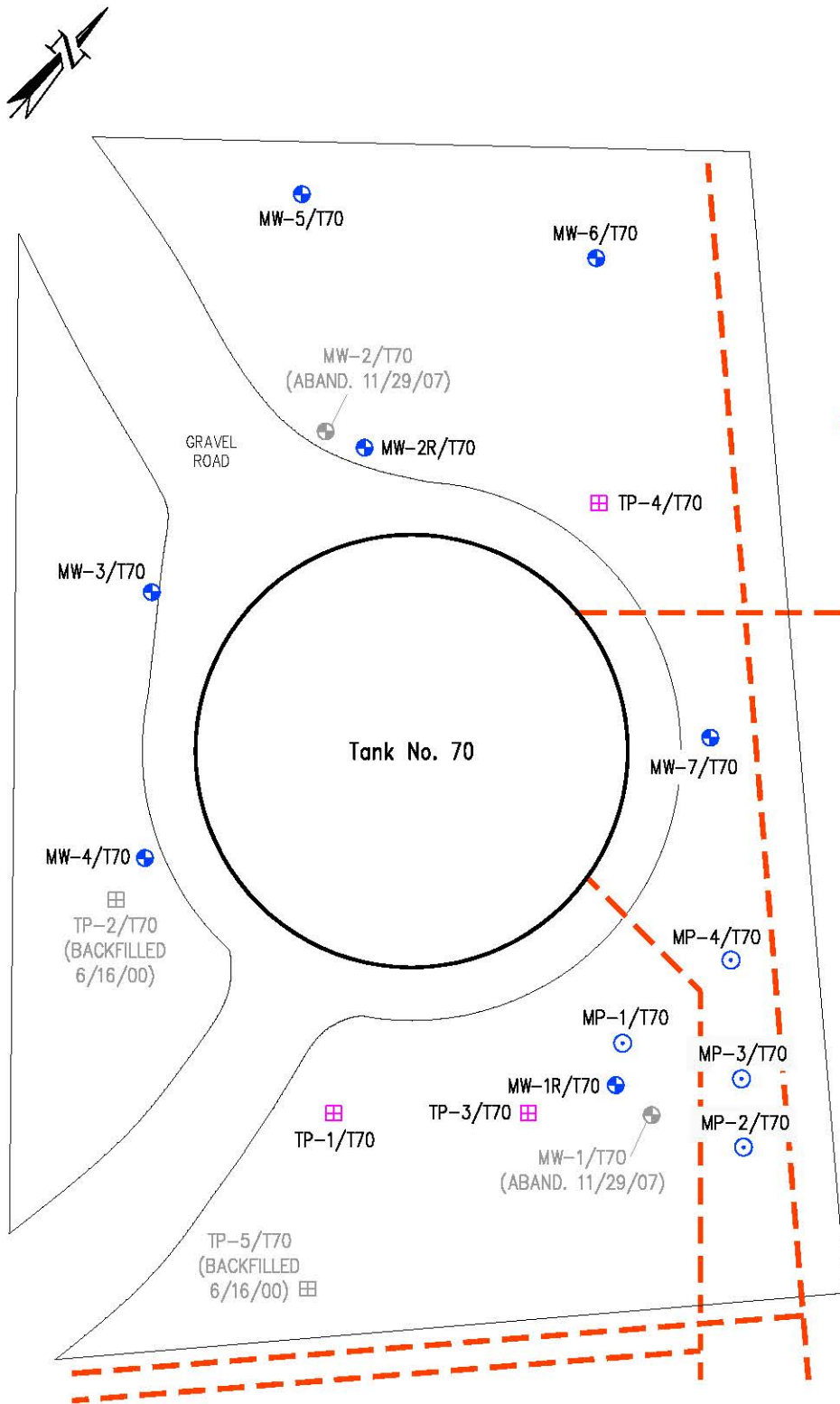


Site Location Map

SUPERIOR REFINING COMPANY LLC REFINERY
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LEGEND

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

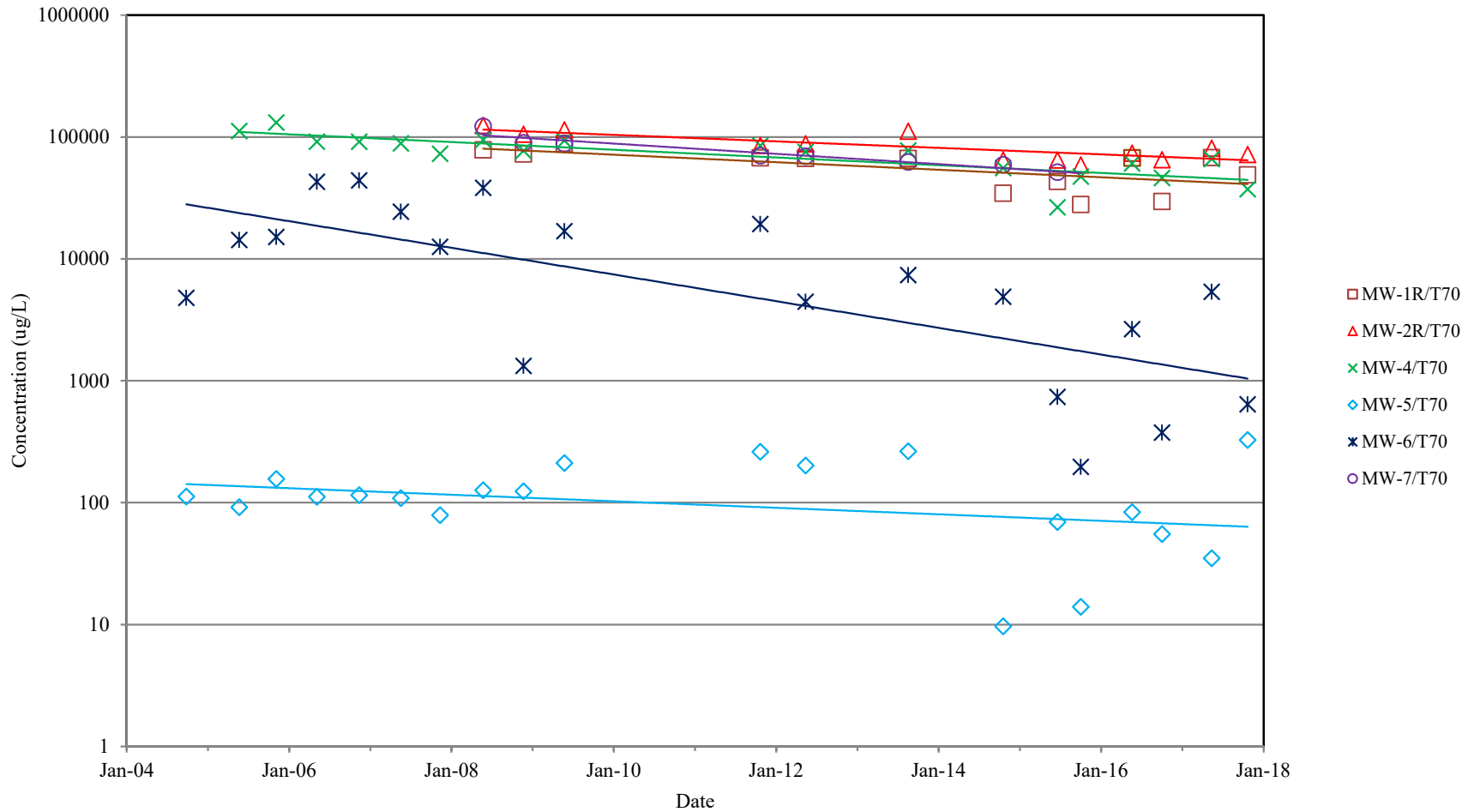
NOTES

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



**TANK NO. 70
SITE PLAN**

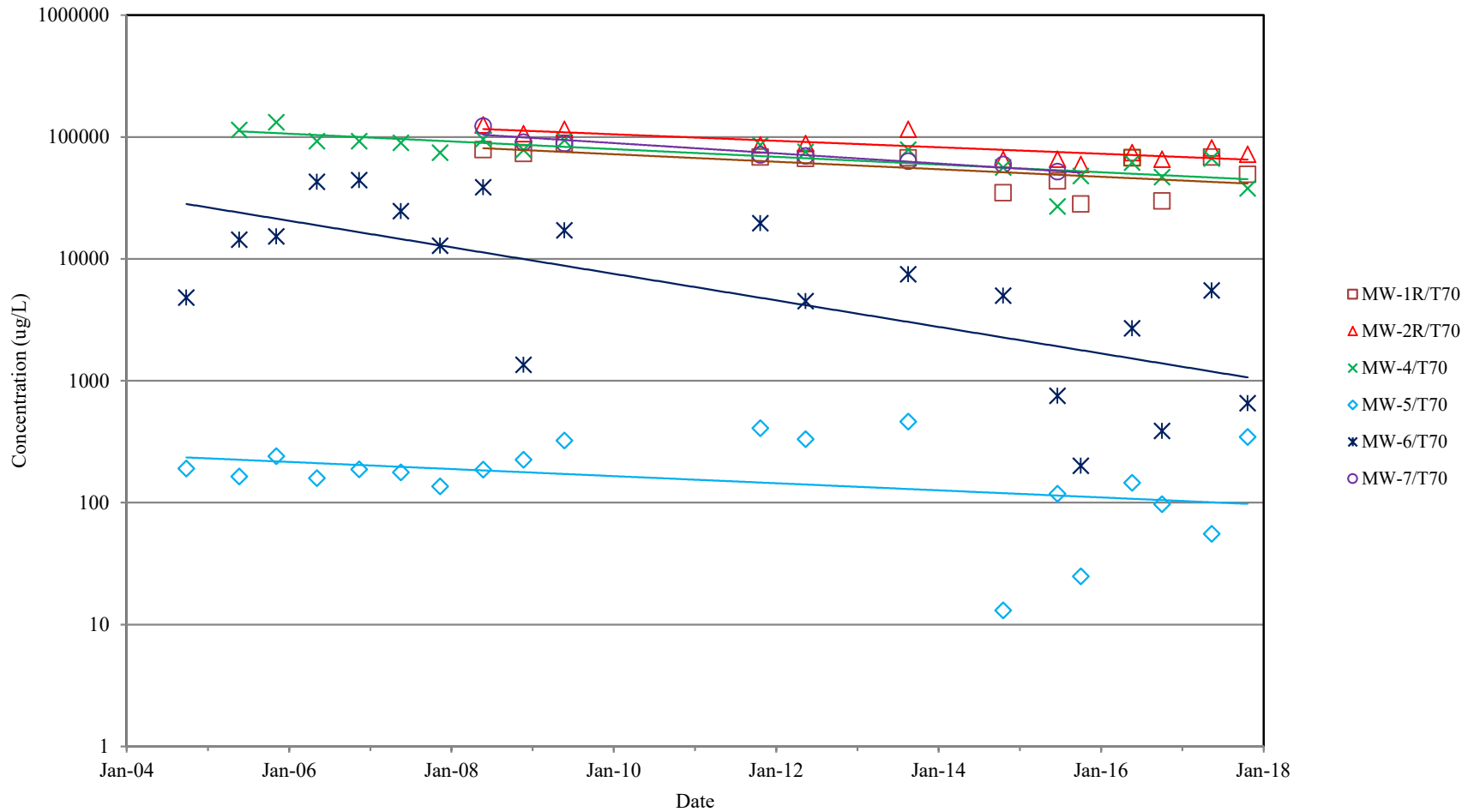
SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN



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

BTEX GROUNDWATER CONCENTRATIONS TANK 70 BASIN

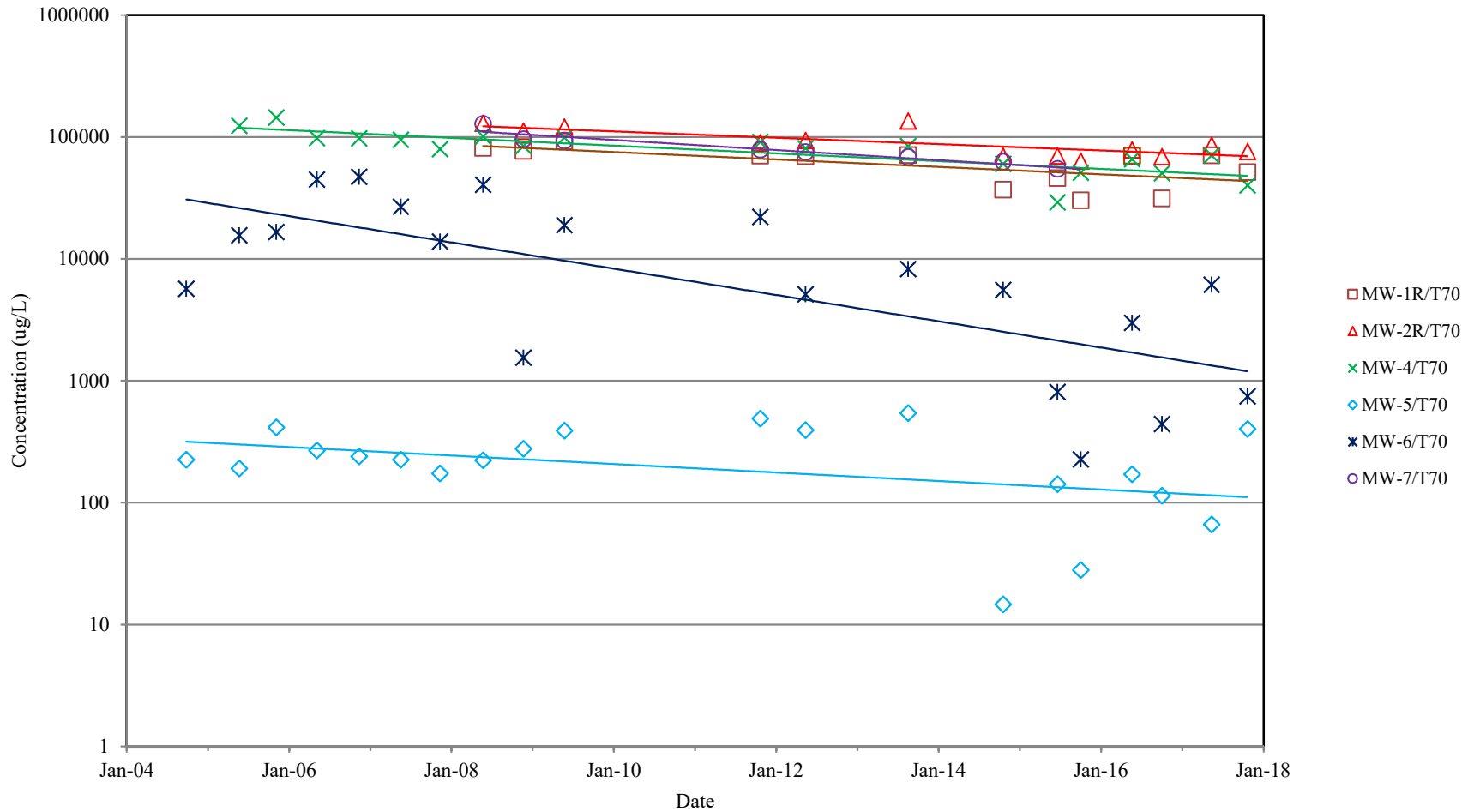
SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN



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

BTEX+N GROUNDWATER CONCENTRATIONS TANK 70 BASIN

SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN



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

BTEX+N+TMBs GROUNDWATER CONCENTRATIONS TANK 70 BASIN

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SUPERIOR, WISCONSIN

TABLE 1

FLUID LEVEL MONITORING DATA FOR TANK 70 RELEASE SITE (SEPTEMBER 2013 - DECEMBER 2017)

Date	MP-1/T70		MP-2/T70		MP-3/T70		MP-4/T70		MW-1R/T70		MW-2R/T70		MW-3/T70		MW-4/T70		MW-5/T70		MW-6/T70		MW-7/T70		TP-1/T70		Foot- notes	
	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW	DTP	DTW		
	Depth to Fluid from Top of Casing (feet)																									
09/11/14	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	2.05	--	2.11	--	3.81	--	4.08	--	2.66	--	2.09	--	2.84	nm	nm	(1)
09/25/14	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.32	--	4.40	--	4.62	--	4.71	--	3.83	--	3.30	--	3.54	nm	nm	(1)
10/21/14	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.41	--	3.69	--	4.92	--	4.97	--	4.10	--	3.57	--	4.02	nm	nm	(2)
06/05/15	--	4.65	--	5.66	--	5.02	--	4.95	--	3.35	--	2.93	--	4.78	--	4.82	--	3.75	--	3.51	--	3.59	--	3.95	(1)	
06/16/15	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.39	--	3.95	--	4.91	--	5.06	--	4.00	--	3.82	--	4.31	nm	nm	(1)
06/23/15	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.52	--	3.74	--	4.88	--	4.95	--	4.17	--	3.82	--	3.47	nm	nm	(2)
09/04/15	--	4.89	--	5.53	--	5.44	--	5.01	--	3.10	--	3.05	--	4.98	--	5.11	--	4.11	--	3.30	--	3.55	--	3.82	(1,3)	
09/24/15	--	4.21	--	4.80	--	4.76	--	4.40	--	2.61	--	2.37	--	4.76	--	4.60	--	3.81	--	2.66	nm	nm	--	3.38	(4)	
10/06/15	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.68	--	3.67	--	5.01	--	5.06	--	4.43	--	3.78	nm	nm	nm	nm	(2)
05/06/16	--	5.89	--	5.98	--	5.26	--	5.02	--	3.46	--	2.79	--	4.81	--	4.70	--	4.05	--	3.89	--	3.78	--	3.86	(1, 5)	
05/17/16	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.46	--	3.22	--	5.02	--	5.11	--	4.69	--	4.01	--	4.06	nm	nm	(1)
05/24/16	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.69	--	3.14	--	4.76	--	4.92	--	4.29	--	4.17	--	3.81	nm	nm	(2)
09/08/16	--	5.41	--	5.22	--	4.71	--	4.65	--	3.91	--	2.95	--	4.75	--	4.84	--	3.69	--	3.80	nm	nm	--	3.60	(4)	
09/22/16	--	4.50	--	5.85	--	5.11	--	4.84	--	3.55	--	3.67	--	5.32	--	5.41	--	3.99	--	4.04	nm	nm	--	3.91	(4)	
10/05/16	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.51	--	3.99	--	4.87	--	4.90	--	3.80	--	3.86	nm	nm	nm	nm	(2)
04/27/17	--	4.58	--	5.30	--	4.78	--	4.91	--	2.87	--	2.13	--	4.56	--	4.52	--	3.43	--	2.87	nm	nm	--	3.65	(4)	
05/09/17	4.82	5.05	--	5.75	--	5.13	--	5.09	--	3.16	--	2.31	--	4.85	--	4.86	--	3.76	--	3.55	nm	nm	--	3.86	(4, 6)	
05/16/17	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.06	--	2.36	--	4.66	--	4.87	--	3.61	--	2.82	nm	nm	nm	nm	(2)
06/27/17	--	4.73	--	5.79	--	5.17	--	5.04	--	3.02	--	2.60	--	4.87	--	4.54	--	4.18	--	3.93	nm	nm	--	3.89		
09/27/17	--	4.46	--	5.47	--	4.76	--	4.75	--	2.93	--	2.71	--	4.84	--	4.72	--	3.74	--	2.91	nm	nm	--	3.83	(4)	
10/10/17	--	4.67	5.75	5.81	--	4.05	4.91	5.55	--	3.54	--	2.96	--	5.34	--	5.04	4.04	12.15	--	3.10	nm	nm	--	4.06	(4)	
10/25/17	nm	nm	nm	nm	nm	nm	nm	nm	nm	--	3.23	--	3.11	--	4.87	--	4.64	--	3.86	--	3.01	nm	nm	nm	nm	(2)
11/07/17	--	4.67	--	5.34	--	4.91	--	5.14	--	3.26	--	3.32	--	4.82	--	4.98	--	4.33	--	3.21	nm	nm	--	4.07		

TABLE 1

FLUID LEVEL MONITORING DATA FOR TANK 70 RELEASE SITE (SEPTEMBER 2013 - DECEMBER 2017)

NOTES:

DTP = Depth to product in feet.

DTW = Depth to water in feet.

nm = Not measured.

-- = Not applicable/no free product.

FOOTNOTES:

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

(2) Sampled the MWs (see Table 2 for summary of analytical results). Starting on 10/06/15, MW-7/T70 not sampled due to damaged PVC casing/surface water infiltration.

(3) Bailed 1 gallon of muddy water from MW-7/T70; PVC casing apparently damaged, approximately 2 feet below grade (and depth to water <2 feet below grade there).

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

(5) In Dec 2015, attempted to repair MW-7/T70 with a coupler. However, the casing pulled apart below grade again in May 2016 allowing surface water infiltration.

(6) Bailed MP-1/T70 dry to address free product.

(7) Bailed MP-2/T70, MP-4/T70, and MW-5/T70 dry to address free product.

SUPERIOR REFINING COMPANY LLC
SUPERIOR, WISCONSIN

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID	GRO	Benzene	Ethyl-benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	Naphthalene	n-Propyl-benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
MW-1/T70 from 09/09/99 through 11/15/07 and its replacement MW-1R/T70 since 05/27/08										
09/09/99	115,000	25,900	4,390	33,800	16,600	3,720	<1,500	na	na	na
12/09/99	115,000	23,100	2,730	30,500	17,280	3,584	<150	na	na	na
03/09/00	87,000	25,000	2,400	31,000	14,000	3,130	<160	na	na	na
06/14/00	120,000	28,000	3,300	43,000	21,000	4,040	<94	na	na	na
06/07/02	130,000	31,000	2,600	33,000	16,100	3,030	<35	55 J	450	240 J
09/12/02	110,000	29,000	2,600	34,000	17,700	3,920	<86	na	810	na
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	167,000	25,100	5,510	50,300	32,800	10,970	<150	na	848	na
11/09/05	108,000	38,200	2,130	46,000	13,890	1,578	<300	na	800 U	na
05/10/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/16/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/08	103,000	31,000	1,750	31,500	13,910	2,657	<15.0	na	475	na
11/24/08	96,400	26,400	2,060	28,100	15,790	3,592	<150	na	753 J	na
05/27/09	115,000	32,900	2,930	33,600	18,510	3,555	<60.0	na	669	na
10/25/11	na	28,100	1,970	24,200	13,040	2,003 J	<500	na	1,000 U	na
05/16/12	na	26,300	2,360	23,000	14,890	2,882	<122	na	178 U	na
08/21/13	na	24,850	2,545	22,250	16,885	3,525 J	<123	na	668 J	na
10/21/14	na	13,600	983	10,500	9,390	2,032	<48.5	na	348	na
06/23/15	na	14,600	1,500	14,300	12,770	2,397	<21.8	na	418 J	na
10/06/15	na	10,400	570	8,130	8,750	1,904	<21.8	na	312 U	na
05/24/16	na	30,800	1,670	20,700	13,870	2,668	<21.8	na	380 J	na
10/05/16	na	12,400	106 J	8,630	8,450	1,280	<21.8	na	312 U	na
05/17/17	na	30,400	2,020	21,100	14,280	2,269	<34.8	na	599 J	na
10/25/17	na	22,000	1,410	13,900	11,420	2,275	<34.8	na	500 U	na
MW-2/T70 from 09/12/02 through 11/16/06 and its replacement MW-2R/T70 since 05/27/08										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/09/05	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/10/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
11/16/06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/27/08	160,000	37,900	3,920	56,000	26,540	4,431	<15.0	na	777	na
11/24/08	140,000	31,100	3,900	46,200	24,045	5,245	<150	na	1,055 J	na
05/27/09	148,000	32,400	4,210	51,100	26,605	4,935	<75.0	na	967	na
10/25/11	na	23,600	2,700	38,100	20,590	3,270 J	<500	na	1,000 U	na
05/16/12	na	23,200	3,210	37,300	23,890	5,420	<122	na	445 J	na
08/21/13	na	20,800	5,410	41,200	44,100	19,330	<98.7	na	3,950	na
10/21/14	na	17,300	2,280	25,800	19,110	4,280	<97.0	na	776	na
06/23/15	na	15,900	2,130	25,200	21,480	4,483	<43.6	na	743 J	na
10/06/15	na	15,200	1,600	24,100	17,850	4,002	<43.6	na	625 U	na
05/24/16	na	22,000	2,150	29,500	19,980	3,918	<43.6	na	625 U	na
10/05/16	na	19,200	1,480	25,700	18,670	3,086	<43.6	na	625 U	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID	GRO	Benzene	Ethyl-benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl-benzene	Naphthalene	n-Propyl-benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
05/16/17	na	23,000	2,510	31,500	23,540	4,044	<43.6	na	625 U	na
10/25/17	na	19,800	2,250	28,400	21,060	3,678	<43.6	na	625 U	na
MW-3/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	1,400	400	66	3.2	143	87	<0.90	na	14	na
05/26/05	5,970	1,200	61.7	884	1,412	274.3	<15.0	<15.5	47.3	<15.0
11/09/05	665	129	13.8	<6.00	44	13.0	<6.00	na	<16.0	na
05/10/06	<10,000	500	102.0	636	823	231.7	<0.300	na	27.5	na
11/16/06	<50.0	<0.310	<0.500	<0.300	<0.920	<0.710	<0.300	na	<0.800	na
05/23/07	<50.0	<0.310	<0.500	0.948 J	1.90 J	<0.710	<0.300	na	2.51 J	na
11/15/07	<50.0	<0.310	<0.500	<0.300	<0.920	<0.710	<0.300	na	0.975 J	na
05/27/08	151	14.2	3.57	5.44	15.62	4.06	<0.300	na	<0.800	na
11/24/08	<50.0	2.73	0.998 J	<0.300	<0.980	1.12	<0.300	na	<0.800	na
05/27/09	252	38.2	11.8	3.5	40.9	19.16	1.76 J	na	1.86 J	na
10/25/11	na	2,040	444	154	2,536	899	<50.0	na	189 J	na
05/16/12	na	2,080	483	295	2,494	761	<12.2	na	33.7 J	na
08/21/13	na	186	31.4	6.7	198.3	75.6	<0.99	na	8.0 J	na
10/21/14	na	273	7.2	6.0	436	149.1	<1.2	na	8.9	na
06/23/15	na	2.8	0.50 U	<0.50	3.63 J	3.8 U	<0.17	na	<2.5	na
10/06/15	na	4.0	0.70 J	0.50 U	1.77 JU	1.28 JU	<0.17	na	<2.5	na
05/24/16	na	748	44.5	12.2	522	218.4	<1.7	na	<25.0	na
10/05/16	na	0.50 U	0.50 U	0.50 U	1.50 U	1.00 U	<0.17	na	2.5 U	na
05/17/17	na	56.1	0.50 U	0.78 J	22.6	8.42 J	<0.17	na	3.2 J	na
10/25/17	na	0.83 J	0.50 U	0.50 U	2.20 J	1.12 JU	108	na	2.5 U	na
MW-4/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/26/05	234,000	23,400	4,280	49,300	35,130	9,800	<600	<620	1,810	820
11/09/05	145,000	28,900	4,640	50,300	47,400	11,850	<75.0	na	1,060	na
05/10/06	88,350	23,600	2,505	39,700	25,550	5,805	<150	na	750 J	na
11/16/06	116,000	22,900	2,420	40,900	25,130	4,970	<75.0	na	979	na
05/23/07	129,000	24,300	2,080	37,600	24,630	5,160	<75.0	na	1,040	na
11/15/07	110,000	19,800	1,770	29,000	22,290	5,200	<150	na	1,380	na
05/27/08	127,000	27,100	2,320	38,800	26,540	5,270	<150	na	777 J	na
11/24/08	104,000	22,000	1,800	30,500	22,890	5,810	<150	na	1,150 J	na
05/27/09	123,000	27,200	2,750	38,900	24,340	4,820	440	na	808	na
10/25/11	na	20,300	2,110	37,100	25,290	5,160	<500	na	1,000 U	na
05/16/12	na	21,700	1,720	30,500	21,400	5,100	<122	na	279 J	na
08/21/13	na	21,300	1,800	31,200	23,170	5,790 J	<123	na	997 J	na
10/21/14	na	15,300	1,140	21,000	18,090	3,863	<97.0	na	751	na
06/23/15	na	6,210	615	9,580	10,030	2,067	<17.4	na	497 J	na
10/06/15	na	10,700	1,500	17,600	17,470	3,190	<17.4	na	515	na
05/24/16	na	14,700	2,160	20,700	23,200	4,118	<17.4	na	712	na
10/05/16	na	10,600	1,520	15,700	18,360	3,446	<17.4	na	686	na
05/17/17	na	16,700	1,750	25,900	21,540	3,906	<21.8	na	584 J	na
10/25/17	na	11,100	954	13,600	11,720	2,148	<34.8	na	500 U	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

Well ID Date	GRO	Benzene	Ethyl- benzene	Toluene	Xylenes	TMBs	MTBE	Isopropyl- benzene	Naph- thalene	n-Propyl- benzene
NR 140 PAL	NS	0.5	140	160	400	96	12	NS	10	NS
NR 140 ES	NS	5	700	800	2,000	480	60	NS	100	NS
MW-5/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	1,600	6.1	11	17	78	35	<0.61	0.62 J	78	<0.81
05/26/05	1,530	4.75	3.05	17.8	66.4	26.43	<0.3	na	72	na
11/09/05	1,810	7.81	3.01	25.2	120.2	174	<0.3	na	85	na
05/10/06	1,620	5.87	8.73	18.9	78.3	109.9	<0.300	na	47.3	na
11/16/06	1,560	6.89	2.55	18.1	87.5	52.1	<0.300	na	72.2	na
05/23/07	1,270	4.54	24.5	15.0	65.1	48.3	<0.300	na	68.1	na
11/15/07	1,150	6.78	2.50 U	12.0	57.7	37.4	<1.50	na	57.0	na
05/27/08	1,120	8.79	22.5	18.4	76.8	36.1	<1.50	na	60.6	na
11/24/08	1,190	6.84 J	17.2	15.0	84.6	51.6	<1.50	na	101	na
05/27/09	1,930	7.69	59.1	24.3	120.0	65.7	<0.300	na	112	na
10/25/11	na	9.13	78.8	30.4	143.0	80.8	<0.50	na	148	na
05/16/12	na	10.4	58.2	25.9	107.5	62.7	<0.61	na	129	na
08/21/13	na	8.7	80.8	31.5	143.4	80.1	<0.49	na	198	na
10/21/14	na	0.91 J	0.39 U	1.0	7.4 J	1.52 U	<0.48	na	3.4	na
06/23/15	na	2.6	17.4	8.1	41.3	23.7	<0.17	na	48.6	na
10/06/15	na	1.6	0.59 J	0.50 U	11.3	3.1	<0.17	na	10.9	na
05/24/16	na	4.9	20.7	11.3	46.9	25.8	<0.17	na	61.4	na
10/05/16	na	3.4	3.2	7.5	41.0	16.9	<0.17	na	42.2	na
05/16/17	na	1.7	8.8	4.1	20.4	10.7	<0.17	na	20.4	na
10/25/17	na	179	9.9	1.6	136.8	56.8	<0.17	na	17.9	na
MW-6/T70										
09/12/02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
09/30/04	9,700	1,200	58	140	3,400	850	<6.1	<5.9	26	<8.1
05/26/05	21,600	5,490	52	3,620	5,150	1,287	<15.0	na	40.0 U	na
11/09/05	18,600	5,240	258	4,150	5,460	1,296	<30.0	na	192	na
05/10/06	34,600	14,900	399	17,900	9,570	1,719	<60.0	na	160 U	na
11/16/06	59,100	13,800	659	16,500	13,000	2,904	<75.0	na	200 U	na
05/23/07	35,700	8,730	125 U	8,020	7,450	2,166	<75.0	na	295 J	na
11/15/07	21,100	4,040	335	4,150	4,060	1,012	<30.0	na	248 J	na
05/27/08	50,100	13,400	960	14,100	9,870	1,882	<30.0	na	250 J	na
11/24/08	2,520	337	28.7	341	617	189	<3.00	na	30.1	na
05/27/09	27,400	4,600	629	4,780	6,890	1,820	59.4 J	na	229	na
10/25/11	na	7,420	763	2,410	8,750	2,460	<50.0	na	251 J	na
05/16/12	na	1,600	260	660	1,935	620	<6.1	na	49.9 J	na
08/21/13	na	3,990	393	313	2,650	774	<9.9	na	114	na
10/21/14	na	2,630	16.0 J	126	2,126	579	<9.7	na	85.9	na
06/23/15	na	537	6.3	33.4	160.9	57.7	<0.87	na	14.5 J	na
10/06/15	na	84.1	4.6	6.4	101.7	25.0	<0.17	na	4.0 J	na
05/24/16	na	1,270	69.7	158	1,158	295.5	<1.7	na	41.9 J	na
10/05/16	na	147	8.1	9.1	211.3	54.8	<0.17	na	11.4	na
05/16/17	na	2,380	394	191	2,407	647	<8.7	na	125 U	na
10/25/17	na	350	4.0 J	12.0	276.4	88.6	<0.70	na	12.5 J	na

TABLE 2

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED COMPOUNDS - TANK 70 RELEASE SITE

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

NOTES:

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

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

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

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

FP = Free product, well not sampled.

GRO = Gasoline range organics.

J = Estimated concentration, concentration below the laboratory's level of quantitation.

MTBE = Methyl tert butyl ether.

na = Not analyzed.

NI = Not installed.

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

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

NS = No standard.

TMBs = Trimethylbenzenes.

U = Compound not detected at or above the detection limit, which is the value shown for all parameters except xylenes and TMBs.

ATTACHMENT A

**LABORATORY REPORTS AND CHAIN OF CUSTODY RECORDS FOR GROUNDWATER
SAMPLES COLLECTED FROM SEPTEMBER 2013 THROUGH DECEMBER 2017**

October 28, 2014

Project #34265.003
Calumet Superior
Reviewed by CCW
11/06/14

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 23, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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
Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 11888

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Wisconsin Certification #: 405132750

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SAMPLE SUMMARY

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40105836001	MW-1/T40	Water	10/21/14 08:05	10/23/14 10:20
40105836002	MW-4/T40	Water	10/21/14 08:50	10/23/14 10:20
40105836003	MW-5/T40	Water	10/21/14 08:45	10/23/14 10:20
40105836004	MW-6/T40	Water	10/21/14 08:40	10/23/14 10:20
40105836005	MW-7/T40	Water	10/21/14 08:35	10/23/14 10:20
40105836006	TS-1/T40	Water	10/21/14 08:55	10/23/14 10:20
40105836007	MW-1/T68	Water	10/21/14 09:17	10/23/14 10:20
40105836008	MW-2/T68	Water	10/21/14 09:20	10/23/14 10:20
40105836009	MW-4/T68	Water	10/21/14 09:15	10/23/14 10:20
40105836010	MW-5/T66	Water	10/21/14 09:30	10/23/14 10:20
40105836011	MW-5/T68	Water	10/21/14 09:35	10/23/14 10:20
40105836012	MW-6/T68	Water	10/21/14 09:25	10/23/14 10:20
40105836013	MW-1R/T70	Water	10/21/14 10:15	10/23/14 10:20
40105836014	MW-2R/T70	Water	10/21/14 09:50	10/23/14 10:20
40105836015	MW-3/T70	Water	10/21/14 10:05	10/23/14 10:20
40105836016	MW-4/T70	Water	10/21/14 10:10	10/23/14 10:20
40105836017	MW-5/T70	Water	10/21/14 09:55	10/23/14 10:20
40105836018	MW-6/T70	Water	10/21/14 10:00	10/23/14 10:20
40105836019	MW-7/T70	Water	10/21/14 10:20	10/23/14 10:20
40105836020	TRIP BLANK	Water	10/21/14 00:00	10/23/14 10:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40105836001	MW-1/T40	EPA 8260	HNW	11	PASI-G
40105836002	MW-4/T40	EPA 8260	HNW	11	PASI-G
40105836003	MW-5/T40	EPA 8260	HNW	11	PASI-G
40105836004	MW-6/T40	EPA 8260	HNW	11	PASI-G
40105836005	MW-7/T40	EPA 8260	HNW	11	PASI-G
40105836006	TS-1/T40	EPA 8260	HNW	11	PASI-G
40105836007	MW-1/T68	EPA 8260	LAP	63	PASI-G
40105836008	MW-2/T68	EPA 8260	LAP	63	PASI-G
40105836009	MW-4/T68	EPA 8260	LAP	63	PASI-G
40105836010	MW-5/T66	EPA 8260	LAP	63	PASI-G
40105836011	MW-5/T68	EPA 8260	LAP	63	PASI-G
40105836012	MW-6/T68	EPA 8260	LAP	63	PASI-G
40105836013	MW-1R/T70	EPA 8021	LCF	10	PASI-G
40105836014	MW-2R/T70	EPA 8021	LCF	10	PASI-G
40105836015	MW-3/T70	EPA 8021	LCF	10	PASI-G
40105836016	MW-4/T70	EPA 8021	LCF	10	PASI-G
40105836017	MW-5/T70	EPA 8021	LCF	10	PASI-G
40105836018	MW-6/T70	EPA 8021	LCF	10	PASI-G
40105836019	MW-7/T70	EPA 8021	LCF	10	PASI-G
40105836020	TRIP BLANK	EPA 8260	LAP	63	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40105836001	MW-1/T40					
EPA 8260	1,2,4-Trimethylbenzene	632	ug/L	5.0	10/27/14 08:48	
EPA 8260	1,3,5-Trimethylbenzene	269	ug/L	5.0	10/27/14 08:48	
EPA 8260	Benzene	438	ug/L	5.0	10/27/14 08:48	
EPA 8260	Ethylbenzene	6.1	ug/L	5.0	10/27/14 08:48	
EPA 8260	m&p-Xylene	2290	ug/L	10.0	10/27/14 08:48	
EPA 8260	o-Xylene	116	ug/L	5.0	10/27/14 08:48	
40105836002	MW-4/T40					
EPA 8260	1,2,4-Trimethylbenzene	1210	ug/L	100	10/27/14 09:10	
EPA 8260	1,3,5-Trimethylbenzene	300	ug/L	100	10/27/14 09:10	
EPA 8260	Benzene	10400	ug/L	100	10/27/14 09:10	
EPA 8260	Ethylbenzene	537	ug/L	100	10/27/14 09:10	
EPA 8260	Toluene	790	ug/L	100	10/27/14 09:10	
EPA 8260	m&p-Xylene	4330	ug/L	200	10/27/14 09:10	
EPA 8260	o-Xylene	2500	ug/L	100	10/27/14 09:10	
40105836003	MW-5/T40					
EPA 8260	1,2,4-Trimethylbenzene	186	ug/L	2.5	10/24/14 20:20	
EPA 8260	1,3,5-Trimethylbenzene	70.7	ug/L	2.5	10/24/14 20:20	
EPA 8260	Benzene	63.1	ug/L	2.5	10/24/14 20:20	
EPA 8260	Ethylbenzene	208	ug/L	2.5	10/24/14 20:20	
EPA 8260	m&p-Xylene	598	ug/L	5.0	10/24/14 20:20	
EPA 8260	o-Xylene	13.0	ug/L	2.5	10/24/14 20:20	
40105836004	MW-6/T40					
EPA 8260	1,2,4-Trimethylbenzene	34.1	ug/L	2.0	10/24/14 20:42	
EPA 8260	1,3,5-Trimethylbenzene	2.0J	ug/L	2.0	10/24/14 20:42	
EPA 8260	Benzene	233	ug/L	2.0	10/24/14 20:42	
EPA 8260	Ethylbenzene	56.1	ug/L	2.0	10/24/14 20:42	
EPA 8260	m&p-Xylene	80.3	ug/L	4.0	10/24/14 20:42	
40105836005	MW-7/T40					
EPA 8260	1,2,4-Trimethylbenzene	661	ug/L	50.0	10/24/14 12:11	
EPA 8260	1,3,5-Trimethylbenzene	220	ug/L	50.0	10/24/14 12:11	
EPA 8260	Benzene	2870	ug/L	50.0	10/24/14 12:11	
EPA 8260	Ethylbenzene	651	ug/L	50.0	10/24/14 12:11	
EPA 8260	Toluene	266	ug/L	50.0	10/24/14 12:11	
EPA 8260	m&p-Xylene	3100	ug/L	100	10/24/14 12:11	
EPA 8260	o-Xylene	1640	ug/L	50.0	10/24/14 12:11	
40105836008	MW-2/T68					
EPA 8260	1,2,4-Trimethylbenzene	1740	ug/L	200	10/25/14 19:49	
EPA 8260	1,2-Dichloroethane	1180	ug/L	200	10/25/14 19:49	
EPA 8260	1,3,5-Trimethylbenzene	409	ug/L	200	10/25/14 19:49	
EPA 8260	Benzene	25400	ug/L	200	10/25/14 19:49	
EPA 8260	Ethylbenzene	975	ug/L	200	10/25/14 19:49	
EPA 8260	Toluene	24700	ug/L	200	10/25/14 19:49	
EPA 8260	m&p-Xylene	11000	ug/L	400	10/25/14 19:49	
EPA 8260	o-Xylene	4820	ug/L	200	10/25/14 19:49	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40105836009	MW-4/T68					
EPA 8260	1,2,4-Trimethylbenzene	83.9	ug/L	1.0	10/25/14 17:56	
EPA 8260	1,3,5-Trimethylbenzene	1.5	ug/L	1.0	10/25/14 17:56	
EPA 8260	Benzene	73.8	ug/L	1.0	10/25/14 17:56	
EPA 8260	Ethylbenzene	19.8	ug/L	1.0	10/25/14 17:56	
EPA 8260	Naphthalene	3.3J	ug/L	5.0	10/25/14 17:56	
EPA 8260	m&p-Xylene	111	ug/L	2.0	10/25/14 17:56	
EPA 8260	o-Xylene	0.97J	ug/L	1.0	10/25/14 17:56	
40105836010	MW-5/T66					
EPA 8260	1,2,4-Trimethylbenzene	1210	ug/L	20.0	10/25/14 20:12	
EPA 8260	1,3,5-Trimethylbenzene	276	ug/L	20.0	10/25/14 20:12	
EPA 8260	Benzene	2050	ug/L	20.0	10/25/14 20:12	
EPA 8260	Ethylbenzene	1230	ug/L	20.0	10/25/14 20:12	
EPA 8260	Isopropylbenzene (Cumene)	11.5J	ug/L	20.0	10/25/14 20:12	
EPA 8260	Naphthalene	172	ug/L	100	10/25/14 20:12	
EPA 8260	Toluene	423	ug/L	20.0	10/25/14 20:12	
EPA 8260	m&p-Xylene	6420	ug/L	40.0	10/25/14 20:12	
EPA 8260	n-Propylbenzene	43.5	ug/L	20.0	10/25/14 20:12	
EPA 8260	o-Xylene	2610	ug/L	20.0	10/25/14 20:12	
40105836011	MW-5/T68					
EPA 8260	1,2,4-Trimethylbenzene	4170	ug/L	200	10/25/14 20:35	
EPA 8260	1,3,5-Trimethylbenzene	1080	ug/L	200	10/25/14 20:35	
EPA 8260	Benzene	23300	ug/L	200	10/25/14 20:35	
EPA 8260	Ethylbenzene	4140	ug/L	200	10/25/14 20:35	
EPA 8260	Naphthalene	617J	ug/L	1000	10/25/14 20:35	
EPA 8260	Toluene	48700	ug/L	200	10/25/14 20:35	
EPA 8260	m&p-Xylene	23100	ug/L	400	10/25/14 20:35	
EPA 8260	n-Propylbenzene	260	ug/L	200	10/25/14 20:35	
EPA 8260	o-Xylene	10300	ug/L	200	10/25/14 20:35	
40105836012	MW-6/T68					
EPA 8260	1,2,4-Trimethylbenzene	4910	ug/L	200	10/25/14 20:58	
EPA 8260	1,3,5-Trimethylbenzene	1170	ug/L	200	10/25/14 20:58	
EPA 8260	Benzene	47200	ug/L	200	10/25/14 20:58	
EPA 8260	Ethylbenzene	2160	ug/L	200	10/25/14 20:58	
EPA 8260	Naphthalene	543J	ug/L	1000	10/25/14 20:58	
EPA 8260	Toluene	47700	ug/L	200	10/25/14 20:58	
EPA 8260	m&p-Xylene	29500	ug/L	400	10/25/14 20:58	
EPA 8260	n-Propylbenzene	121J	ug/L	200	10/25/14 20:58	
EPA 8260	o-Xylene	13700	ug/L	200	10/25/14 20:58	
40105836013	MW-1R/T70					
EPA 8021	Benzene	13600	ug/L	100	10/24/14 16:11	
EPA 8021	Ethylbenzene	983	ug/L	100	10/24/14 16:11	
EPA 8021	Naphthalene	348	ug/L	100	10/24/14 16:11	
EPA 8021	Toluene	10500	ug/L	100	10/24/14 16:11	
EPA 8021	1,2,4-Trimethylbenzene	1560	ug/L	100	10/24/14 16:11	
EPA 8021	1,3,5-Trimethylbenzene	472	ug/L	100	10/24/14 16:11	

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40105836013	MW-1R/T70					
EPA 8021	m&p-Xylene	6450	ug/L	200	10/24/14 16:11	
EPA 8021	o-Xylene	2940	ug/L	100	10/24/14 16:11	
40105836014	MW-2R/T70					
EPA 8021	Benzene	17300	ug/L	200	10/24/14 17:02	
EPA 8021	Ethylbenzene	2280	ug/L	200	10/24/14 17:02	
EPA 8021	Naphthalene	776	ug/L	200	10/24/14 17:02	
EPA 8021	Toluene	25800	ug/L	200	10/24/14 17:02	
EPA 8021	1,2,4-Trimethylbenzene	3370	ug/L	200	10/24/14 17:02	
EPA 8021	1,3,5-Trimethylbenzene	910	ug/L	200	10/24/14 17:02	
EPA 8021	m&p-Xylene	12900	ug/L	400	10/24/14 17:02	
EPA 8021	o-Xylene	6210	ug/L	200	10/24/14 17:02	
40105836015	MW-3/T70					
EPA 8021	Benzene	273	ug/L	2.5	10/24/14 14:54	
EPA 8021	Ethylbenzene	7.2	ug/L	2.5	10/24/14 14:54	
EPA 8021	Naphthalene	8.9	ug/L	2.5	10/24/14 14:54	
EPA 8021	Toluene	6.0	ug/L	2.5	10/24/14 14:54	
EPA 8021	1,2,4-Trimethylbenzene	113	ug/L	2.5	10/24/14 14:54	
EPA 8021	1,3,5-Trimethylbenzene	36.1	ug/L	2.5	10/24/14 14:54	
EPA 8021	m&p-Xylene	316	ug/L	5.0	10/24/14 14:54	
EPA 8021	o-Xylene	120	ug/L	2.5	10/24/14 14:54	
40105836016	MW-4/T70					
EPA 8021	Benzene	15300	ug/L	200	10/24/14 17:28	
EPA 8021	Ethylbenzene	1140	ug/L	200	10/24/14 17:28	
EPA 8021	Naphthalene	751	ug/L	200	10/24/14 17:28	
EPA 8021	Toluene	21000	ug/L	200	10/24/14 17:28	
EPA 8021	1,2,4-Trimethylbenzene	2980	ug/L	200	10/24/14 17:28	
EPA 8021	1,3,5-Trimethylbenzene	883	ug/L	200	10/24/14 17:28	
EPA 8021	m&p-Xylene	12100	ug/L	400	10/24/14 17:28	
EPA 8021	o-Xylene	5990	ug/L	200	10/24/14 17:28	
40105836017	MW-5/T70					
EPA 8021	Benzene	0.91J	ug/L	1.0	10/24/14 11:28	
EPA 8021	Naphthalene	3.4	ug/L	1.0	10/24/14 11:28	
EPA 8021	Toluene	1.0	ug/L	1.0	10/24/14 11:28	
EPA 8021	1,2,4-Trimethylbenzene	1.1	ug/L	1.0	10/24/14 11:28	
EPA 8021	m&p-Xylene	1.7J	ug/L	2.0	10/24/14 11:28	
EPA 8021	o-Xylene	5.7	ug/L	1.0	10/24/14 11:28	
40105836018	MW-6/T70					
EPA 8021	Benzene	2630	ug/L	20.0	10/24/14 13:11	M1
EPA 8021	Ethylbenzene	16.0J	ug/L	20.0	10/24/14 13:11	
EPA 8021	Naphthalene	85.9	ug/L	20.0	10/24/14 13:11	
EPA 8021	Toluene	126	ug/L	20.0	10/24/14 13:11	
EPA 8021	1,2,4-Trimethylbenzene	436	ug/L	20.0	10/24/14 13:11	
EPA 8021	1,3,5-Trimethylbenzene	143	ug/L	20.0	10/24/14 13:11	
EPA 8021	m&p-Xylene	1370	ug/L	40.0	10/24/14 13:11	

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40105836018	MW-6/T70					
EPA 8021	o-Xylene	756 ug/L		20.0	10/24/14 13:11	M1
40105836019	MW-7/T70					
EPA 8021	Benzene	21000 ug/L		125	10/24/14 16:37	
EPA 8021	Ethylbenzene	1930 ug/L		125	10/24/14 16:37	
EPA 8021	Naphthalene	501 ug/L		125	10/24/14 16:37	
EPA 8021	Toluene	21000 ug/L		125	10/24/14 16:37	
EPA 8021	1,2,4-Trimethylbenzene	2360 ug/L		125	10/24/14 16:37	
EPA 8021	1,3,5-Trimethylbenzene	663 ug/L		125	10/24/14 16:37	
EPA 8021	m&p-Xylene	10700 ug/L		250	10/24/14 16:37	
EPA 8021	o-Xylene	4400 ug/L		125	10/24/14 16:37	

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PROJECT NARRATIVE

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Method: EPA 8021
Description: 8021 GCV Short List
Client: Gannett Fleming Inc.
Date: October 28, 2014

General Information:

7 samples were analyzed for EPA 8021. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: GCV/13421

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40105836018

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

- MS (Lab ID: 1069455)
 - Benzene
- MSD (Lab ID: 1069456)
 - Benzene
 - o-Xylene

Additional Comments:

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PROJECT NARRATIVE

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: October 28, 2014

General Information:

7 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

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:

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PROJECT NARRATIVE

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Method: EPA 8260

Description: 8260 MSV UST

Client: Gannett Fleming Inc.

Date: October 28, 2014

General Information:

6 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

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 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-1R/T70 **Lab ID: 40105836013** Collected: 10/21/14 10:15 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	13600	ug/L	100	39.6	100		10/24/14 16:11	71-43-2	
Ethylbenzene	983	ug/L	100	39.3	100		10/24/14 16:11	100-41-4	
Methyl-tert-butyl ether	<48.5	ug/L	100	48.5	100		10/24/14 16:11	1634-04-4	
Naphthalene	348	ug/L	100	42.4	100		10/24/14 16:11	91-20-3	
Toluene	10500	ug/L	100	38.8	100		10/24/14 16:11	108-88-3	
1,2,4-Trimethylbenzene	1560	ug/L	100	41.8	100		10/24/14 16:11	95-63-6	
1,3,5-Trimethylbenzene	472	ug/L	100	41.6	100		10/24/14 16:11	108-67-8	
m&p-Xylene	6450	ug/L	200	79.9	100		10/24/14 16:11	179601-23-1	
o-Xylene	2940	ug/L	100	44.9	100		10/24/14 16:11	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	99 %		80-120		100		10/24/14 16:11	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-2R/T70 **Lab ID: 40105836014** Collected: 10/21/14 09:50 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	17300	ug/L	200	79.2	200		10/24/14 17:02	71-43-2	
Ethylbenzene	2280	ug/L	200	78.6	200		10/24/14 17:02	100-41-4	
Methyl-tert-butyl ether	<97.0	ug/L	200	97.0	200		10/24/14 17:02	1634-04-4	
Naphthalene	776	ug/L	200	84.8	200		10/24/14 17:02	91-20-3	
Toluene	25800	ug/L	200	77.6	200		10/24/14 17:02	108-88-3	
1,2,4-Trimethylbenzene	3370	ug/L	200	83.6	200		10/24/14 17:02	95-63-6	
1,3,5-Trimethylbenzene	910	ug/L	200	83.2	200		10/24/14 17:02	108-67-8	
m&p-Xylene	12900	ug/L	400	160	200		10/24/14 17:02	179601-23-1	
o-Xylene	6210	ug/L	200	89.8	200		10/24/14 17:02	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	80-120		200		10/24/14 17:02	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-3/T70 **Lab ID: 40105836015** Collected: 10/21/14 10:05 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	273	ug/L	2.5	0.99	2.5		10/24/14 14:54	71-43-2	
Ethylbenzene	7.2	ug/L	2.5	0.98	2.5		10/24/14 14:54	100-41-4	
Methyl-tert-butyl ether	<1.2	ug/L	2.5	1.2	2.5		10/24/14 14:54	1634-04-4	
Naphthalene	8.9	ug/L	2.5	1.1	2.5		10/24/14 14:54	91-20-3	
Toluene	6.0	ug/L	2.5	0.97	2.5		10/24/14 14:54	108-88-3	
1,2,4-Trimethylbenzene	113	ug/L	2.5	1.0	2.5		10/24/14 14:54	95-63-6	
1,3,5-Trimethylbenzene	36.1	ug/L	2.5	1.0	2.5		10/24/14 14:54	108-67-8	
m&p-Xylene	316	ug/L	5.0	2.0	2.5		10/24/14 14:54	179601-23-1	
o-Xylene	120	ug/L	2.5	1.1	2.5		10/24/14 14:54	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	98 %		80-120		2.5		10/24/14 14:54	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-4/T70 **Lab ID: 40105836016** Collected: 10/21/14 10:10 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	15300	ug/L	200	79.2	200		10/24/14 17:28	71-43-2	
Ethylbenzene	1140	ug/L	200	78.6	200		10/24/14 17:28	100-41-4	
Methyl-tert-butyl ether	<97.0	ug/L	200	97.0	200		10/24/14 17:28	1634-04-4	
Naphthalene	751	ug/L	200	84.8	200		10/24/14 17:28	91-20-3	
Toluene	21000	ug/L	200	77.6	200		10/24/14 17:28	108-88-3	
1,2,4-Trimethylbenzene	2980	ug/L	200	83.6	200		10/24/14 17:28	95-63-6	
1,3,5-Trimethylbenzene	883	ug/L	200	83.2	200		10/24/14 17:28	108-67-8	
m&p-Xylene	12100	ug/L	400	160	200		10/24/14 17:28	179601-23-1	
o-Xylene	5990	ug/L	200	89.8	200		10/24/14 17:28	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	101	%	80-120		200		10/24/14 17:28	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-5/T70 **Lab ID: 40105836017** Collected: 10/21/14 09:55 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	0.91J	ug/L	1.0	0.40	1		10/24/14 11:28	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		10/24/14 11:28	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		10/24/14 11:28	1634-04-4	
Naphthalene	3.4	ug/L	1.0	0.42	1		10/24/14 11:28	91-20-3	
Toluene	1.0	ug/L	1.0	0.39	1		10/24/14 11:28	108-88-3	
1,2,4-Trimethylbenzene	1.1	ug/L	1.0	0.42	1		10/24/14 11:28	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		10/24/14 11:28	108-67-8	
m&p-Xylene	1.7J	ug/L	2.0	0.80	1		10/24/14 11:28	179601-23-1	
o-Xylene	5.7	ug/L	1.0	0.45	1		10/24/14 11:28	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	99 %		80-120		1		10/24/14 11:28	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-6/T70 **Lab ID: 40105836018** Collected: 10/21/14 10:00 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	2630	ug/L	20.0	7.9	20		10/24/14 13:11	71-43-2	M1
Ethylbenzene	16.0J	ug/L	20.0	7.9	20		10/24/14 13:11	100-41-4	
Methyl-tert-butyl ether	<9.7	ug/L	20.0	9.7	20		10/24/14 13:11	1634-04-4	
Naphthalene	85.9	ug/L	20.0	8.5	20		10/24/14 13:11	91-20-3	
Toluene	126	ug/L	20.0	7.8	20		10/24/14 13:11	108-88-3	
1,2,4-Trimethylbenzene	436	ug/L	20.0	8.4	20		10/24/14 13:11	95-63-6	
1,3,5-Trimethylbenzene	143	ug/L	20.0	8.3	20		10/24/14 13:11	108-67-8	
m&p-Xylene	1370	ug/L	40.0	16.0	20		10/24/14 13:11	179601-23-1	
o-Xylene	756	ug/L	20.0	9.0	20		10/24/14 13:11	95-47-6	M1
Surrogates									
a,a,a-Trifluorotoluene (S)	99 %		80-120		20		10/24/14 13:11	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: MW-7/T70 **Lab ID: 40105836019** Collected: 10/21/14 10:20 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	21000	ug/L	125	49.5	125		10/24/14 16:37	71-43-2	
Ethylbenzene	1930	ug/L	125	49.1	125		10/24/14 16:37	100-41-4	
Methyl-tert-butyl ether	<60.6	ug/L	125	60.6	125		10/24/14 16:37	1634-04-4	
Naphthalene	501	ug/L	125	53.0	125		10/24/14 16:37	91-20-3	
Toluene	21000	ug/L	125	48.5	125		10/24/14 16:37	108-88-3	
1,2,4-Trimethylbenzene	2360	ug/L	125	52.2	125		10/24/14 16:37	95-63-6	
1,3,5-Trimethylbenzene	663	ug/L	125	52.0	125		10/24/14 16:37	108-67-8	
m&p-Xylene	10700	ug/L	250	99.9	125		10/24/14 16:37	179601-23-1	
o-Xylene	4400	ug/L	125	56.1	125		10/24/14 16:37	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	104	%	80-120		125		10/24/14 16:37	98-08-8	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

Sample: TRIP BLANK **Lab ID: 40105836020** Collected: 10/21/14 00:00 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		10/25/14 19:27	630-20-6	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	71-55-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/25/14 19:27	79-34-5	
1,1,2-Trichloroethane	<0.16	ug/L	1.0	0.16	1		10/25/14 19:27	79-00-5	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		10/25/14 19:27	75-34-3	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/25/14 19:27	75-35-4	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/25/14 19:27	563-58-6	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/25/14 19:27	87-61-6	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	96-18-4	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/25/14 19:27	120-82-1	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	95-63-6	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/25/14 19:27	96-12-8	
1,2-Dibromoethane (EDB)	<0.16	ug/L	1.0	0.16	1		10/25/14 19:27	106-93-4	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	95-50-1	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/25/14 19:27	107-06-2	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/25/14 19:27	78-87-5	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	108-67-8	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	541-73-1	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	142-28-9	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	106-46-7	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/25/14 19:27	594-20-7	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/25/14 19:27	106-43-4	
Benzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/25/14 19:27	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/25/14 19:27	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/25/14 19:27	74-83-9	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/25/14 19:27	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/25/14 19:27	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	74-87-3	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	124-48-1	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/25/14 19:27	74-95-3	
Dichlorodifluoromethane	<0.20	ug/L	1.0	0.20	1		10/25/14 19:27	75-71-8	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/25/14 19:27	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		10/25/14 19:27	98-82-8	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/25/14 19:27	1634-04-4	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/25/14 19:27	75-09-2	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/25/14 19:27	91-20-3	
Styrene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	100-42-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	108-88-3	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Sample: TRIP BLANK **Lab ID: 40105836020** Collected: 10/21/14 00:00 Received: 10/23/14 10:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Trichloroethene	<0.33	ug/L	1.0	0.33	1		10/25/14 19:27	79-01-6	
Trichlorofluoromethane	<0.17	ug/L	1.0	0.17	1		10/25/14 19:27	75-69-4	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		10/25/14 19:27	75-01-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/25/14 19:27	156-59-2	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	10061-01-5	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/25/14 19:27	179601-23-1	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	104-51-8	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	103-65-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	95-47-6	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/25/14 19:27	99-87-6	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/25/14 19:27	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/25/14 19:27	98-06-6	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/25/14 19:27	156-60-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/25/14 19:27	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	80	%	59-130		1		10/25/14 19:27	460-00-4	
Dibromofluoromethane (S)	116	%	70-130		1		10/25/14 19:27	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		10/25/14 19:27	2037-26-5	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

QC Batch: GCV/13421 Analysis Method: EPA 8021
 QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
 Associated Lab Samples: 40105836013, 40105836014, 40105836015, 40105836016, 40105836017, 40105836018, 40105836019

METHOD BLANK: 1069333 Matrix: Water
 Associated Lab Samples: 40105836013, 40105836014, 40105836015, 40105836016, 40105836017, 40105836018, 40105836019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	10/24/14 08:54	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	10/24/14 08:54	
Benzene	ug/L	<0.40	1.0	10/24/14 08:54	
Ethylbenzene	ug/L	<0.39	1.0	10/24/14 08:54	
m&p-Xylene	ug/L	<0.80	2.0	10/24/14 08:54	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	10/24/14 08:54	
Naphthalene	ug/L	<0.42	5.0	10/24/14 08:54	
o-Xylene	ug/L	<0.45	1.0	10/24/14 08:54	
Toluene	ug/L	<0.39	1.0	10/24/14 08:54	
a,a,a-Trifluorotoluene (S)	%	100	80-120	10/24/14 08:54	

LABORATORY CONTROL SAMPLE & LCSD: 1069334 1069335

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.0	20.4	100	102	80-120	2	20	
1,3,5-Trimethylbenzene	ug/L	20	19.8	20.1	99	101	80-120	2	20	
Benzene	ug/L	20	21.8	22.4	109	112	80-120	3	20	
Ethylbenzene	ug/L	20	20.1	20.5	101	103	80-120	2	20	
m&p-Xylene	ug/L	40	40.0	40.8	100	102	80-120	2	20	
Methyl-tert-butyl ether	ug/L	20	21.1	21.1	106	106	80-120	0	20	
Naphthalene	ug/L	20	18.9	19.2	94	96	80-120	2	20	
o-Xylene	ug/L	20	20.7	21.2	104	106	80-120	3	20	
Toluene	ug/L	20	20.8	21.3	104	106	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%				100	101	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1069455 1069456

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40105836018 Result	Spike Conc.	Spike Conc.	MS Result						
1,2,4-Trimethylbenzene	ug/L	436	400	400	801	748	91	78	26-200	7	20
1,3,5-Trimethylbenzene	ug/L	143	400	400	549	536	101	98	70-160	2	20
Benzene	ug/L	2630	400	400	2720	2360	22	-69	49-165	14	20 M1
Ethylbenzene	ug/L	16.0J	400	400	442	445	106	107	59-156	1	20
m&p-Xylene	ug/L	1370	800	800	2010	1820	80	57	49-164	10	20
Methyl-tert-butyl ether	ug/L	<9.7	400	400	420	431	105	108	80-127	3	20
Naphthalene	ug/L	85.9	400	400	453	455	92	92	71-130	0	20
o-Xylene	ug/L	756	400	400	1080	976	81	55	70-137	10	20 M1
Toluene	ug/L	126	400	400	544	535	105	102	80-135	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 CALUMET T40T68T70

Pace Project No.: 40105836

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1069455		1069456									
Parameter	Units	40105836018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
a,a,a-Trifluorotoluene (S)	%						99	100	80-120				

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 CALUMET T40T68T70

Pace Project No.: 40105836

QC Batch: MSV/26290 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
 Associated Lab Samples: 40105836007, 40105836008, 40105836009, 40105836010, 40105836011, 40105836012, 40105836020

METHOD BLANK: 1069420 Matrix: Water
 Associated Lab Samples: 40105836007, 40105836008, 40105836009, 40105836010, 40105836011, 40105836012, 40105836020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/25/14 11:26	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/25/14 11:26	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/25/14 11:26	
1,1,2-Trichloroethane	ug/L	<0.16	1.0	10/25/14 11:26	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/25/14 11:26	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/25/14 11:26	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/25/14 11:26	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/25/14 11:26	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/25/14 11:26	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/25/14 11:26	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/25/14 11:26	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/25/14 11:26	
1,2-Dibromoethane (EDB)	ug/L	<0.16	1.0	10/25/14 11:26	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/25/14 11:26	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/25/14 11:26	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/25/14 11:26	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/25/14 11:26	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/25/14 11:26	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/25/14 11:26	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/25/14 11:26	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/25/14 11:26	
2-Chlorotoluene	ug/L	<0.50	1.0	10/25/14 11:26	
4-Chlorotoluene	ug/L	<0.21	1.0	10/25/14 11:26	
Benzene	ug/L	<0.50	1.0	10/25/14 11:26	
Bromobenzene	ug/L	<0.23	1.0	10/25/14 11:26	
Bromochloromethane	ug/L	<0.34	1.0	10/25/14 11:26	
Bromodichloromethane	ug/L	<0.50	1.0	10/25/14 11:26	
Bromoform	ug/L	<0.50	1.0	10/25/14 11:26	
Bromomethane	ug/L	<2.4	5.0	10/25/14 11:26	
Carbon tetrachloride	ug/L	<0.50	1.0	10/25/14 11:26	
Chlorobenzene	ug/L	<0.50	1.0	10/25/14 11:26	
Chloroethane	ug/L	<0.37	1.0	10/25/14 11:26	
Chloroform	ug/L	<2.5	5.0	10/25/14 11:26	
Chloromethane	ug/L	<0.50	1.0	10/25/14 11:26	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/25/14 11:26	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/25/14 11:26	
Dibromochloromethane	ug/L	<0.50	1.0	10/25/14 11:26	
Dibromomethane	ug/L	<0.43	1.0	10/25/14 11:26	
Dichlorodifluoromethane	ug/L	<0.20	1.0	10/25/14 11:26	
Ethylbenzene	ug/L	<0.50	1.0	10/25/14 11:26	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/25/14 11:26	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

METHOD BLANK: 1069420

Matrix: Water

Associated Lab Samples: 40105836007, 40105836008, 40105836009, 40105836010, 40105836011, 40105836012, 40105836020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/25/14 11:26	
m&p-Xylene	ug/L	<1.0	2.0	10/25/14 11:26	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/25/14 11:26	
Methylene Chloride	ug/L	<0.23	1.0	10/25/14 11:26	
n-Butylbenzene	ug/L	<0.50	1.0	10/25/14 11:26	
n-Propylbenzene	ug/L	<0.50	1.0	10/25/14 11:26	
Naphthalene	ug/L	<2.5	5.0	10/25/14 11:26	
o-Xylene	ug/L	<0.50	1.0	10/25/14 11:26	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/25/14 11:26	
sec-Butylbenzene	ug/L	<2.2	5.0	10/25/14 11:26	
Styrene	ug/L	<0.50	1.0	10/25/14 11:26	
tert-Butylbenzene	ug/L	<0.18	1.0	10/25/14 11:26	
Tetrachloroethene	ug/L	<0.50	1.0	10/25/14 11:26	
Toluene	ug/L	<0.50	1.0	10/25/14 11:26	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/25/14 11:26	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/25/14 11:26	
Trichloroethene	ug/L	<0.33	1.0	10/25/14 11:26	
Trichlorofluoromethane	ug/L	<0.17	1.0	10/25/14 11:26	
Vinyl chloride	ug/L	<0.18	1.0	10/25/14 11:26	
4-Bromofluorobenzene (S)	%	81	59-130	10/25/14 11:26	
Dibromofluoromethane (S)	%	109	70-130	10/25/14 11:26	
Toluene-d8 (S)	%	95	70-130	10/25/14 11:26	

LABORATORY CONTROL SAMPLE & LCSD: 1069421

1069422

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.0	49.4	96	99	70-130	3	20	
1,1,2,2-Tetrachloroethane	ug/L	50	45.9	46.9	92	94	70-130	2	20	
1,1,2-Trichloroethane	ug/L	50	49.2	48.0	98	96	70-130	2	20	
1,1-Dichloroethane	ug/L	50	45.5	47.1	91	94	70-130	3	20	
1,1-Dichloroethene	ug/L	50	47.2	48.8	94	98	70-132	3	20	
1,2,4-Trichlorobenzene	ug/L	50	47.6	51.3	95	103	70-130	7	20	
1,2-Dibromo-3-chloropropane	ug/L	50	48.7	49.5	97	99	50-150	2	20	
1,2-Dibromoethane (EDB)	ug/L	50	49.7	49.7	99	99	70-130	0	20	
1,2-Dichlorobenzene	ug/L	50	51.7	52.9	103	106	70-130	2	20	
1,2-Dichloroethane	ug/L	50	46.9	47.4	94	95	70-130	1	20	
1,2-Dichloropropane	ug/L	50	54.0	53.4	108	107	70-130	1	20	
1,3-Dichlorobenzene	ug/L	50	49.9	51.8	100	104	70-130	4	20	
1,4-Dichlorobenzene	ug/L	50	50.9	52.4	102	105	70-130	3	20	
Benzene	ug/L	50	47.2	49.1	94	98	70-130	4	20	
Bromodichloromethane	ug/L	50	51.2	51.8	102	104	70-130	1	20	
Bromoform	ug/L	50	59.3	59.0	119	118	70-130	1	20	
Bromomethane	ug/L	50	44.7	48.7	89	97	34-157	9	20	
Carbon tetrachloride	ug/L	50	51.1	53.8	102	108	70-132	5	20	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

LABORATORY CONTROL SAMPLE & LCSD: 1069421		1069422								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Chlorobenzene	ug/L	50	53.9	54.2	108	108	70-130	1	20	
Chloroethane	ug/L	50	49.4	52.4	99	105	60-143	6	20	
Chloroform	ug/L	50	44.6	46.1	89	92	70-130	3	20	
Chloromethane	ug/L	50	40.2	42.0	80	84	43-148	4	20	
cis-1,2-Dichloroethene	ug/L	50	42.3	45.3	85	91	51-133	7	20	
cis-1,3-Dichloropropene	ug/L	50	48.1	48.3	96	97	70-130	0	20	
Dibromochloromethane	ug/L	50	49.0	50.3	98	101	70-130	3	20	
Dichlorodifluoromethane	ug/L	50	34.8	34.3	70	69	10-174	2	20	
Ethylbenzene	ug/L	50	54.4	54.0	109	108	70-130	1	20	
Isopropylbenzene (Cumene)	ug/L	50	51.7	50.0	103	100	70-136	3	20	
m&p-Xylene	ug/L	100	112	110	112	110	70-131	2	20	
Methyl-tert-butyl ether	ug/L	50	39.7	40.0	79	80	54-139	1	20	
Methylene Chloride	ug/L	50	58.9	60.7	118	121	70-130	3	20	
o-Xylene	ug/L	50	54.6	53.7	109	107	70-130	2	20	
Styrene	ug/L	50	52.9	51.3	106	103	70-130	3	20	
Tetrachloroethene	ug/L	50	52.0	51.9	104	104	70-130	0	20	
Toluene	ug/L	50	51.4	52.5	103	105	70-130	2	20	
trans-1,2-Dichloroethene	ug/L	50	48.5	49.7	97	99	70-130	2	20	
trans-1,3-Dichloropropene	ug/L	50	41.1	41.5	82	83	70-130	1	20	
Trichloroethene	ug/L	50	53.5	52.9	107	106	70-130	1	20	
Trichlorofluoromethane	ug/L	50	48.4	50.7	97	101	50-150	5	20	
Vinyl chloride	ug/L	50	44.5	46.7	89	93	59-157	5	20	
4-Bromofluorobenzene (S)	%				109	104	59-130			
Dibromofluoromethane (S)	%				96	97	70-130			
Toluene-d8 (S)	%				93	92	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1070262		1070263													
Parameter	Units	40105826003		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec							
1,1,1-Trichloroethane	ug/L	<0.50	50	50	47.5	47.7	95	95	70-130	0	20				
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	49.4	51.0	99	102	70-130	3	20				
1,1,2-Trichloroethane	ug/L	<0.16	50	50	47.7	49.0	95	98	70-130	3	20				
1,1-Dichloroethane	ug/L	<0.24	50	50	44.4	45.1	89	90	70-130	2	20				
1,1-Dichloroethene	ug/L	<0.41	50	50	46.5	47.3	93	95	70-138	2	20				
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	50.6	50.9	101	102	70-130	1	20				
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	50.0	51.9	100	104	50-150	4	20				
1,2-Dibromoethane (EDB)	ug/L	<0.16	50	50	49.3	50.5	99	101	70-130	2	20				
1,2-Dichlorobenzene	ug/L	<0.50	50	50	52.2	51.9	104	104	70-130	1	20				
1,2-Dichloroethane	ug/L	<0.17	50	50	46.2	47.1	92	94	70-130	2	20				
1,2-Dichloropropane	ug/L	<0.23	50	50	50.4	53.2	101	106	70-130	5	20				
1,3-Dichlorobenzene	ug/L	<0.50	50	50	50.5	51.1	101	102	70-130	1	20				
1,4-Dichlorobenzene	ug/L	<0.50	50	50	50.2	51.8	100	104	70-130	3	20				
Benzene	ug/L	<0.50	50	50	46.7	47.5	93	95	70-130	2	20				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1070262		1070263		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40105826003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromodichloromethane	ug/L	<0.50	50	50	50.4	50.2	101	100	70-130	0	20	
Bromoform	ug/L	<0.50	50	50	55.7	56.8	111	114	70-130	2	20	
Bromomethane	ug/L	<2.4	50	50	47.1	47.9	94	96	34-159	2	20	
Carbon tetrachloride	ug/L	<0.50	50	50	50.5	51.3	101	103	70-132	2	20	
Chlorobenzene	ug/L	<0.50	50	50	51.8	52.9	104	106	70-130	2	20	
Chloroethane	ug/L	<0.37	50	50	48.8	46.8	98	94	60-143	4	20	
Chloroform	ug/L	<2.5	50	50	43.9	44.2	88	88	70-130	1	20	
Chloromethane	ug/L	<0.50	50	50	39.9	39.8	80	80	43-149	0	20	
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	42.6	44.2	85	88	48-137	4	33	
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	47.7	48.3	95	97	70-130	1	20	
Dibromochloromethane	ug/L	<0.50	50	50	50.1	50.7	100	101	70-130	1	20	
Dichlorodifluoromethane	ug/L	<0.20	50	50	28.2	30.4	56	61	10-174	8	20	
Ethylbenzene	ug/L	<0.50	50	50	53.2	53.6	106	107	70-130	1	20	
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	48.1	49.8	96	100	70-136	4	20	
m&p-Xylene	ug/L	<1.0	100	100	107	107	107	107	70-135	0	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	40.1	41.2	80	82	54-139	3	20	
Methylene Chloride	ug/L	<0.23	50	50	57.7	58.5	115	117	70-133	1	20	
o-Xylene	ug/L	<0.50	50	50	53.2	53.7	106	107	70-130	1	20	
Styrene	ug/L	<0.50	50	50	49.9	50.4	100	101	70-130	1	20	
Tetrachloroethene	ug/L	<0.50	50	50	50.6	51.6	101	103	70-130	2	20	
Toluene	ug/L	<0.50	50	50	49.9	51.2	100	102	70-130	3	20	
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	47.3	47.9	95	96	70-130	1	20	
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	41.5	42.0	83	84	70-130	1	20	
Trichloroethene	ug/L	<0.33	50	50	50.1	51.0	100	102	70-130	2	20	
Trichlorofluoromethane	ug/L	<0.17	50	50	46.9	47.5	94	95	50-150	1	20	
Vinyl chloride	ug/L	<0.18	50	50	43.9	43.5	88	87	59-158	1	20	
4-Bromofluorobenzene (S)	%						106	105	59-130			
Dibromofluoromethane (S)	%						96	97	70-130			
Toluene-d8 (S)	%						92	95	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

QC Batch: MSV/26288 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40105836003, 40105836004, 40105836005, 40105836006

METHOD BLANK: 1069353 Matrix: Water
 Associated Lab Samples: 40105836003, 40105836004, 40105836005, 40105836006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/24/14 07:19	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/24/14 07:19	
Benzene	ug/L	<0.50	1.0	10/24/14 07:19	
Ethylbenzene	ug/L	<0.50	1.0	10/24/14 07:19	
m&p-Xylene	ug/L	<1.0	2.0	10/24/14 07:19	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/24/14 07:19	
o-Xylene	ug/L	<0.50	1.0	10/24/14 07:19	
Toluene	ug/L	<0.50	1.0	10/24/14 07:19	
4-Bromofluorobenzene (S)	%	91	59-130	10/24/14 07:19	
Dibromofluoromethane (S)	%	90	70-130	10/24/14 07:19	
Toluene-d8 (S)	%	98	70-130	10/24/14 07:19	

LABORATORY CONTROL SAMPLE & LCSD: 1069354 1069355

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	50	44.7	45.1	89	90	70-130	1	20	
Ethylbenzene	ug/L	50	52.1	52.9	104	106	70-130	1	20	
m&p-Xylene	ug/L	100	107	108	107	108	70-131	1	20	
Methyl-tert-butyl ether	ug/L	50	40.3	40.3	81	81	54-139	0	20	
o-Xylene	ug/L	50	54.7	55.3	109	111	70-130	1	20	
Toluene	ug/L	50	51.1	51.8	102	104	70-130	1	20	
4-Bromofluorobenzene (S)	%				95	95	59-130			
Dibromofluoromethane (S)	%				93	92	70-130			
Toluene-d8 (S)	%				97	97	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1069401 1069402

Parameter	Units	40105799005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<1.0	50	50	43.3	40.1	87	80	70-130	8	20	
Ethylbenzene	ug/L	<1.0	50	50	50.3	46.2	101	92	70-130	8	20	
m&p-Xylene	ug/L	<2.0	100	100	103	95.1	103	95	70-135	8	20	
Methyl-tert-butyl ether	ug/L	<1.0	50	50	38.2	35.0	76	70	54-139	9	20	
o-Xylene	ug/L	<1.0	50	50	52.7	48.0	105	96	70-130	9	20	
Toluene	ug/L	<1.0	50	50	49.5	45.7	99	91	70-130	8	20	
4-Bromofluorobenzene (S)	%						95	95	59-130			
Dibromofluoromethane (S)	%						92	93	70-130			
Toluene-d8 (S)	%						97	97	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET T40T68T70
Pace Project No.: 40105836

QC Batch: MSV/26300 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40105836001, 40105836002

METHOD BLANK: 1070647 Matrix: Water
Associated Lab Samples: 40105836001, 40105836002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/27/14 06:11	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/27/14 06:11	
Benzene	ug/L	<0.50	1.0	10/27/14 06:11	
Ethylbenzene	ug/L	<0.50	1.0	10/27/14 06:11	
m&p-Xylene	ug/L	<1.0	2.0	10/27/14 06:11	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/27/14 06:11	
o-Xylene	ug/L	<0.50	1.0	10/27/14 06:11	
Toluene	ug/L	<0.50	1.0	10/27/14 06:11	
4-Bromofluorobenzene (S)	%	88	59-130	10/27/14 06:11	
Dibromofluoromethane (S)	%	88	70-130	10/27/14 06:11	
Toluene-d8 (S)	%	95	70-130	10/27/14 06:11	

LABORATORY CONTROL SAMPLE & LCSD: 1070648

1070649

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	ug/L	50	42.1	44.1	84	88	70-130	5	20	
Ethylbenzene	ug/L	50	50.0	51.6	100	103	70-130	3	20	
m&p-Xylene	ug/L	100	104	108	104	108	70-131	3	20	
Methyl-tert-butyl ether	ug/L	50	37.7	37.7	75	75	54-139	0	20	
o-Xylene	ug/L	50	52.9	54.3	106	109	70-130	3	20	
Toluene	ug/L	50	49.3	51.0	99	102	70-130	3	20	
4-Bromofluorobenzene (S)	%				94	92	59-130			
Dibromofluoromethane (S)	%				89	90	70-130			
Toluene-d8 (S)	%				95	95	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1070650

1070651

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40105917013 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	<1.0	50	50	42.3	42.6	85	85	70-130	1	20
Ethylbenzene	ug/L	<1.0	50	50	50.1	50.8	100	102	70-130	1	20
m&p-Xylene	ug/L	<2.0	100	100	105	106	105	106	70-135	1	20
Methyl-tert-butyl ether	ug/L	<1.0	50	50	36.6	36.4	73	73	54-139	0	20
o-Xylene	ug/L	<1.0	50	50	53.4	53.6	107	107	70-130	0	20
Toluene	ug/L	<1.0	50	50	49.7	50.5	99	101	70-130	2	20
4-Bromofluorobenzene (S)	%						93	93	59-130		
Dibromofluoromethane (S)	%						90	90	70-130		
Toluene-d8 (S)	%						96	96	70-130		

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QUALIFIERS

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

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

LOD - Limit of Detection.

LOQ - Limit of Quantitation.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CALUMET T40T68T70

Pace Project No.: 40105836

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40105836013	MW-1R/T70	EPA 8021	GCV/13421		
40105836014	MW-2R/T70	EPA 8021	GCV/13421		
40105836015	MW-3/T70	EPA 8021	GCV/13421		
40105836016	MW-4/T70	EPA 8021	GCV/13421		
40105836017	MW-5/T70	EPA 8021	GCV/13421		
40105836018	MW-6/T70	EPA 8021	GCV/13421		
40105836019	MW-7/T70	EPA 8021	GCV/13421		
40105836007	MW-1/T68	EPA 8260	MSV/26290		
40105836008	MW-2/T68	EPA 8260	MSV/26290		
40105836009	MW-4/T68	EPA 8260	MSV/26290		
40105836010	MW-5/T66	EPA 8260	MSV/26290		
40105836011	MW-5/T68	EPA 8260	MSV/26290		
40105836012	MW-6/T68	EPA 8260	MSV/26290		
40105836020	TRIP BLANK	EPA 8260	MSV/26290		
40105836001	MW-1/T40	EPA 8260	MSV/26300		
40105836002	MW-4/T40	EPA 8260	MSV/26300		
40105836003	MW-5/T40	EPA 8260	MSV/26288		
40105836004	MW-6/T40	EPA 8260	MSV/26288		
40105836005	MW-7/T40	EPA 8260	MSV/26288		
40105836006	TS-1/T40	EPA 8260	MSV/26288		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: Gannett Fleming
 Branch/Location: Madison WI
 Project Contact: Cliff Wright
 Phone: 608-836-1500
 Project Number: 34265.003
 Project Name: Cabinet Superior-T40, T66, T68, T70
 Project State: WI
 Sampled By (Print): Chelsea Payne
 Sampled By (Sign): Chelsea Payne
 PO #: _____ Regulatory Program: _____



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

40105836

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	Pick Letter	ANALYSES REQUESTED									
N	B	ROGS 8260									
N	B	VOCS 8260									
N	B	NOC/NOH 8021									

Quote #: Pace 2014
 Mail To Contact: Cliff Wright
 Mail To Company: Gannett Fleming
 Mail To Address: 8025 Excelsior Rd
Madison, WI 53717
 Invoice To Contact: See mail to
 Invoice To Company: u
 Invoice To Address: u
 Invoice To Phone: 608-836-1500
 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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX	ANALYSES REQUESTED						
		DATE	TIME								
001	MW-1/T40	10-21-14	8:05	GW	X						
002	MW-4/T40		8:50								
003	MW-5/T40		8:45								
004	MW-6/T40		8:40								
005	MW-7/T40		8:35								
006	TS-1/T40		8:55		↓						
007	MW-1/T68		9:17								
008	MW-2/T68		9:20								
009	MW-4/T68		9:15								
010	MW-5/T66		9:30								
011	MW-5/T68		9:35								
012	MW-6/T68		9:25								
013	MW-1R/T70	↓	10:15	↓							

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: <u>Chelsea Payne</u> Date/Time: <u>10-22-14 10:00</u>	Received By: _____ Date/Time: _____	PACE Project No. <u>40105836</u> Receipt Temp = <u>ROT</u> °C Sample Receipt pH OK / Adjusted Cooler Custody Seal <input checked="" type="checkbox"/> Present / <input type="checkbox"/> Not Present <input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Not Intact
	Relinquished By: <u>Ted Ey</u> Date/Time: <u>10/23/14 1020</u>	Received By: <u>Burank Wolfe</u> Date/Time: <u>10/23/14/1020</u>	
	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

(Please Print Clearly)

Company Name: Gianne # Fleming
 Branch/Location: Madison, WI
 Project Contact: Cliff Wright
 Phone: 608-836-1500
 Project Number: 34265.003
 Project Name: Cabinet Superior-T40, T60, T68, T70
 Project State: WI
 Sampled By (Print): Chelsea Payne
 Sampled By (Sign): Chelsea Payne
 PO #: _____ Regulatory Program: _____



UPPER MIDWEST REGION

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

40105836

Page 50 of 51

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	Pick Letter	Analyses Requested																
	B	PVOC/NaOH 8021																
	B	VOCs 8260																
	B	PVOCs 8260																

Quote #: _____
 Mail To Contact: _____
 Mail To Company: _____
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40 ml VB	
	4-40 ml VB	

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-2R/T70	10-21-14	9:50	GW
015	MW-3/T70		10:05	
016	MW-4/T70		10:10	
017	MW-5/T70		9:55	
018	MW-6/T70		10:00	
019	MW-7/T70		10:20	
020	Trip Blank			GW

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <u>Chelsea Payne</u> Date/Time: <u>10/22/14 10:00</u>	Received By: _____ Date/Time: _____	PACE Project No. <u>40105836</u>
	Relinquished By: <u>Ted Cox</u> Date/Time: <u>10/23/14 10:00</u>	Received By: <u>Alexander Wolfe</u> Date/Time: <u>10/23/14 10:00</u>	
Transmit Prelim Rush Results by (complete what you want):	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Sample Receipt pH OK / Adjusted
Email #1:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Cooler Custody Seal Present / Not Present Intact / Not Intact
Email #2:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Telephone:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	
Fax:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

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

Sample Condition Upon Receipt

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



Client Name: Garrett Fleming

Project # **WO# : 40105836**

Courier: Fed Ex UPS Client Pace Other:
Tracking #: 8062 9875 7069



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

Cooler Temperature Uncorr: ROI /Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no no

Person examining contents:
Date: 10-23-14
Initials: [Signature]

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions (VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phendics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
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):		

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 10/23/14

June 30, 2015

Project #34265.003
Calumet Superior
Reviewed by CCW
7/7/15

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on June 25, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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
Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Wisconsin Certification #: 405132750

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40117207001	MW-1 T40	Water	06/23/15 12:30	06/25/15 09:35
40117207002	MW-4 T40	Water	06/23/15 12:25	06/25/15 09:35
40117207003	MW-5 T40	Water	06/23/15 12:36	06/25/15 09:35
40117207004	MW-6 T40	Water	06/23/15 12:37	06/25/15 09:35
40117207005	MW-7 T40	Water	06/23/15 12:40	06/25/15 09:35
40117207006	TS-1 T40	Water	06/23/15 12:35	06/25/15 09:35
40117207007	MW-1 T68	Water	06/23/15 12:10	06/25/15 09:35
40117207008	MW-2 T68	Water	06/23/15 12:00	06/25/15 09:35
40117207009	MW-4 T68	Water	06/23/15 11:55	06/25/15 09:35
40117207010	MW-6 T68	Water	06/23/15 12:05	06/25/15 09:35
40117207011	MW-1R T70	Water	06/23/15 10:15	06/25/15 09:35
40117207012	MW-2R T70	Water	06/23/15 10:30	06/25/15 09:35
40117207013	MW-3 T70	Water	06/23/15 10:25	06/25/15 09:35
40117207014	MW-4 T70	Water	06/23/15 10:20	06/25/15 09:35
40117207015	MW-5 T70	Water	06/23/15 10:32	06/25/15 09:35
40117207016	MW-6 T70	Water	06/23/15 10:35	06/25/15 09:35
40117207017	MW-7 T70	Water	06/23/15 11:15	06/25/15 09:35
40117207018	MW-1 CW	Water	06/23/15 14:00	06/25/15 09:35
40117207019	MW-2 CW	Water	06/23/15 13:57	06/25/15 09:35
40117207020	MW-3 CW	Water	06/23/15 14:05	06/25/15 09:35
40117207021	MW-4 CW	Water	06/23/15 13:55	06/25/15 09:35
40117207022	TRIP BLANK	Water	06/23/15 21:00	06/25/15 09:35

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40117207001	MW-1 T40	EPA 8260	HNW	11	PASI-G
40117207002	MW-4 T40	EPA 8260	HNW	11	PASI-G
40117207003	MW-5 T40	EPA 8260	HNW	11	PASI-G
40117207004	MW-6 T40	EPA 8260	HNW	11	PASI-G
40117207005	MW-7 T40	EPA 8260	HNW	11	PASI-G
40117207006	TS-1 T40	EPA 8260	HNW	11	PASI-G
40117207007	MW-1 T68	EPA 8260	LAP	63	PASI-G
40117207008	MW-2 T68	EPA 8260	LAP	63	PASI-G
40117207009	MW-4 T68	EPA 8260	LAP	63	PASI-G
40117207010	MW-6 T68	EPA 8260	LAP	63	PASI-G
40117207011	MW-1R T70	EPA 8260	HNW	12	PASI-G
40117207012	MW-2R T70	EPA 8260	HNW	12	PASI-G
40117207013	MW-3 T70	EPA 8260	HNW	12	PASI-G
40117207014	MW-4 T70	EPA 8260	HNW	12	PASI-G
40117207015	MW-5 T70	EPA 8260	HNW	12	PASI-G
40117207016	MW-6 T70	EPA 8260	HNW	12	PASI-G
40117207017	MW-7 T70	EPA 8260	HNW	12	PASI-G
40117207018	MW-1 CW	EPA 8260	HNW	12	PASI-G
40117207019	MW-2 CW	EPA 8260	HNW	12	PASI-G
40117207020	MW-3 CW	EPA 8260	HNW	12	PASI-G
40117207021	MW-4 CW	EPA 8260	HNW	12	PASI-G
40117207022	TRIP BLANK	EPA 8260	HNW	12	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40117207001	MW-1 T40					
EPA 8260	1,2,4-Trimethylbenzene	805	ug/L	10.0	06/27/15 17:21	
EPA 8260	1,3,5-Trimethylbenzene	300	ug/L	10.0	06/27/15 17:21	
EPA 8260	Benzene	1530	ug/L	10.0	06/27/15 17:21	
EPA 8260	Ethylbenzene	480	ug/L	10.0	06/27/15 17:21	
EPA 8260	m&p-Xylene	3830	ug/L	20.0	06/27/15 17:21	
EPA 8260	o-Xylene	166	ug/L	10.0	06/27/15 17:21	
40117207002	MW-4 T40					
EPA 8260	1,2,4-Trimethylbenzene	1100	ug/L	100	06/27/15 17:43	
EPA 8260	1,3,5-Trimethylbenzene	337	ug/L	100	06/27/15 17:43	
EPA 8260	Benzene	8260	ug/L	100	06/27/15 17:43	
EPA 8260	Ethylbenzene	516	ug/L	100	06/27/15 17:43	
EPA 8260	Toluene	277	ug/L	100	06/27/15 17:43	
EPA 8260	m&p-Xylene	3310	ug/L	200	06/27/15 17:43	
EPA 8260	o-Xylene	1870	ug/L	100	06/27/15 17:43	
40117207003	MW-5 T40					
EPA 8260	1,2,4-Trimethylbenzene	7.4	ug/L	1.0	06/29/15 10:13	
EPA 8260	1,3,5-Trimethylbenzene	3.3	ug/L	1.0	06/29/15 10:13	
EPA 8260	Benzene	3.0	ug/L	1.0	06/29/15 10:13	
EPA 8260	Ethylbenzene	11.2	ug/L	1.0	06/29/15 10:13	
EPA 8260	m&p-Xylene	28.4	ug/L	2.0	06/29/15 10:13	
40117207004	MW-6 T40					
EPA 8260	1,2,4-Trimethylbenzene	115	ug/L	10.0	06/29/15 09:28	
EPA 8260	1,3,5-Trimethylbenzene	23.6	ug/L	10.0	06/29/15 09:28	
EPA 8260	Benzene	1290	ug/L	10.0	06/29/15 09:28	
EPA 8260	Ethylbenzene	507	ug/L	10.0	06/29/15 09:28	
EPA 8260	m&p-Xylene	547	ug/L	20.0	06/29/15 09:28	
40117207005	MW-7 T40					
EPA 8260	1,2,4-Trimethylbenzene	666	ug/L	40.0	06/27/15 18:51	
EPA 8260	1,3,5-Trimethylbenzene	254	ug/L	40.0	06/27/15 18:51	
EPA 8260	Benzene	3660	ug/L	40.0	06/27/15 18:51	
EPA 8260	Ethylbenzene	733	ug/L	40.0	06/27/15 18:51	
EPA 8260	Toluene	167	ug/L	40.0	06/27/15 18:51	
EPA 8260	m&p-Xylene	3290	ug/L	80.0	06/27/15 18:51	
EPA 8260	o-Xylene	1600	ug/L	40.0	06/27/15 18:51	
40117207006	TS-1 T40					
EPA 8260	1,2,4-Trimethylbenzene	1.7	ug/L	1.0	06/27/15 15:07	
EPA 8260	1,3,5-Trimethylbenzene	0.59J	ug/L	1.0	06/27/15 15:07	
EPA 8260	Benzene	34.9	ug/L	1.0	06/27/15 15:07	
EPA 8260	Ethylbenzene	1.9	ug/L	1.0	06/27/15 15:07	
40117207007	MW-1 T68					
EPA 8260	1,2,4-Trimethylbenzene	0.86J	ug/L	1.0	06/27/15 11:04	
EPA 8260	Ethylbenzene	0.57J	ug/L	1.0	06/27/15 11:04	
EPA 8260	Toluene	2.3	ug/L	1.0	06/27/15 11:04	
EPA 8260	m&p-Xylene	2.1	ug/L	2.0	06/27/15 11:04	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40117207007	MW-1 T68					
EPA 8260	o-Xylene	0.82J	ug/L	1.0	06/27/15 11:04	
40117207008	MW-2 T68					
EPA 8260	1,2,4-Trimethylbenzene	2510	ug/L	200	06/27/15 12:11	
EPA 8260	1,2-Dichloroethane	355	ug/L	200	06/27/15 12:11	
EPA 8260	1,3,5-Trimethylbenzene	630	ug/L	200	06/27/15 12:11	
EPA 8260	Benzene	10100	ug/L	200	06/27/15 12:11	
EPA 8260	Ethylbenzene	203	ug/L	200	06/27/15 12:11	
EPA 8260	Toluene	11500	ug/L	200	06/27/15 12:11	
EPA 8260	m&p-Xylene	11600	ug/L	400	06/27/15 12:11	
EPA 8260	o-Xylene	5670	ug/L	200	06/27/15 12:11	
40117207009	MW-4 T68					
EPA 8260	1,2,4-Trimethylbenzene	449	ug/L	10.0	06/29/15 21:02	
EPA 8260	1,3,5-Trimethylbenzene	26.5	ug/L	10.0	06/29/15 21:02	
EPA 8260	Benzene	982	ug/L	10.0	06/29/15 21:02	
EPA 8260	Ethylbenzene	178	ug/L	10.0	06/29/15 21:02	
EPA 8260	Isopropylbenzene (Cumene)	4.6J	ug/L	10.0	06/29/15 21:02	
EPA 8260	Toluene	15.8	ug/L	10.0	06/29/15 21:02	
EPA 8260	m&p-Xylene	441	ug/L	20.0	06/29/15 21:02	
EPA 8260	n-Propylbenzene	7.5J	ug/L	10.0	06/29/15 21:02	
EPA 8260	o-Xylene	9.6J	ug/L	10.0	06/29/15 21:02	
40117207010	MW-6 T68					
EPA 8260	1,2,4-Trimethylbenzene	3380	ug/L	50.0	06/29/15 21:25	
EPA 8260	1,3,5-Trimethylbenzene	883	ug/L	50.0	06/29/15 21:25	
EPA 8260	Benzene	5710	ug/L	50.0	06/29/15 21:25	
EPA 8260	Ethylbenzene	26.3J	ug/L	50.0	06/29/15 21:25	
EPA 8260	Naphthalene	383	ug/L	250	06/29/15 21:25	
EPA 8260	Toluene	3900	ug/L	50.0	06/29/15 21:25	
EPA 8260	m&p-Xylene	13800	ug/L	100	06/29/15 21:25	
EPA 8260	o-Xylene	6310	ug/L	50.0	06/29/15 21:25	
40117207011	MW-1R T70					
EPA 8260	1,2,4-Trimethylbenzene	1870	ug/L	125	06/27/15 19:13	
EPA 8260	1,3,5-Trimethylbenzene	527	ug/L	125	06/27/15 19:13	
EPA 8260	Benzene	14600	ug/L	125	06/27/15 19:13	
EPA 8260	Ethylbenzene	1500	ug/L	125	06/27/15 19:13	
EPA 8260	Naphthalene	418J	ug/L	625	06/27/15 19:13	
EPA 8260	Toluene	14300	ug/L	125	06/27/15 19:13	
EPA 8260	m&p-Xylene	8980	ug/L	250	06/27/15 19:13	
EPA 8260	o-Xylene	3790	ug/L	125	06/27/15 19:13	
40117207012	MW-2R T70					
EPA 8260	1,2,4-Trimethylbenzene	3560	ug/L	250	06/27/15 19:36	
EPA 8260	1,3,5-Trimethylbenzene	923	ug/L	250	06/27/15 19:36	
EPA 8260	Benzene	15900	ug/L	250	06/27/15 19:36	
EPA 8260	Ethylbenzene	2130	ug/L	250	06/27/15 19:36	
EPA 8260	Naphthalene	743J	ug/L	1250	06/27/15 19:36	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40117207012	MW-2R T70					
EPA 8260	Toluene	25200	ug/L	250	06/27/15 19:36	
EPA 8260	m&p-Xylene	14800	ug/L	500	06/27/15 19:36	
EPA 8260	o-Xylene	6680	ug/L	250	06/27/15 19:36	
40117207013	MW-3 T70					
EPA 8260	1,3,5-Trimethylbenzene	3.3	ug/L	1.0	06/27/15 15:29	
EPA 8260	Benzene	2.8	ug/L	1.0	06/27/15 15:29	
EPA 8260	m&p-Xylene	2.7	ug/L	2.0	06/27/15 15:29	
EPA 8260	o-Xylene	0.93J	ug/L	1.0	06/27/15 15:29	
40117207014	MW-4 T70					
EPA 8260	1,2,4-Trimethylbenzene	1620	ug/L	100	06/27/15 19:58	
EPA 8260	1,3,5-Trimethylbenzene	447	ug/L	100	06/27/15 19:58	
EPA 8260	Benzene	6210	ug/L	100	06/27/15 19:58	
EPA 8260	Ethylbenzene	615	ug/L	100	06/27/15 19:58	
EPA 8260	Naphthalene	497J	ug/L	500	06/27/15 19:58	
EPA 8260	Toluene	9580	ug/L	100	06/27/15 19:58	
EPA 8260	m&p-Xylene	6820	ug/L	200	06/27/15 19:58	
EPA 8260	o-Xylene	3210	ug/L	100	06/27/15 19:58	
40117207015	MW-5 T70					
EPA 8260	1,2,4-Trimethylbenzene	17.3	ug/L	1.0	06/27/15 15:51	
EPA 8260	1,3,5-Trimethylbenzene	6.4	ug/L	1.0	06/27/15 15:51	
EPA 8260	Benzene	2.6	ug/L	1.0	06/27/15 15:51	
EPA 8260	Ethylbenzene	17.4	ug/L	1.0	06/27/15 15:51	
EPA 8260	Naphthalene	48.6	ug/L	5.0	06/27/15 15:51	
EPA 8260	Toluene	8.1	ug/L	1.0	06/27/15 15:51	
EPA 8260	m&p-Xylene	22.7	ug/L	2.0	06/27/15 15:51	
EPA 8260	o-Xylene	18.6	ug/L	1.0	06/27/15 15:51	
40117207016	MW-6 T70					
EPA 8260	1,2,4-Trimethylbenzene	7.5	ug/L	5.0	06/29/15 09:51	
EPA 8260	1,3,5-Trimethylbenzene	50.2	ug/L	5.0	06/29/15 09:51	
EPA 8260	Benzene	537	ug/L	5.0	06/29/15 09:51	
EPA 8260	Ethylbenzene	6.3	ug/L	5.0	06/29/15 09:51	
EPA 8260	Naphthalene	14.5J	ug/L	25.0	06/29/15 09:51	
EPA 8260	Toluene	33.4	ug/L	5.0	06/29/15 09:51	
EPA 8260	m&p-Xylene	64.3	ug/L	10.0	06/29/15 09:51	
EPA 8260	o-Xylene	96.6	ug/L	5.0	06/29/15 09:51	
40117207017	MW-7 T70					
EPA 8260	1,2,4-Trimethylbenzene	2020	ug/L	200	06/27/15 20:20	
EPA 8260	1,3,5-Trimethylbenzene	553	ug/L	200	06/27/15 20:20	
EPA 8260	Benzene	17000	ug/L	200	06/27/15 20:20	
EPA 8260	Ethylbenzene	1570	ug/L	200	06/27/15 20:20	
EPA 8260	Toluene	19300	ug/L	200	06/27/15 20:20	
EPA 8260	m&p-Xylene	9670	ug/L	400	06/27/15 20:20	
EPA 8260	o-Xylene	3980	ug/L	200	06/27/15 20:20	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40117207019	MW-2 CW					
EPA 8260	1,2,4-Trimethylbenzene	514	ug/L	40.0	06/27/15 20:43	
EPA 8260	1,3,5-Trimethylbenzene	88.5	ug/L	40.0	06/27/15 20:43	
EPA 8260	Benzene	3140	ug/L	40.0	06/27/15 20:43	
EPA 8260	Ethylbenzene	481	ug/L	40.0	06/27/15 20:43	
EPA 8260	Toluene	85.3	ug/L	40.0	06/27/15 20:43	
EPA 8260	m&p-Xylene	1180	ug/L	80.0	06/27/15 20:43	
EPA 8260	o-Xylene	222	ug/L	40.0	06/27/15 20:43	
40117207020	MW-3 CW					
EPA 8260	1,2,4-Trimethylbenzene	324	ug/L	100	06/27/15 21:05	
EPA 8260	1,3,5-Trimethylbenzene	145	ug/L	100	06/27/15 21:05	
EPA 8260	Benzene	8380	ug/L	100	06/27/15 21:05	
EPA 8260	Ethylbenzene	373	ug/L	100	06/27/15 21:05	
EPA 8260	Toluene	279	ug/L	100	06/27/15 21:05	
EPA 8260	m&p-Xylene	1440	ug/L	200	06/27/15 21:05	
EPA 8260	o-Xylene	263	ug/L	100	06/27/15 21:05	
40117207021	MW-4 CW					
EPA 8260	1,2,4-Trimethylbenzene	999	ug/L	50.0	06/29/15 09:06	
EPA 8260	1,3,5-Trimethylbenzene	275	ug/L	50.0	06/29/15 09:06	
EPA 8260	Benzene	5890	ug/L	50.0	06/29/15 09:06	
EPA 8260	Ethylbenzene	664	ug/L	50.0	06/29/15 09:06	
EPA 8260	Naphthalene	136J	ug/L	250	06/29/15 09:06	
EPA 8260	Toluene	165	ug/L	50.0	06/29/15 09:06	
EPA 8260	m&p-Xylene	2370	ug/L	100	06/29/15 09:06	
EPA 8260	o-Xylene	426	ug/L	50.0	06/29/15 09:06	

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PROJECT NARRATIVE

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: June 30, 2015

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.

QC Batch: MSV/29174

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40117344003

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

- MSD (Lab ID: 1185062)
 - Styrene

R1: RPD value was outside control limits.

- MSD (Lab ID: 1185062)
 - Styrene
 - cis-1,3-Dichloropropene

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Method: EPA 8260

Description: 8260 MSV UST

Client: Gannett Fleming Inc.

Date: June 30, 2015

General Information:

18 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: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-1R T70 **Lab ID: 40117207011** Collected: 06/23/15 10:15 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
1,2,4-Trimethylbenzene	1870	ug/L	125	62.5	125		06/27/15 19:13	95-63-6	
1,3,5-Trimethylbenzene	527	ug/L	125	62.5	125		06/27/15 19:13	108-67-8	
Benzene	14600	ug/L	125	62.5	125		06/27/15 19:13	71-43-2	
Ethylbenzene	1500	ug/L	125	62.5	125		06/27/15 19:13	100-41-4	
Methyl-tert-butyl ether	<21.8	ug/L	125	21.8	125		06/27/15 19:13	1634-04-4	
Naphthalene	418J	ug/L	625	312	125		06/27/15 19:13	91-20-3	
Toluene	14300	ug/L	125	62.5	125		06/27/15 19:13	108-88-3	
m&p-Xylene	8980	ug/L	250	125	125		06/27/15 19:13	179601-23-1	
o-Xylene	3790	ug/L	125	62.5	125		06/27/15 19:13	95-47-6	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		125		06/27/15 19:13	1868-53-7	
Toluene-d8 (S)	100	%	70-130		125		06/27/15 19:13	2037-26-5	
4-Bromofluorobenzene (S)	102	%	70-130		125		06/27/15 19:13	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-2R T70 **Lab ID: 40117207012** Collected: 06/23/15 10:30 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	3560	ug/L	250	125	250		06/27/15 19:36	95-63-6	
1,3,5-Trimethylbenzene	923	ug/L	250	125	250		06/27/15 19:36	108-67-8	
Benzene	15900	ug/L	250	125	250		06/27/15 19:36	71-43-2	
Ethylbenzene	2130	ug/L	250	125	250		06/27/15 19:36	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		06/27/15 19:36	1634-04-4	
Naphthalene	743J	ug/L	1250	625	250		06/27/15 19:36	91-20-3	
Toluene	25200	ug/L	250	125	250		06/27/15 19:36	108-88-3	
m&p-Xylene	14800	ug/L	500	250	250		06/27/15 19:36	179601-23-1	
o-Xylene	6680	ug/L	250	125	250		06/27/15 19:36	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		250		06/27/15 19:36	1868-53-7	
Toluene-d8 (S)	101	%	70-130		250		06/27/15 19:36	2037-26-5	
4-Bromofluorobenzene (S)	102	%	70-130		250		06/27/15 19:36	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-3 T70 **Lab ID: 40117207013** Collected: 06/23/15 10:25 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/27/15 15:29	95-63-6	
1,3,5-Trimethylbenzene	3.3	ug/L	1.0	0.50	1		06/27/15 15:29	108-67-8	
Benzene	2.8	ug/L	1.0	0.50	1		06/27/15 15:29	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/27/15 15:29	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/27/15 15:29	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/27/15 15:29	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		06/27/15 15:29	108-88-3	
m&p-Xylene	2.7	ug/L	2.0	1.0	1		06/27/15 15:29	179601-23-1	
o-Xylene	0.93J	ug/L	1.0	0.50	1		06/27/15 15:29	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		1		06/27/15 15:29	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		06/27/15 15:29	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		1		06/27/15 15:29	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-4 T70 **Lab ID: 40117207014** Collected: 06/23/15 10:20 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	1620	ug/L	100	50.0	100		06/27/15 19:58	95-63-6	
1,3,5-Trimethylbenzene	447	ug/L	100	50.0	100		06/27/15 19:58	108-67-8	
Benzene	6210	ug/L	100	50.0	100		06/27/15 19:58	71-43-2	
Ethylbenzene	615	ug/L	100	50.0	100		06/27/15 19:58	100-41-4	
Methyl-tert-butyl ether	<17.4	ug/L	100	17.4	100		06/27/15 19:58	1634-04-4	
Naphthalene	497J	ug/L	500	250	100		06/27/15 19:58	91-20-3	
Toluene	9580	ug/L	100	50.0	100		06/27/15 19:58	108-88-3	
m&p-Xylene	6820	ug/L	200	100	100		06/27/15 19:58	179601-23-1	
o-Xylene	3210	ug/L	100	50.0	100		06/27/15 19:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		100		06/27/15 19:58	1868-53-7	
Toluene-d8 (S)	101	%	70-130		100		06/27/15 19:58	2037-26-5	
4-Bromofluorobenzene (S)	102	%	70-130		100		06/27/15 19:58	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-5 T70 **Lab ID: 40117207015** Collected: 06/23/15 10:32 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
1,2,4-Trimethylbenzene	17.3	ug/L	1.0	0.50	1		06/27/15 15:51	95-63-6	
1,3,5-Trimethylbenzene	6.4	ug/L	1.0	0.50	1		06/27/15 15:51	108-67-8	
Benzene	2.6	ug/L	1.0	0.50	1		06/27/15 15:51	71-43-2	
Ethylbenzene	17.4	ug/L	1.0	0.50	1		06/27/15 15:51	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/27/15 15:51	1634-04-4	
Naphthalene	48.6	ug/L	5.0	2.5	1		06/27/15 15:51	91-20-3	
Toluene	8.1	ug/L	1.0	0.50	1		06/27/15 15:51	108-88-3	
m&p-Xylene	22.7	ug/L	2.0	1.0	1		06/27/15 15:51	179601-23-1	
o-Xylene	18.6	ug/L	1.0	0.50	1		06/27/15 15:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		1		06/27/15 15:51	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		06/27/15 15:51	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1		06/27/15 15:51	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-6 T70 **Lab ID: 40117207016** Collected: 06/23/15 10:35 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	7.5	ug/L	5.0	2.5	5		06/29/15 09:51	95-63-6	
1,3,5-Trimethylbenzene	50.2	ug/L	5.0	2.5	5		06/29/15 09:51	108-67-8	
Benzene	537	ug/L	5.0	2.5	5		06/29/15 09:51	71-43-2	
Ethylbenzene	6.3	ug/L	5.0	2.5	5		06/29/15 09:51	100-41-4	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		06/29/15 09:51	1634-04-4	
Naphthalene	14.5J	ug/L	25.0	12.5	5		06/29/15 09:51	91-20-3	
Toluene	33.4	ug/L	5.0	2.5	5		06/29/15 09:51	108-88-3	
m&p-Xylene	64.3	ug/L	10.0	5.0	5		06/29/15 09:51	179601-23-1	
o-Xylene	96.6	ug/L	5.0	2.5	5		06/29/15 09:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	97	%	70-130		5		06/29/15 09:51	1868-53-7	
Toluene-d8 (S)	101	%	70-130		5		06/29/15 09:51	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		5		06/29/15 09:51	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: MW-7 T70 **Lab ID: 40117207017** Collected: 06/23/15 11:15 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2020	ug/L	200	100	200		06/27/15 20:20	95-63-6	
1,3,5-Trimethylbenzene	553	ug/L	200	100	200		06/27/15 20:20	108-67-8	
Benzene	17000	ug/L	200	100	200		06/27/15 20:20	71-43-2	
Ethylbenzene	1570	ug/L	200	100	200		06/27/15 20:20	100-41-4	
Methyl-tert-butyl ether	<34.8	ug/L	200	34.8	200		06/27/15 20:20	1634-04-4	
Naphthalene	<500	ug/L	1000	500	200		06/27/15 20:20	91-20-3	
Toluene	19300	ug/L	200	100	200		06/27/15 20:20	108-88-3	
m&p-Xylene	9670	ug/L	400	200	200		06/27/15 20:20	179601-23-1	
o-Xylene	3980	ug/L	200	100	200		06/27/15 20:20	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	70-130		200		06/27/15 20:20	1868-53-7	
Toluene-d8 (S)	100	%	70-130		200		06/27/15 20:20	2037-26-5	
4-Bromofluorobenzene (S)	103	%	70-130		200		06/27/15 20:20	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Sample: TRIP BLANK **Lab ID: 40117207022** Collected: 06/23/15 21:00 Received: 06/25/15 09:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	108-67-8	
Benzene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/27/15 14:44	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/27/15 14:44	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/27/15 14:44	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/27/15 14:44	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%	70-130		1		06/27/15 14:44	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		06/27/15 14:44	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		1		06/27/15 14:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

QC Batch: MSV/29156 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40117207007, 40117207008

METHOD BLANK: 1183668 Matrix: Water
Associated Lab Samples: 40117207007, 40117207008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/26/15 18:15	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/26/15 18:15	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/26/15 18:15	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/26/15 18:15	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/26/15 18:15	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/26/15 18:15	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/26/15 18:15	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/26/15 18:15	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/26/15 18:15	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/26/15 18:15	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/26/15 18:15	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/26/15 18:15	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/26/15 18:15	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/26/15 18:15	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/26/15 18:15	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/26/15 18:15	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/26/15 18:15	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/26/15 18:15	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/26/15 18:15	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/26/15 18:15	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/26/15 18:15	
2-Chlorotoluene	ug/L	<0.50	1.0	06/26/15 18:15	
4-Chlorotoluene	ug/L	<0.21	1.0	06/26/15 18:15	
Benzene	ug/L	<0.50	1.0	06/26/15 18:15	
Bromobenzene	ug/L	<0.23	1.0	06/26/15 18:15	
Bromochloromethane	ug/L	<0.34	1.0	06/26/15 18:15	
Bromodichloromethane	ug/L	<0.50	1.0	06/26/15 18:15	
Bromoform	ug/L	<0.50	1.0	06/26/15 18:15	
Bromomethane	ug/L	<2.4	5.0	06/26/15 18:15	
Carbon tetrachloride	ug/L	<0.50	1.0	06/26/15 18:15	
Chlorobenzene	ug/L	<0.50	1.0	06/26/15 18:15	
Chloroethane	ug/L	<0.37	1.0	06/26/15 18:15	
Chloroform	ug/L	<2.5	5.0	06/26/15 18:15	
Chloromethane	ug/L	<0.50	1.0	06/26/15 18:15	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/26/15 18:15	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/26/15 18:15	
Dibromochloromethane	ug/L	<0.50	1.0	06/26/15 18:15	
Dibromomethane	ug/L	<0.43	1.0	06/26/15 18:15	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/26/15 18:15	
Ethylbenzene	ug/L	<0.50	1.0	06/26/15 18:15	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/26/15 18:15	

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

METHOD BLANK: 1183668

Matrix: Water

Associated Lab Samples: 40117207007, 40117207008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/26/15 18:15	
m&p-Xylene	ug/L	<1.0	2.0	06/26/15 18:15	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/26/15 18:15	
Methylene Chloride	ug/L	<0.23	1.0	06/26/15 18:15	
n-Butylbenzene	ug/L	<0.50	1.0	06/26/15 18:15	
n-Propylbenzene	ug/L	<0.50	1.0	06/26/15 18:15	
Naphthalene	ug/L	<2.5	5.0	06/26/15 18:15	
o-Xylene	ug/L	<0.50	1.0	06/26/15 18:15	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/26/15 18:15	
sec-Butylbenzene	ug/L	<2.2	5.0	06/26/15 18:15	
Styrene	ug/L	<0.50	1.0	06/26/15 18:15	
tert-Butylbenzene	ug/L	<0.18	1.0	06/26/15 18:15	
Tetrachloroethene	ug/L	<0.50	1.0	06/26/15 18:15	
Toluene	ug/L	<0.50	1.0	06/26/15 18:15	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/26/15 18:15	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/26/15 18:15	
Trichloroethene	ug/L	<0.33	1.0	06/26/15 18:15	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/26/15 18:15	
Vinyl chloride	ug/L	<0.18	1.0	06/26/15 18:15	
4-Bromofluorobenzene (S)	%	101	70-130	06/26/15 18:15	
Dibromofluoromethane (S)	%	104	70-130	06/26/15 18:15	
Toluene-d8 (S)	%	103	70-130	06/26/15 18:15	

LABORATORY CONTROL SAMPLE & LCSD: 1183669

1183670

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	50	61.2	57.0	122	114	70-130	7	20	
1,1,2,2-Tetrachloroethane	ug/L	50	35.4	42.2	71	84	70-130	17	20	
1,1,2-Trichloroethane	ug/L	50	44.2	49.7	88	99	70-130	12	20	
1,1-Dichloroethane	ug/L	50	56.9	51.7	114	103	70-130	10	20	
1,1-Dichloroethene	ug/L	50	56.0	50.1	112	100	70-130	11	20	
1,2,4-Trichlorobenzene	ug/L	50	53.1	50.2	106	100	70-130	5	20	
1,2-Dibromo-3-chloropropane	ug/L	50	40.7	43.4	81	87	50-150	6	20	
1,2-Dibromoethane (EDB)	ug/L	50	47.3	52.4	95	105	70-130	10	20	
1,2-Dichlorobenzene	ug/L	50	49.6	49.7	99	99	70-130	0	20	
1,2-Dichloroethane	ug/L	50	59.8	57.4	120	115	70-131	4	20	
1,2-Dichloropropane	ug/L	50	50.0	52.1	100	104	70-130	4	20	
1,3-Dichlorobenzene	ug/L	50	48.1	47.8	96	96	70-130	1	20	
1,4-Dichlorobenzene	ug/L	50	49.8	49.6	100	99	70-130	0	20	
Benzene	ug/L	50	50.3	50.4	101	101	70-130	0	20	
Bromodichloromethane	ug/L	50	59.1	57.2	118	114	70-130	3	20	
Bromoform	ug/L	50	38.9	44.6	78	89	68-130	14	20	
Bromomethane	ug/L	50	57.0	58.8	114	118	38-137	3	20	
Carbon tetrachloride	ug/L	50	64.9	62.7	130	125	70-130	4	20	

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

LABORATORY CONTROL SAMPLE & LCSD:		1183669		1183670							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
Chlorobenzene	ug/L	50	55.4	54.2	111	108	70-130	2	20		
Chloroethane	ug/L	50	44.3	45.8	89	92	70-136	3	20		
Chloroform	ug/L	50	59.2	55.1	118	110	70-130	7	20		
Chloromethane	ug/L	50	44.3	40.7	89	81	48-144	8	20		
cis-1,2-Dichloroethene	ug/L	50	53.7	51.8	107	104	70-130	4	20		
cis-1,3-Dichloropropene	ug/L	50	43.3	47.3	87	95	70-130	9	20		
Dibromochloromethane	ug/L	50	43.9	49.7	88	99	70-130	12	20		
Dichlorodifluoromethane	ug/L	50	31.4	32.5	63	65	33-157	4	20		
Ethylbenzene	ug/L	50	58.7	56.6	117	113	70-132	4	20		
Isopropylbenzene (Cumene)	ug/L	50	61.2	60.4	122	121	70-130	1	20		
m&p-Xylene	ug/L	100	123	116	123	116	70-131	6	20		
Methyl-tert-butyl ether	ug/L	50	38.0	43.6	76	87	48-141	14	20		
Methylene Chloride	ug/L	50	50.7	49.4	101	99	70-130	3	20		
o-Xylene	ug/L	50	57.9	55.9	116	112	70-131	4	20		
Styrene	ug/L	50	59.6	56.2	119	112	70-130	6	20		
Tetrachloroethene	ug/L	50	55.7	54.2	111	108	70-130	3	20		
Toluene	ug/L	50	56.8	54.8	114	110	70-130	4	20		
trans-1,2-Dichloroethene	ug/L	50	57.1	50.7	114	101	70-130	12	20		
trans-1,3-Dichloropropene	ug/L	50	42.5	46.1	85	92	70-130	8	20		
Trichloroethene	ug/L	50	58.3	56.0	117	112	70-130	4	20		
Trichlorofluoromethane	ug/L	50	60.0	51.9	120	104	50-150	14	20		
Vinyl chloride	ug/L	50	43.4	44.3	87	89	65-142	2	20		
4-Bromofluorobenzene (S)	%				108	106	70-130				
Dibromofluoromethane (S)	%				110	101	70-130				
Toluene-d8 (S)	%				105	106	70-130				

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1184216		1184217								
Parameter	Units	40117179022	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result										
1,1,1-Trichloroethane	ug/L	2.7	50	50	58.1	60.1	111	115	70-130	3	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	45.0	45.9	90	92	70-130	2	20	
1,1,2-Trichloroethane	ug/L	<0.20	50	50	52.0	50.9	104	102	70-130	2	20	
1,1-Dichloroethane	ug/L	2.3	50	50	51.5	54.7	98	105	70-134	6	20	
1,1-Dichloroethene	ug/L	0.67J	50	50	50.2	52.4	99	103	70-139	4	20	
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	51.9	52.7	103	105	70-130	2	20	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	46.2	46.1	92	92	50-150	0	20	
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	54.8	54.5	110	109	70-130	0	20	
1,2-Dichlorobenzene	ug/L	<0.50	50	50	50.1	50.6	100	101	70-130	1	20	
1,2-Dichloroethane	ug/L	<0.17	50	50	56.8	57.7	114	115	70-132	2	20	
1,2-Dichloropropane	ug/L	<0.23	50	50	50.8	51.7	102	103	70-130	2	20	
1,3-Dichlorobenzene	ug/L	<0.50	50	50	48.4	50.3	97	101	70-130	4	20	
1,4-Dichlorobenzene	ug/L	<0.50	50	50	49.0	51.0	98	102	70-130	4	20	
Benzene	ug/L	<0.50	50	50	50.3	51.2	101	102	70-130	2	20	

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Parameter	Units	40117179022		1184216		1184217		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<0.50	50	50	57.0	57.8	114	116	70-132	1	20		
Bromoform	ug/L	<0.50	50	50	46.4	45.1	93	90	68-130	3	20		
Bromomethane	ug/L	<2.4	50	50	58.7	59.4	117	119	38-141	1	20		
Carbon tetrachloride	ug/L	<0.50	50	50	62.2	62.1	124	124	70-130	0	20		
Chlorobenzene	ug/L	<0.50	50	50	55.6	53.7	111	107	70-130	3	20		
Chloroethane	ug/L	<0.37	50	50	48.5	46.9	97	94	66-152	3	20		
Chloroform	ug/L	<2.5	50	50	53.2	54.6	106	109	70-130	3	20		
Chloromethane	ug/L	<0.50	50	50	40.2	40.9	80	82	44-151	2	20		
cis-1,2-Dichloroethene	ug/L	7.5	50	50	59.8	65.8	105	117	70-130	10	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	46.8	45.4	94	91	70-130	3	20		
Dibromochloromethane	ug/L	<0.50	50	50	50.0	48.1	100	96	70-130	4	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	31.6	29.2	63	58	29-160	8	20		
Ethylbenzene	ug/L	<0.50	50	50	57.5	56.4	115	113	70-132	2	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	59.7	59.7	119	119	70-130	0	20		
m&p-Xylene	ug/L	<1.0	100	100	116	118	116	118	70-131	1	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	44.7	44.9	89	90	48-143	1	20		
Methylene Chloride	ug/L	<0.23	50	50	48.7	49.8	97	100	70-130	2	20		
o-Xylene	ug/L	<0.50	50	50	55.9	57.0	112	114	70-131	2	20		
Styrene	ug/L	<0.50	50	50	56.8	55.9	114	112	70-130	2	20		
Tetrachloroethene	ug/L	<0.50	50	50	56.4	54.6	113	109	70-130	3	20		
Toluene	ug/L	<0.50	50	50	55.5	55.7	111	111	70-130	0	20		
trans-1,2-Dichloroethene	ug/L	1.6	50	50	51.3	54.1	99	105	70-132	5	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	49.5	46.3	99	93	70-130	7	20		
Trichloroethene	ug/L	6.1	50	50	62.6	64.4	113	117	70-130	3	20		
Trichlorofluoromethane	ug/L	0.97J	50	50	51.0	51.0	100	100	50-153	0	20		
Vinyl chloride	ug/L	0.48J	50	50	44.3	44.8	88	89	60-155	1	20		
4-Bromofluorobenzene (S)	%						105	104	70-130				
Dibromofluoromethane (S)	%						99	101	70-130				
Toluene-d8 (S)	%						106	104	70-130				

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

QC Batch: MSV/29174 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40117207009, 40117207010

METHOD BLANK: 1184821 Matrix: Water

Associated Lab Samples: 40117207009, 40117207010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/29/15 12:25	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/29/15 12:25	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/29/15 12:25	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/29/15 12:25	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/29/15 12:25	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/29/15 12:25	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/29/15 12:25	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/29/15 12:25	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/29/15 12:25	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/29/15 12:25	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/29/15 12:25	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/29/15 12:25	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/29/15 12:25	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/29/15 12:25	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/29/15 12:25	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/29/15 12:25	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/29/15 12:25	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/29/15 12:25	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/29/15 12:25	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/29/15 12:25	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/29/15 12:25	
2-Chlorotoluene	ug/L	<0.50	1.0	06/29/15 12:25	
4-Chlorotoluene	ug/L	<0.21	1.0	06/29/15 12:25	
Benzene	ug/L	<0.50	1.0	06/29/15 12:25	
Bromobenzene	ug/L	<0.23	1.0	06/29/15 12:25	
Bromochloromethane	ug/L	<0.34	1.0	06/29/15 12:25	
Bromodichloromethane	ug/L	<0.50	1.0	06/29/15 12:25	
Bromoform	ug/L	<0.50	1.0	06/29/15 12:25	
Bromomethane	ug/L	<2.4	5.0	06/29/15 12:25	
Carbon tetrachloride	ug/L	<0.50	1.0	06/29/15 12:25	
Chlorobenzene	ug/L	<0.50	1.0	06/29/15 12:25	
Chloroethane	ug/L	<0.37	1.0	06/29/15 12:25	
Chloroform	ug/L	<2.5	5.0	06/29/15 12:25	
Chloromethane	ug/L	<0.50	1.0	06/29/15 12:25	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/29/15 12:25	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/29/15 12:25	
Dibromochloromethane	ug/L	<0.50	1.0	06/29/15 12:25	
Dibromomethane	ug/L	<0.43	1.0	06/29/15 12:25	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/29/15 12:25	
Ethylbenzene	ug/L	<0.50	1.0	06/29/15 12:25	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/29/15 12:25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR
Pace Project No.: 40117207

METHOD BLANK: 1184821 Matrix: Water
Associated Lab Samples: 40117207009, 40117207010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/29/15 12:25	
m&p-Xylene	ug/L	<1.0	2.0	06/29/15 12:25	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/29/15 12:25	
Methylene Chloride	ug/L	<0.23	1.0	06/29/15 12:25	
n-Butylbenzene	ug/L	<0.50	1.0	06/29/15 12:25	
n-Propylbenzene	ug/L	<0.50	1.0	06/29/15 12:25	
Naphthalene	ug/L	<2.5	5.0	06/29/15 12:25	
o-Xylene	ug/L	<0.50	1.0	06/29/15 12:25	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/29/15 12:25	
sec-Butylbenzene	ug/L	<2.2	5.0	06/29/15 12:25	
Styrene	ug/L	<0.50	1.0	06/29/15 12:25	
tert-Butylbenzene	ug/L	<0.18	1.0	06/29/15 12:25	
Tetrachloroethene	ug/L	<0.50	1.0	06/29/15 12:25	
Toluene	ug/L	<0.50	1.0	06/29/15 12:25	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/29/15 12:25	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/29/15 12:25	
Trichloroethene	ug/L	<0.33	1.0	06/29/15 12:25	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/29/15 12:25	
Vinyl chloride	ug/L	<0.18	1.0	06/29/15 12:25	
4-Bromofluorobenzene (S)	%	105	70-130	06/29/15 12:25	
Dibromofluoromethane (S)	%	107	70-130	06/29/15 12:25	
Toluene-d8 (S)	%	100	70-130	06/29/15 12:25	

LABORATORY CONTROL SAMPLE & LCSD: 1184822 1184823

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/L	50	56.3	59.2	113	118	70-130	5	20	
1,1,2,2-Tetrachloroethane	ug/L	50	43.6	44.6	87	89	70-130	2	20	
1,1,2-Trichloroethane	ug/L	50	49.4	51.3	99	103	70-130	4	20	
1,1-Dichloroethane	ug/L	50	51.6	53.2	103	106	70-130	3	20	
1,1-Dichloroethene	ug/L	50	50.4	53.1	101	106	70-130	5	20	
1,2,4-Trichlorobenzene	ug/L	50	48.8	53.0	98	106	70-130	8	20	
1,2-Dibromo-3-chloropropane	ug/L	50	39.2	44.5	78	89	50-150	12	20	
1,2-Dibromoethane (EDB)	ug/L	50	54.2	54.3	108	109	70-130	0	20	
1,2-Dichlorobenzene	ug/L	50	49.4	51.3	99	103	70-130	4	20	
1,2-Dichloroethane	ug/L	50	55.7	59.6	111	119	70-131	7	20	
1,2-Dichloropropane	ug/L	50	51.2	54.4	102	109	70-130	6	20	
1,3-Dichlorobenzene	ug/L	50	47.6	50.4	95	101	70-130	6	20	
1,4-Dichlorobenzene	ug/L	50	49.7	51.4	99	103	70-130	3	20	
Benzene	ug/L	50	50.1	51.6	100	103	70-130	3	20	
Bromodichloromethane	ug/L	50	57.4	59.2	115	118	70-130	3	20	
Bromoform	ug/L	50	44.8	47.0	90	94	68-130	5	20	
Bromomethane	ug/L	50	59.9	65.8	120	132	38-137	9	20	
Carbon tetrachloride	ug/L	50	60.5	64.4	121	129	70-130	6	20	

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

LABORATORY CONTROL SAMPLE & LCSD: 1184822		1184823								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Chlorobenzene	ug/L	50	54.6	55.6	109	111	70-130	2	20	
Chloroethane	ug/L	50	48.2	53.2	96	106	70-136	10	20	
Chloroform	ug/L	50	53.4	56.9	107	114	70-130	6	20	
Chloromethane	ug/L	50	45.5	47.2	91	94	48-144	4	20	
cis-1,2-Dichloroethene	ug/L	50	50.9	53.3	102	107	70-130	5	20	
cis-1,3-Dichloropropene	ug/L	50	46.0	48.4	92	97	70-130	5	20	
Dibromochloromethane	ug/L	50	50.3	50.3	101	101	70-130	0	20	
Dichlorodifluoromethane	ug/L	50	45.8	47.9	92	96	33-157	4	20	
Ethylbenzene	ug/L	50	58.0	58.5	116	117	70-132	1	20	
Isopropylbenzene (Cumene)	ug/L	50	60.1	61.2	120	122	70-130	2	20	
m&p-Xylene	ug/L	100	118	121	118	121	70-131	2	20	
Methyl-tert-butyl ether	ug/L	50	45.7	45.3	91	91	48-141	1	20	
Methylene Chloride	ug/L	50	47.4	47.9	95	96	70-130	1	20	
o-Xylene	ug/L	50	57.0	58.2	114	116	70-131	2	20	
Styrene	ug/L	50	57.6	58.7	115	117	70-130	2	20	
Tetrachloroethene	ug/L	50	56.6	56.5	113	113	70-130	0	20	
Toluene	ug/L	50	55.7	57.5	111	115	70-130	3	20	
trans-1,2-Dichloroethene	ug/L	50	48.7	51.8	97	104	70-130	6	20	
trans-1,3-Dichloropropene	ug/L	50	48.9	49.8	98	100	70-130	2	20	
Trichloroethene	ug/L	50	55.4	57.8	111	116	70-130	4	20	
Trichlorofluoromethane	ug/L	50	51.7	55.3	103	111	50-150	7	20	
Vinyl chloride	ug/L	50	49.4	50.7	99	101	65-142	3	20	
4-Bromofluorobenzene (S)	%				104	101	70-130			
Dibromofluoromethane (S)	%				101	102	70-130			
Toluene-d8 (S)	%				107	105	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1185061		1185062											
Parameter	Units	40117344003		MSD		MSD		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	<0.50	50	50	58.2	57.5	116	115	70-130	1	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	45.2	44.3	90	89	70-130	2	20		
1,1,2-Trichloroethane	ug/L	<0.20	50	50	51.5	50.4	103	101	70-130	2	20		
1,1-Dichloroethane	ug/L	<0.24	50	50	51.6	52.1	103	104	70-134	1	20		
1,1-Dichloroethene	ug/L	<0.41	50	50	52.5	46.9	105	94	70-139	11	20		
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	50.5	51.8	101	104	70-130	3	20		
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	44.0	46.4	88	93	50-150	5	20		
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	54.1	53.1	108	106	70-130	2	20		
1,2-Dichlorobenzene	ug/L	<0.50	50	50	49.8	50.0	100	100	70-130	0	20		
1,2-Dichloroethane	ug/L	<0.17	50	50	57.3	56.3	115	113	70-132	2	20		
1,2-Dichloropropane	ug/L	<0.23	50	50	51.9	50.1	104	100	70-130	3	20		
1,3-Dichlorobenzene	ug/L	<0.50	50	50	48.6	48.3	97	97	70-130	1	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	50.8	50.6	102	101	70-130	0	20		
Benzene	ug/L	<0.50	50	50	50.8	50.2	102	100	70-130	1	20		

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Parameter	Units	40117344003		1185061		1185062		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<0.50	50	50	58.2	56.7	116	113	70-132	3	20		
Bromoform	ug/L	<0.50	50	50	46.2	43.9	92	88	68-130	5	20		
Bromomethane	ug/L	<2.4	50	50	61.7	62.6	123	125	38-141	1	20		
Carbon tetrachloride	ug/L	<0.50	50	50	63.3	61.3	127	123	70-130	3	20		
Chlorobenzene	ug/L	<0.50	50	50	54.9	55.1	110	110	70-130	0	20		
Chloroethane	ug/L	<0.37	50	50	50.0	51.4	100	103	66-152	3	20		
Chloroform	ug/L	<2.5	50	50	55.4	54.6	111	109	70-130	1	20		
Chloromethane	ug/L	<0.50	50	50	46.2	44.5	92	89	44-151	4	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	49.3	48.8	99	98	70-130	1	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	48.4	39.4	97	79	70-130	21	20	R1	
Dibromochloromethane	ug/L	<0.50	50	50	50.0	48.5	100	97	70-130	3	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	45.7	45.4	91	91	29-160	1	20		
Ethylbenzene	ug/L	<0.50	50	50	57.6	56.8	115	114	70-132	1	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	61.3	59.6	123	119	70-130	3	20		
m&p-Xylene	ug/L	<1.0	100	100	115	110	115	110	70-131	5	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	45.3	44.0	91	88	48-143	3	20		
Methylene Chloride	ug/L	<0.23	50	50	49.1	49.9	98	100	70-130	1	20		
o-Xylene	ug/L	<0.50	50	50	56.7	54.0	113	108	70-131	5	20		
Styrene	ug/L	<0.50	50	50	44.2	33.3	88	67	70-130	28	20	M1, R1	
Tetrachloroethene	ug/L	<0.50	50	50	57.0	56.8	114	114	70-130	0	20		
Toluene	ug/L	<0.50	50	50	56.6	56.0	113	112	70-130	1	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	50.8	50.3	102	101	70-132	1	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	48.6	40.8	97	82	70-130	18	20		
Trichloroethene	ug/L	<0.33	50	50	56.6	56.5	113	113	70-130	0	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	54.4	53.8	109	108	50-153	1	20		
Vinyl chloride	ug/L	<0.18	50	50	49.7	47.6	99	95	60-155	4	20		
4-Bromofluorobenzene (S)	%						105	105	70-130				
Dibromofluoromethane (S)	%						100	104	70-130				
Toluene-d8 (S)	%						106	106	70-130				

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

QC Batch: MSV/29159 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40117207001, 40117207002, 40117207003, 40117207004, 40117207005, 40117207006, 40117207011,
 40117207012, 40117207013, 40117207014, 40117207015, 40117207016, 40117207017, 40117207018,
 40117207019, 40117207020, 40117207021, 40117207022

METHOD BLANK: 1183677 Matrix: Water
 Associated Lab Samples: 40117207001, 40117207002, 40117207003, 40117207004, 40117207005, 40117207006, 40117207011,
 40117207012, 40117207013, 40117207014, 40117207015, 40117207016, 40117207017, 40117207018,
 40117207019, 40117207020, 40117207021, 40117207022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/27/15 12:07	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/27/15 12:07	
Benzene	ug/L	<0.50	1.0	06/27/15 12:07	
Ethylbenzene	ug/L	<0.50	1.0	06/27/15 12:07	
m&p-Xylene	ug/L	<1.0	2.0	06/27/15 12:07	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/27/15 12:07	
Naphthalene	ug/L	<2.5	5.0	06/27/15 12:07	
o-Xylene	ug/L	<0.50	1.0	06/27/15 12:07	
Toluene	ug/L	<0.50	1.0	06/27/15 12:07	
4-Bromofluorobenzene (S)	%	99	70-130	06/27/15 12:07	
Dibromofluoromethane (S)	%	99	70-130	06/27/15 12:07	
Toluene-d8 (S)	%	100	70-130	06/27/15 12:07	

Parameter	Units	1183678		1183679		% Rec Limits	RPD	Max RPD	Qualifiers	
		Spike Conc.	LCS Result	LCS Result	LCSD % Rec					
Benzene	ug/L	50	54.5	54.8	109	110	70-130	0	20	
Ethylbenzene	ug/L	50	56.3	56.4	113	113	70-132	0	20	
m&p-Xylene	ug/L	100	116	116	116	116	70-131	0	20	
Methyl-tert-butyl ether	ug/L	50	51.2	52.4	102	105	48-141	2	20	
o-Xylene	ug/L	50	57.4	57.5	115	115	70-131	0	20	
Toluene	ug/L	50	55.6	55.6	111	111	70-130	0	20	
4-Bromofluorobenzene (S)	%				100	100	70-130			
Dibromofluoromethane (S)	%				100	100	70-130			
Toluene-d8 (S)	%				101	100	70-130			

Parameter	Units	1184109		1184110		MSD % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS		MSD							
		40117207018 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	<0.50	50	50	54.7	48.2	109	96	70-130	13	20
Ethylbenzene	ug/L	<0.50	50	50	56.1	49.5	112	99	70-132	13	20
m&p-Xylene	ug/L	<1.0	100	100	115	102	115	102	70-131	12	20
Methyl-tert-butyl ether	ug/L	<0.17	50	50	51.9	46.5	104	93	48-143	11	20
o-Xylene	ug/L	<0.50	50	50	56.9	50.2	114	100	70-131	13	20

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QUALITY CONTROL DATA

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1184109		1184110		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40117207018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Toluene	ug/L	<0.50	50	50	55.9	49.5	112	99	70-130	12	20		
4-Bromofluorobenzene (S)	%							100	101	70-130			
Dibromofluoromethane (S)	%							100	100	70-130			
Toluene-d8 (S)	%							100	100	70-130			

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QUALIFIERS

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

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

R1 RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.0003 CALUMET SUPERIOR

Pace Project No.: 40117207

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40117207007	MW-1 T68	EPA 8260	MSV/29156		
40117207008	MW-2 T68	EPA 8260	MSV/29156		
40117207009	MW-4 T68	EPA 8260	MSV/29174		
40117207010	MW-6 T68	EPA 8260	MSV/29174		
40117207001	MW-1 T40	EPA 8260	MSV/29159		
40117207002	MW-4 T40	EPA 8260	MSV/29159		
40117207003	MW-5 T40	EPA 8260	MSV/29159		
40117207004	MW-6 T40	EPA 8260	MSV/29159		
40117207005	MW-7 T40	EPA 8260	MSV/29159		
40117207006	TS-1 T40	EPA 8260	MSV/29159		
40117207011	MW-1R T70	EPA 8260	MSV/29159		
40117207012	MW-2R T70	EPA 8260	MSV/29159		
40117207013	MW-3 T70	EPA 8260	MSV/29159		
40117207014	MW-4 T70	EPA 8260	MSV/29159		
40117207015	MW-5 T70	EPA 8260	MSV/29159		
40117207016	MW-6 T70	EPA 8260	MSV/29159		
40117207017	MW-7 T70	EPA 8260	MSV/29159		
40117207018	MW-1 CW	EPA 8260	MSV/29159		
40117207019	MW-2 CW	EPA 8260	MSV/29159		
40117207020	MW-3 CW	EPA 8260	MSV/29159		
40117207021	MW-4 CW	EPA 8260	MSV/29159		
40117207022	TRIP BLANK	EPA 8260	MSV/29159		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **Gannett Fleming**
 Branch/Location: **Madison, WI**
 Project Contact: **Cliff Wright**
 Phone: **608.836.1500**
 Project Number: **34265.003**
 Project Name: **Lalumet Superior-T40, T68, T70, CW**
 Project State: **WI**
 Sampled By (Print): **Marcus Mussey**
 Sampled By (Sign): *[Signature]*
 PO #:



UPPER MIDWEST REGION

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

40117207

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	Pick Letter	Analyses Requested																			
N	B	PVOCs 8260																			
		NOCS 8260																			
		PVOCs 8260																			

Quote #:
 Mail To Contact:
 Mail To Company:
 Mail To Address:
 Invoice To Contact:
 Invoice To Company:
 Invoice To Address:
 Invoice To Phone:

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 T40	6/23	12:30	GW
002	MW-4 T40		12:25	
003	MW-5 T40		12:36	
004	MW-6 T40		12:37	
005	MW-7 T40		12:40	
006	TS-1 T40		12:35	
007	MW-1 T68		12:10	
008	MW-2 T68		12:00	
009	MW-4 T68		11:55	
010	MW-6 T68		12:05	
011	MW-1R T70		10:15	
012	MW-2R T70		10:30	
013	MW-3 T70		10:25	

CLIENT COMMENTS
LAB COMMENTS (Lab Use Only)
 Profile #

3-401 VB

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <i>[Signature]</i> Date/Time: 6/24/15 7:45	Received By: <i>[Signature]</i> Date/Time: 6/25/15 9:35	PACE Project No. 40117207
	Transmit Prelim Rush Results by (complete what you want): <i>Fed Ex</i>	Relinquished By: <i>Fed Ex</i> Date/Time: 6/25/15 9:35	
Email #1:	Relinquished By:	Received By:	Receipt Temp = <i>20.1</i> °C
Email #2:	Relinquished By:	Received By:	Sample Receipt pH OK / Adjusted
Telephone:	Relinquished By:	Received By:	Cooler Custody Seal Present / Not Present Intact / Not Intact
Fax:	Relinquished By:	Received By:	

(Please Print Clearly)

Company Name: Gannett Fleming
 Branch/Location: Madison, WI
 Project Contact: Cliff Wright
 Phone: 808.836.1500
 Project Number: 34265.003
 Project Name: Calumet-Superior-T40,T68,T70,CW
 Project State: WI
 Sampled By (Print): Marcus Mussey
 Sampled By (Sign): [Signature]
 PO #:



UPPER MIDWEST REGION

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

4017207

Page 50 of 51

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																			
Pick Letter	B																			
Analyses Requested	PVOCs 8260	VOCs 8260	PVOCs/Naphth 8260	PVOCs/Naphth 8021																

Quote #:		
Mail To Contact:		
Mail To Company:		
Mail To Address:		
Invoice To Contact:		
Invoice To Company:		
Invoice To Address:		
Invoice To Phone:		
CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40mVB	
	2-40mVB	
	2-40mVB	

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-4 T70	6/23	10:20	6W
015	MW-5 T70		10:32	
016	MW-6 T70		10:35	
017	MW-7 T70		11:15	
018	MW-1 CW		14:00	
019	MW-2 CW		13:57	
020	MW-3 CW		14:05	
021	MW-4 CW		13:55	
022	Trip Blank		21:00	W

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <u>[Signature]</u> Date/Time: <u>6/24/15, 7:45</u>	Received By: _____ Date/Time: _____	PACE Project No. <u>4017207</u>
	Transmit Prelim Rush Results by (complete what you want): <u>Ed Ex</u>	Relinquished By: <u>[Signature]</u> Date/Time: <u>6/25/15 9:35</u>	
Email #1:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Sample Receipt pH OK / Adjusted
Email #2:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Cooler Custody Seal Present / Not Present
Telephone:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Intact / Not Intact
Fax:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

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

Sample Condition Upon Receipt

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



Client Name: Gunnell Fleming

Project #: **WO#: 40117207**

Courier: Fed Ex UPS Client Pace Other: _____

Tracking #: 5327 9873 6030



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

Cooler Temperature Uncorr: 20F ICorr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 6/25/15
Initials: CP

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 <input type="checkbox"/> N/A	5.	
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date/Time:	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.	<u>One 1 vial was broken CP 6/25/15</u>
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.	<input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO ₃ , H ₂ SO ₄ ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
exceptions: <input checked="" type="checkbox"/> VOA coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed	Lab Std #ID of preservative
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.	
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> </u>		

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: U for DM Date: 6-25-15

October 19, 2015

Project #34265.003
Calumet Superior
Reviewed by CCW
10/20/15

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34265.003 CALUMET-SUPERIOR
Pace Project No.: 40122459

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 08, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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
Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

Virginia VELAP ID: 460263

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Virginia VELAP ID: 460263

Virginia VELAP Certification ID: 460263

Wisconsin Certification #: 405132750

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40122459001	MW-1/CW	Water	10/06/15 12:00	10/08/15 10:40
40122459002	MW-2/CW	Water	10/06/15 12:02	10/08/15 10:40
40122459003	MW-3/CW	Water	10/06/15 12:10	10/08/15 10:40
40122459004	MW-4/CW	Water	10/06/15 12:05	10/08/15 10:40
40122459005	MW-1/T40	Water	10/06/15 08:00	10/08/15 10:40
40122459006	MW-4/T40	Water	10/06/15 08:25	10/08/15 10:40
40122459007	MW-5/T40	Water	10/06/15 08:10	10/08/15 10:40
40122459008	MW-6/T40	Water	10/06/15 08:15	10/08/15 10:40
40122459009	MW-7/T40	Water	10/06/15 08:20	10/08/15 10:40
40122459010	TS-1/T40	Water	10/06/15 08:22	10/08/15 10:40
40122459011	MW-1/T68	Water	10/06/15 08:40	10/08/15 10:40
40122459012	MW-2/T68	Water	10/06/15 09:00	10/08/15 10:40
40122459013	MW-4/T68	Water	10/06/15 08:55	10/08/15 10:40
40122459014	MW-5/T66	Water	10/06/15 08:45	10/08/15 10:40
40122459015	MW-6/T68	Water	10/06/15 09:05	10/08/15 10:40
40122459016	MW-1R/T70	Water	10/06/15 09:40	10/08/15 10:40
40122459017	MW-2R/T70	Water	10/06/15 09:15	10/08/15 10:40
40122459018	MW-3/T70	Water	10/06/15 09:30	10/08/15 10:40
40122459019	MW-4/T70	Water	10/06/15 09:35	10/08/15 10:40
40122459020	MW-5/T70	Water	10/06/15 09:20	10/08/15 10:40
40122459021	MW-6/T70	Water	10/06/15 09:25	10/08/15 10:40
40122459022	TRIP BLANK	Water	10/06/15 00:00	10/08/15 10:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET-SUPERIOR
Pace Project No.: 40122459

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40122459001	MW-1/CW	EPA 8260	HNW	12	PASI-G
40122459002	MW-2/CW	EPA 8260	HNW	12	PASI-G
40122459003	MW-3/CW	EPA 8260	HNW	12	PASI-G
40122459004	MW-4/CW	EPA 8260	HNW	12	PASI-G
40122459005	MW-1/T40	EPA 8260	HNW	11	PASI-G
40122459006	MW-4/T40	EPA 8260	HNW	11	PASI-G
40122459007	MW-5/T40	EPA 8260	AJP	11	PASI-G
40122459008	MW-6/T40	EPA 8260	LAP	11	PASI-G
40122459009	MW-7/T40	EPA 8260	AJP	11	PASI-G
40122459010	TS-1/T40	EPA 8260	AJP	11	PASI-G
40122459011	MW-1/T68	EPA 8260	LAP	63	PASI-G
40122459012	MW-2/T68	EPA 8260	LAP	63	PASI-G
40122459013	MW-4/T68	EPA 8260	LAP	63	PASI-G
40122459014	MW-5/T66	EPA 8260	LAP	63	PASI-G
40122459015	MW-6/T68	EPA 8260	LAP	63	PASI-G
40122459016	MW-1R/T70	EPA 8260	AJP	12	PASI-G
40122459017	MW-2R/T70	EPA 8260	AJP	12	PASI-G
40122459018	MW-3/T70	EPA 8260	AJP	12	PASI-G
40122459019	MW-4/T70	EPA 8260	AJP	12	PASI-G
40122459020	MW-5/T70	EPA 8260	AJP	12	PASI-G
40122459021	MW-6/T70	EPA 8260	LAP	12	PASI-G
40122459022	TRIP BLANK	EPA 8260	AJP	12	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET-SUPERIOR
Pace Project No.: 40122459

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40122459015	MW-6/T68					
EPA 8260	1,2-Dichloroethane	43.5J	ug/L	50.0	10/12/15 10:22	
EPA 8260	1,3,5-Trimethylbenzene	947	ug/L	50.0	10/12/15 10:22	
EPA 8260	Benzene	6000	ug/L	50.0	10/12/15 10:22	
EPA 8260	Ethylbenzene	43.0J	ug/L	50.0	10/12/15 10:22	
EPA 8260	Naphthalene	342	ug/L	250	10/12/15 10:22	
EPA 8260	Toluene	3010	ug/L	50.0	10/12/15 10:22	
EPA 8260	m&p-Xylene	12200	ug/L	100	10/12/15 10:22	
EPA 8260	o-Xylene	5950	ug/L	50.0	10/12/15 10:22	
40122459016	MW-1R/T70					
EPA 8260	1,2,4-Trimethylbenzene	1500	ug/L	125	10/10/15 16:28	
EPA 8260	1,3,5-Trimethylbenzene	404	ug/L	125	10/10/15 16:28	
EPA 8260	Benzene	10400	ug/L	125	10/10/15 16:28	
EPA 8260	Ethylbenzene	570	ug/L	125	10/10/15 16:28	
EPA 8260	Toluene	8130	ug/L	125	10/10/15 16:28	
EPA 8260	m&p-Xylene	6440	ug/L	250	10/10/15 16:28	
EPA 8260	o-Xylene	2310	ug/L	125	10/10/15 16:28	
40122459017	MW-2R/T70					
EPA 8260	1,2,4-Trimethylbenzene	3200	ug/L	250	10/10/15 16:50	
EPA 8260	1,3,5-Trimethylbenzene	802	ug/L	250	10/10/15 16:50	
EPA 8260	Benzene	15200	ug/L	250	10/10/15 16:50	
EPA 8260	Ethylbenzene	1600	ug/L	250	10/10/15 16:50	
EPA 8260	Toluene	24100	ug/L	250	10/10/15 16:50	
EPA 8260	m&p-Xylene	12600	ug/L	500	10/10/15 16:50	
EPA 8260	o-Xylene	5250	ug/L	250	10/10/15 16:50	
40122459018	MW-3/T70					
EPA 8260	1,2,4-Trimethylbenzene	0.78J	ug/L	1.0	10/10/15 13:33	
EPA 8260	Benzene	4.0	ug/L	1.0	10/10/15 13:33	
EPA 8260	Ethylbenzene	0.70J	ug/L	1.0	10/10/15 13:33	
EPA 8260	o-Xylene	0.77J	ug/L	1.0	10/10/15 13:33	
40122459019	MW-4/T70					
EPA 8260	1,2,4-Trimethylbenzene	2550	ug/L	100	10/10/15 17:12	
EPA 8260	1,3,5-Trimethylbenzene	640	ug/L	100	10/10/15 17:12	
EPA 8260	Benzene	10700	ug/L	100	10/10/15 17:12	
EPA 8260	Ethylbenzene	1500	ug/L	100	10/10/15 17:12	
EPA 8260	Naphthalene	515	ug/L	500	10/10/15 17:12	
EPA 8260	Toluene	17600	ug/L	100	10/10/15 17:12	
EPA 8260	m&p-Xylene	12000	ug/L	200	10/10/15 17:12	
EPA 8260	o-Xylene	5470	ug/L	100	10/10/15 17:12	
40122459020	MW-5/T70					
EPA 8260	1,2,4-Trimethylbenzene	2.0	ug/L	1.0	10/10/15 13:55	
EPA 8260	1,3,5-Trimethylbenzene	1.1	ug/L	1.0	10/10/15 13:55	
EPA 8260	Benzene	1.6	ug/L	1.0	10/10/15 13:55	
EPA 8260	Ethylbenzene	0.59J	ug/L	1.0	10/10/15 13:55	
EPA 8260	Naphthalene	10.9	ug/L	5.0	10/10/15 13:55	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40122459020	MW-5/T70					
EPA 8260	m&p-Xylene	3.7	ug/L	2.0	10/10/15 13:55	
EPA 8260	o-Xylene	7.6	ug/L	1.0	10/10/15 13:55	
40122459021	MW-6/T70					
EPA 8260	1,2,4-Trimethylbenzene	18.9	ug/L	1.0	10/13/15 19:40	
EPA 8260	1,3,5-Trimethylbenzene	6.1	ug/L	1.0	10/13/15 19:40	
EPA 8260	Benzene	84.1	ug/L	1.0	10/13/15 19:40	
EPA 8260	Ethylbenzene	4.6	ug/L	1.0	10/13/15 19:40	
EPA 8260	Naphthalene	4.0J	ug/L	5.0	10/13/15 19:40	
EPA 8260	Toluene	6.4	ug/L	1.0	10/13/15 19:40	
EPA 8260	m&p-Xylene	66.4	ug/L	2.0	10/13/15 19:40	
EPA 8260	o-Xylene	35.3	ug/L	1.0	10/13/15 19:40	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: October 19, 2015

General Information:

5 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 CALUMET-SUPERIOR

Pace Project No.: 40122459

Method: EPA 8260

Description: 8260 MSV UST

Client: Gannett Fleming Inc.

Date: October 19, 2015

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-1R/T70 **Lab ID: 40122459016** Collected: 10/06/15 09:40 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	1500	ug/L	125	62.5	125		10/10/15 16:28	95-63-6	
1,3,5-Trimethylbenzene	404	ug/L	125	62.5	125		10/10/15 16:28	108-67-8	
Benzene	10400	ug/L	125	62.5	125		10/10/15 16:28	71-43-2	
Ethylbenzene	570	ug/L	125	62.5	125		10/10/15 16:28	100-41-4	
Methyl-tert-butyl ether	<21.8	ug/L	125	21.8	125		10/10/15 16:28	1634-04-4	
Naphthalene	<312	ug/L	625	312	125		10/10/15 16:28	91-20-3	
Toluene	8130	ug/L	125	62.5	125		10/10/15 16:28	108-88-3	
m&p-Xylene	6440	ug/L	250	125	125		10/10/15 16:28	179601-23-1	
o-Xylene	2310	ug/L	125	62.5	125		10/10/15 16:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		125		10/10/15 16:28	1868-53-7	
Toluene-d8 (S)	107	%	70-130		125		10/10/15 16:28	2037-26-5	
4-Bromofluorobenzene (S)	106	%	70-130		125		10/10/15 16:28	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-2R/T70 **Lab ID: 40122459017** Collected: 10/06/15 09:15 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	3200	ug/L	250	125	250		10/10/15 16:50	95-63-6	
1,3,5-Trimethylbenzene	802	ug/L	250	125	250		10/10/15 16:50	108-67-8	
Benzene	15200	ug/L	250	125	250		10/10/15 16:50	71-43-2	
Ethylbenzene	1600	ug/L	250	125	250		10/10/15 16:50	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		10/10/15 16:50	1634-04-4	
Naphthalene	<625	ug/L	1250	625	250		10/10/15 16:50	91-20-3	
Toluene	24100	ug/L	250	125	250		10/10/15 16:50	108-88-3	
m&p-Xylene	12600	ug/L	500	250	250		10/10/15 16:50	179601-23-1	
o-Xylene	5250	ug/L	250	125	250		10/10/15 16:50	95-47-6	
Surrogates									
Dibromofluoromethane (S)	106	%	70-130		250		10/10/15 16:50	1868-53-7	
Toluene-d8 (S)	102	%	70-130		250		10/10/15 16:50	2037-26-5	
4-Bromofluorobenzene (S)	108	%	70-130		250		10/10/15 16:50	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-3/T70 **Lab ID: 40122459018** Collected: 10/06/15 09:30 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
1,2,4-Trimethylbenzene	0.78J	ug/L	1.0	0.50	1		10/10/15 13:33	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/10/15 13:33	108-67-8	
Benzene	4.0	ug/L	1.0	0.50	1		10/10/15 13:33	71-43-2	
Ethylbenzene	0.70J	ug/L	1.0	0.50	1		10/10/15 13:33	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/10/15 13:33	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/10/15 13:33	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/10/15 13:33	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/10/15 13:33	179601-23-1	
o-Xylene	0.77J	ug/L	1.0	0.50	1		10/10/15 13:33	95-47-6	
Surrogates									
Dibromofluoromethane (S)	102	%	70-130		1		10/10/15 13:33	1868-53-7	
Toluene-d8 (S)	103	%	70-130		1		10/10/15 13:33	2037-26-5	
4-Bromofluorobenzene (S)	102	%	70-130		1		10/10/15 13:33	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-4/T70 **Lab ID: 40122459019** Collected: 10/06/15 09:35 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2550	ug/L	100	50.0	100		10/10/15 17:12	95-63-6	
1,3,5-Trimethylbenzene	640	ug/L	100	50.0	100		10/10/15 17:12	108-67-8	
Benzene	10700	ug/L	100	50.0	100		10/10/15 17:12	71-43-2	
Ethylbenzene	1500	ug/L	100	50.0	100		10/10/15 17:12	100-41-4	
Methyl-tert-butyl ether	<17.4	ug/L	100	17.4	100		10/10/15 17:12	1634-04-4	
Naphthalene	515	ug/L	500	250	100		10/10/15 17:12	91-20-3	
Toluene	17600	ug/L	100	50.0	100		10/10/15 17:12	108-88-3	
m&p-Xylene	12000	ug/L	200	100	100		10/10/15 17:12	179601-23-1	
o-Xylene	5470	ug/L	100	50.0	100		10/10/15 17:12	95-47-6	
Surrogates									
Dibromofluoromethane (S)	106	%	70-130		100		10/10/15 17:12	1868-53-7	
Toluene-d8 (S)	104	%	70-130		100		10/10/15 17:12	2037-26-5	
4-Bromofluorobenzene (S)	111	%	70-130		100		10/10/15 17:12	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-5/T70 **Lab ID: 40122459020** Collected: 10/06/15 09:20 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2.0	ug/L	1.0	0.50	1		10/10/15 13:55	95-63-6	
1,3,5-Trimethylbenzene	1.1	ug/L	1.0	0.50	1		10/10/15 13:55	108-67-8	
Benzene	1.6	ug/L	1.0	0.50	1		10/10/15 13:55	71-43-2	
Ethylbenzene	0.59J	ug/L	1.0	0.50	1		10/10/15 13:55	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/10/15 13:55	1634-04-4	
Naphthalene	10.9	ug/L	5.0	2.5	1		10/10/15 13:55	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/10/15 13:55	108-88-3	
m&p-Xylene	3.7	ug/L	2.0	1.0	1		10/10/15 13:55	179601-23-1	
o-Xylene	7.6	ug/L	1.0	0.50	1		10/10/15 13:55	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		10/10/15 13:55	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		10/10/15 13:55	2037-26-5	
4-Bromofluorobenzene (S)	106	%	70-130		1		10/10/15 13:55	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: MW-6/T70 **Lab ID: 40122459021** Collected: 10/06/15 09:25 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	18.9	ug/L	1.0	0.50	1		10/13/15 19:40	95-63-6	
1,3,5-Trimethylbenzene	6.1	ug/L	1.0	0.50	1		10/13/15 19:40	108-67-8	
Benzene	84.1	ug/L	1.0	0.50	1		10/13/15 19:40	71-43-2	
Ethylbenzene	4.6	ug/L	1.0	0.50	1		10/13/15 19:40	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/13/15 19:40	1634-04-4	
Naphthalene	4.0J	ug/L	5.0	2.5	1		10/13/15 19:40	91-20-3	
Toluene	6.4	ug/L	1.0	0.50	1		10/13/15 19:40	108-88-3	
m&p-Xylene	66.4	ug/L	2.0	1.0	1		10/13/15 19:40	179601-23-1	
o-Xylene	35.3	ug/L	1.0	0.50	1		10/13/15 19:40	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		10/13/15 19:40	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/15 19:40	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		1		10/13/15 19:40	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Sample: TRIP BLANK **Lab ID: 40122459022** Collected: 10/06/15 00:00 Received: 10/08/15 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	108-67-8	
Benzene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/10/15 11:00	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/10/15 11:00	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/10/15 11:00	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/10/15 11:00	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		10/10/15 11:00	1868-53-7	
Toluene-d8 (S)	103	%	70-130		1		10/10/15 11:00	2037-26-5	
4-Bromofluorobenzene (S)	106	%	70-130		1		10/10/15 11:00	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

QC Batch: MSV/30585 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
 Associated Lab Samples: 40122459011, 40122459012, 40122459013, 40122459014, 40122459015

METHOD BLANK: 1236760 Matrix: Water
 Associated Lab Samples: 40122459011, 40122459012, 40122459013, 40122459014, 40122459015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/12/15 06:43	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/12/15 06:43	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/12/15 06:43	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/12/15 06:43	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/12/15 06:43	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/12/15 06:43	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/12/15 06:43	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/12/15 06:43	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/12/15 06:43	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/12/15 06:43	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/12/15 06:43	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/12/15 06:43	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/12/15 06:43	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/12/15 06:43	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/12/15 06:43	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/12/15 06:43	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/12/15 06:43	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/12/15 06:43	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/12/15 06:43	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/12/15 06:43	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/12/15 06:43	
2-Chlorotoluene	ug/L	<0.50	1.0	10/12/15 06:43	
4-Chlorotoluene	ug/L	<0.21	1.0	10/12/15 06:43	
Benzene	ug/L	<0.50	1.0	10/12/15 06:43	
Bromobenzene	ug/L	<0.23	1.0	10/12/15 06:43	
Bromochloromethane	ug/L	<0.34	1.0	10/12/15 06:43	
Bromodichloromethane	ug/L	<0.50	1.0	10/12/15 06:43	
Bromoform	ug/L	<0.50	1.0	10/12/15 06:43	
Bromomethane	ug/L	<2.4	5.0	10/12/15 06:43	
Carbon tetrachloride	ug/L	<0.50	1.0	10/12/15 06:43	
Chlorobenzene	ug/L	<0.50	1.0	10/12/15 06:43	
Chloroethane	ug/L	<0.37	1.0	10/12/15 06:43	
Chloroform	ug/L	<2.5	5.0	10/12/15 06:43	
Chloromethane	ug/L	<0.50	1.0	10/12/15 06:43	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/12/15 06:43	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/12/15 06:43	
Dibromochloromethane	ug/L	<0.50	1.0	10/12/15 06:43	
Dibromomethane	ug/L	<0.43	1.0	10/12/15 06:43	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/12/15 06:43	
Ethylbenzene	ug/L	<0.50	1.0	10/12/15 06:43	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/12/15 06:43	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

METHOD BLANK: 1236760

Matrix: Water

Associated Lab Samples: 40122459011, 40122459012, 40122459013, 40122459014, 40122459015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/12/15 06:43	
m&p-Xylene	ug/L	<1.0	2.0	10/12/15 06:43	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/12/15 06:43	
Methylene Chloride	ug/L	<0.23	1.0	10/12/15 06:43	
n-Butylbenzene	ug/L	<0.50	1.0	10/12/15 06:43	
n-Propylbenzene	ug/L	<0.50	1.0	10/12/15 06:43	
Naphthalene	ug/L	<2.5	5.0	10/12/15 06:43	
o-Xylene	ug/L	<0.50	1.0	10/12/15 06:43	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/12/15 06:43	
sec-Butylbenzene	ug/L	<2.2	5.0	10/12/15 06:43	
Styrene	ug/L	<0.50	1.0	10/12/15 06:43	
tert-Butylbenzene	ug/L	<0.18	1.0	10/12/15 06:43	
Tetrachloroethene	ug/L	<0.50	1.0	10/12/15 06:43	
Toluene	ug/L	<0.50	1.0	10/12/15 06:43	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/12/15 06:43	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/12/15 06:43	
Trichloroethene	ug/L	<0.33	1.0	10/12/15 06:43	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/12/15 06:43	
Vinyl chloride	ug/L	<0.18	1.0	10/12/15 06:43	
4-Bromofluorobenzene (S)	%	92	70-130	10/12/15 06:43	
Dibromofluoromethane (S)	%	104	70-130	10/12/15 06:43	
Toluene-d8 (S)	%	100	70-130	10/12/15 06:43	

LABORATORY CONTROL SAMPLE: 1236761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	53.0	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	47.8	96	70-130	
1,1,2-Trichloroethane	ug/L	50	48.6	97	70-130	
1,1-Dichloroethane	ug/L	50	50.7	101	70-130	
1,1-Dichloroethene	ug/L	50	53.6	107	70-130	
1,2,4-Trichlorobenzene	ug/L	50	44.3	89	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	42.7	85	50-150	
1,2-Dibromoethane (EDB)	ug/L	50	49.1	98	70-130	
1,2-Dichlorobenzene	ug/L	50	46.5	93	70-130	
1,2-Dichloroethane	ug/L	50	50.9	102	70-131	
1,2-Dichloropropane	ug/L	50	49.4	99	70-130	
1,3-Dichlorobenzene	ug/L	50	45.6	91	70-130	
1,4-Dichlorobenzene	ug/L	50	44.6	89	70-130	
Benzene	ug/L	50	51.2	102	70-130	
Bromodichloromethane	ug/L	50	48.4	97	70-130	
Bromoform	ug/L	50	45.6	91	68-130	
Bromomethane	ug/L	50	27.5	55	38-137	
Carbon tetrachloride	ug/L	50	54.7	109	70-130	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

LABORATORY CONTROL SAMPLE: 1236761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	48.2	96	70-130	
Chloroethane	ug/L	50	51.9	104	70-136	
Chloroform	ug/L	50	51.2	102	70-130	
Chloromethane	ug/L	50	45.8	92	48-144	
cis-1,2-Dichloroethene	ug/L	50	50.5	101	70-130	
cis-1,3-Dichloropropene	ug/L	50	45.4	91	70-130	
Dibromochloromethane	ug/L	50	47.7	95	70-130	
Dichlorodifluoromethane	ug/L	50	45.8	92	33-157	
Ethylbenzene	ug/L	50	50.3	101	70-132	
Isopropylbenzene (Cumene)	ug/L	50	52.4	105	70-130	
m&p-Xylene	ug/L	100	102	102	70-131	
Methyl-tert-butyl ether	ug/L	50	49.0	98	48-141	
Methylene Chloride	ug/L	50	50.5	101	70-130	
o-Xylene	ug/L	50	49.4	99	70-131	
Styrene	ug/L	50	51.5	103	70-130	
Tetrachloroethene	ug/L	50	47.4	95	70-130	
Toluene	ug/L	50	49.8	100	70-130	
trans-1,2-Dichloroethene	ug/L	50	51.6	103	70-130	
trans-1,3-Dichloropropene	ug/L	50	44.1	88	70-130	
Trichloroethene	ug/L	50	50.6	101	70-130	
Trichlorofluoromethane	ug/L	50	53.8	108	50-150	
Vinyl chloride	ug/L	50	48.6	97	65-142	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1237024 1237025

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40122459011 Result	Spike Conc.	Spike Conc.	MSD Result								
1,1,1-Trichloroethane	ug/L	<0.50	50	50	55.1	53.2	110	106	70-130	4	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	49.3	47.2	99	94	70-130	4	20		
1,1,2-Trichloroethane	ug/L	<0.20	50	50	49.2	47.9	98	96	70-130	3	20		
1,1-Dichloroethane	ug/L	<0.24	50	50	52.5	50.6	105	101	70-134	4	20		
1,1-Dichloroethene	ug/L	<0.41	50	50	55.8	53.8	112	108	70-139	3	20		
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	48.5	46.4	97	93	70-130	4	20		
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	44.7	43.4	89	87	50-150	3	20		
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	51.1	49.7	102	99	70-130	3	20		
1,2-Dichlorobenzene	ug/L	<0.50	50	50	49.6	47.4	99	95	70-130	4	20		
1,2-Dichloroethane	ug/L	<0.17	50	50	52.3	50.2	105	100	70-132	4	20		
1,2-Dichloropropane	ug/L	<0.23	50	50	50.8	49.8	102	100	70-130	2	20		
1,3-Dichlorobenzene	ug/L	<0.50	50	50	47.8	46.2	96	92	70-130	3	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	46.7	45.2	93	90	70-130	3	20		
Benzene	ug/L	<0.50	50	50	53.1	51.7	106	103	70-130	3	20		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1237024		1237025		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40122459011 Result	MS Spike Conc.	MSD Spike Conc.									
Bromodichloromethane	ug/L	<0.50	50	50	50.6	48.3	101	97	70-132	5	20		
Bromoform	ug/L	<0.50	50	50	47.6	45.7	95	91	68-130	4	20		
Bromomethane	ug/L	<2.4	50	50	38.8	41.5	78	83	38-141	7	20		
Carbon tetrachloride	ug/L	<0.50	50	50	56.3	54.9	113	110	70-130	3	20		
Chlorobenzene	ug/L	<0.50	50	50	50.0	48.8	100	98	70-130	3	20		
Chloroethane	ug/L	<0.37	50	50	53.2	51.6	106	103	66-152	3	20		
Chloroform	ug/L	<2.5	50	50	53.2	51.0	106	102	70-130	4	20		
Chloromethane	ug/L	<0.50	50	50	49.9	48.9	100	98	44-151	2	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	52.7	50.5	105	101	70-130	4	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	47.4	45.9	95	92	70-130	3	20		
Dibromochloromethane	ug/L	<0.50	50	50	50.1	48.4	100	97	70-130	4	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	46.3	45.1	93	90	29-160	3	20		
Ethylbenzene	ug/L	<0.50	50	50	52.1	50.6	104	101	70-132	3	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	53.1	52.1	106	104	70-130	2	20		
m&p-Xylene	ug/L	<1.0	100	100	105	103	105	103	70-131	2	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	51.8	49.1	104	98	48-143	5	20		
Methylene Chloride	ug/L	<0.23	50	50	52.7	50.9	105	102	70-130	3	20		
o-Xylene	ug/L	<0.50	50	50	51.1	49.7	102	99	70-131	3	20		
Styrene	ug/L	<0.50	50	50	53.5	52.0	107	104	70-130	3	20		
Tetrachloroethene	ug/L	<0.50	50	50	49.1	48.2	98	96	70-130	2	20		
Toluene	ug/L	<0.50	50	50	51.0	49.5	102	99	70-130	3	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	54.3	52.2	109	104	70-132	4	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	46.4	45.4	93	91	70-130	2	20		
Trichloroethene	ug/L	<0.33	50	50	52.4	50.9	105	102	70-130	3	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	55.4	54.4	111	109	50-153	2	20		
Vinyl chloride	ug/L	<0.18	50	50	51.4	51.1	103	102	60-155	1	20		
4-Bromofluorobenzene (S)	%						101	101	70-130				
Dibromofluoromethane (S)	%						105	103	70-130				
Toluene-d8 (S)	%						98	100	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

QC Batch: MSV/30565

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV UST-WATER

Associated Lab Samples: 40122459001, 40122459002, 40122459003, 40122459004, 40122459005, 40122459006

METHOD BLANK: 1235209

Matrix: Water

Associated Lab Samples: 40122459001, 40122459002, 40122459003, 40122459004, 40122459005, 40122459006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/10/15 08:53	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/10/15 08:53	
Benzene	ug/L	<0.50	1.0	10/10/15 08:53	
Ethylbenzene	ug/L	<0.50	1.0	10/10/15 08:53	
m&p-Xylene	ug/L	<1.0	2.0	10/10/15 08:53	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/10/15 08:53	
Naphthalene	ug/L	<2.5	5.0	10/10/15 08:53	
o-Xylene	ug/L	<0.50	1.0	10/10/15 08:53	
Toluene	ug/L	<0.50	1.0	10/10/15 08:53	
4-Bromofluorobenzene (S)	%	92	70-130	10/10/15 08:53	
Dibromofluoromethane (S)	%	100	70-130	10/10/15 08:53	
Toluene-d8 (S)	%	96	70-130	10/10/15 08:53	

LABORATORY CONTROL SAMPLE: 1235210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	50.7	101	70-130	
Ethylbenzene	ug/L	50	56.3	113	70-132	
m&p-Xylene	ug/L	100	117	117	70-131	
Methyl-tert-butyl ether	ug/L	50	42.6	85	48-141	
o-Xylene	ug/L	50	57.0	114	70-131	
Toluene	ug/L	50	56.2	112	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			86	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1235343 1235344

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40122448011 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	<0.50	50	50	62.1	61.2	124	122	70-130	1	20
Ethylbenzene	ug/L	<0.50	50	50	56.9	56.2	114	112	70-132	1	20
m&p-Xylene	ug/L	<1.0	100	100	116	115	116	115	70-131	1	20
Methyl-tert-butyl ether	ug/L	<0.17	50	50	52.4	52.0	105	104	48-143	1	20
o-Xylene	ug/L	<0.50	50	50	57.2	57.3	114	115	70-131	0	20
Toluene	ug/L	<0.50	50	50	57.4	55.9	115	112	70-130	3	20
4-Bromofluorobenzene (S)	%						99	100	70-130		
Dibromofluoromethane (S)	%						104	105	70-130		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1235343		1235344									
Parameter	Units	40122448011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						97	97	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR
 Pace Project No.: 40122459

QC Batch: MSV/30584 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40122459007, 40122459009, 40122459010, 40122459016, 40122459017, 40122459018, 40122459019, 40122459020, 40122459022

METHOD BLANK: 1236271 Matrix: Water
 Associated Lab Samples: 40122459007, 40122459009, 40122459010, 40122459016, 40122459017, 40122459018, 40122459019, 40122459020, 40122459022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/10/15 09:11	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/10/15 09:11	
Benzene	ug/L	<0.50	1.0	10/10/15 09:11	
Ethylbenzene	ug/L	<0.50	1.0	10/10/15 09:11	
m&p-Xylene	ug/L	<1.0	2.0	10/10/15 09:11	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/10/15 09:11	
Naphthalene	ug/L	<2.5	5.0	10/10/15 09:11	
o-Xylene	ug/L	<0.50	1.0	10/10/15 09:11	
Toluene	ug/L	<0.50	1.0	10/10/15 09:11	
4-Bromofluorobenzene (S)	%	103	70-130	10/10/15 09:11	
Dibromofluoromethane (S)	%	107	70-130	10/10/15 09:11	
Toluene-d8 (S)	%	107	70-130	10/10/15 09:11	

LABORATORY CONTROL SAMPLE: 1236272

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	54.4	109	70-130	
Ethylbenzene	ug/L	50	61.5	123	70-132	
m&p-Xylene	ug/L	100	111	111	70-131	
Methyl-tert-butyl ether	ug/L	50	52.7	105	48-141	
o-Xylene	ug/L	50	53.4	107	70-131	
Toluene	ug/L	50	57.8	116	70-130	
4-Bromofluorobenzene (S)	%			114	70-130	
Dibromofluoromethane (S)	%			111	70-130	
Toluene-d8 (S)	%			105	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1236295 1236296

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40122508003 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	<1.0	50	50	48.6	53.5	97	107	70-130	10	20
Ethylbenzene	ug/L	<1.0	50	50	52.6	57.2	105	114	70-132	8	20
m&p-Xylene	ug/L	<2.0	100	100	95.9	106	96	106	70-131	10	20
Methyl-tert-butyl ether	ug/L	<1.0	50	50	46.7	49.6	93	99	48-143	6	20
o-Xylene	ug/L	<1.0	50	50	47.1	50.8	94	102	70-131	8	20
Toluene	ug/L	<1.0	50	50	51.6	56.7	103	113	70-130	9	20
4-Bromofluorobenzene (S)	%						113	115	70-130		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

Parameter	Units	40122508003		1236295		1236296		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibromofluoromethane (S)	%							114	112	70-130				
Toluene-d8 (S)	%							103	103	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR
Pace Project No.: 40122459

QC Batch: MSV/30590 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40122459008, 40122459021

METHOD BLANK: 1237062 Matrix: Water
Associated Lab Samples: 40122459008, 40122459021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/13/15 17:24	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/13/15 17:24	
Benzene	ug/L	<0.50	1.0	10/13/15 17:24	
Ethylbenzene	ug/L	<0.50	1.0	10/13/15 17:24	
m&p-Xylene	ug/L	<1.0	2.0	10/13/15 17:24	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/13/15 17:24	
Naphthalene	ug/L	<2.5	5.0	10/13/15 17:24	
o-Xylene	ug/L	<0.50	1.0	10/13/15 17:24	
Toluene	ug/L	<0.50	1.0	10/13/15 17:24	
4-Bromofluorobenzene (S)	%	97	70-130	10/13/15 17:24	
Dibromofluoromethane (S)	%	106	70-130	10/13/15 17:24	
Toluene-d8 (S)	%	96	70-130	10/13/15 17:24	

LABORATORY CONTROL SAMPLE: 1237063

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	49.1	98	70-130	
Ethylbenzene	ug/L	50	53.0	106	70-132	
m&p-Xylene	ug/L	100	106	106	70-131	
Methyl-tert-butyl ether	ug/L	50	46.1	92	48-141	
o-Xylene	ug/L	50	50.3	101	70-131	
Toluene	ug/L	50	50.3	101	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			106	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1238144 1238145

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40122508006 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<1.0	50	50	49.9	49.0	100	98	70-130	2	20	
Ethylbenzene	ug/L	<1.0	50	50	54.8	53.4	109	106	70-132	3	20	
m&p-Xylene	ug/L	<2.0	100	100	108	104	107	104	70-131	3	20	
Methyl-tert-butyl ether	ug/L	<1.0	50	50	49.0	47.0	98	94	48-143	4	20	
o-Xylene	ug/L	<1.0	50	50	52.9	50.7	106	101	70-131	4	20	
Toluene	ug/L	<1.0	50	50	51.9	50.8	104	101	70-130	2	20	
4-Bromofluorobenzene (S)	%						103	100	70-130			
Dibromofluoromethane (S)	%						109	107	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1238144		1238145									
Parameter	Units	40122508006 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				

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QUALIFIERS

Project: 34265.003 CALUMET-SUPERIOR

Pace Project No.: 40122459

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

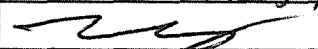
Project: 34265.003 CALUMET-SUPERIOR
Pace Project No.: 40122459

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40122459011	MW-1/T68	EPA 8260	MSV/30585		
40122459012	MW-2/T68	EPA 8260	MSV/30585		
40122459013	MW-4/T68	EPA 8260	MSV/30585		
40122459014	MW-5/T66	EPA 8260	MSV/30585		
40122459015	MW-6/T68	EPA 8260	MSV/30585		
40122459001	MW-1/CW	EPA 8260	MSV/30565		
40122459002	MW-2/CW	EPA 8260	MSV/30565		
40122459003	MW-3/CW	EPA 8260	MSV/30565		
40122459004	MW-4/CW	EPA 8260	MSV/30565		
40122459005	MW-1/T40	EPA 8260	MSV/30565		
40122459006	MW-4/T40	EPA 8260	MSV/30565		
40122459007	MW-5/T40	EPA 8260	MSV/30584		
40122459008	MW-6/T40	EPA 8260	MSV/30590		
40122459009	MW-7/T40	EPA 8260	MSV/30584		
40122459010	TS-1/T40	EPA 8260	MSV/30584		
40122459016	MW-1R/T70	EPA 8260	MSV/30584		
40122459017	MW-2R/T70	EPA 8260	MSV/30584		
40122459018	MW-3/T70	EPA 8260	MSV/30584		
40122459019	MW-4/T70	EPA 8260	MSV/30584		
40122459020	MW-5/T70	EPA 8260	MSV/30584		
40122459021	MW-6/T70	EPA 8260	MSV/30590		
40122459022	TRIP BLANK	EPA 8260	MSV/30584		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: Garrett Fleming
Branch/Location: Madison, WI
Project Contact: Cliff Wright
Phone: 608-836-1500
Project Number: 34265.003
Project Name: Calumet-Superior
Project State: WI
Sampled By (Print): Marcus Mussey
Sampled By (Sign): 

PO #:
Regulatory Program:



40122459

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	Pick Letter														
N	B														
N	B														
N	B														

Analyses Requested

PVOC NapH
8260

PVOC 8260

VOC 8260

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX	Analyses Requested	Pick Letter										
		DATE	TIME													
001	MW-1/CW	8/6	12:00	GW	3											
002	MW2/CW		12:02		3											
003	MW-3/CW		12:10		3											
004	MW-4/CW		12:05		3											
005	MW-1/T40		8:00							3						
006	MW-4/T40		8:25							3						
007	MW-5/T40		8:10							3						
008	MW-6/T40		8:15							3						
009	MW-7/T40		8:20							3						
010	ATS-1/T40		8:22							3						
011	MW-1/T68		8:40							3						
012	MW-2/T68		9:00							3						
013	MW-4/T68		8:55							3						

Quote #:		
Mail To Contact:		
Mail To Company:		
Mail To Address:		
Invoice To Contact:		
Invoice To Company:		
Invoice To Address:		
Invoice To Phone:		
CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40mV ^B	

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: Marcus Mussey **Date/Time:** 10/7/15, 8:30

Relinquished By: Kelly **Date/Time:** 10/8/15 1040

Relinquished By: **Date/Time:**

Relinquished By: **Date/Time:**

Relinquished By: **Date/Time:**

Received By: **Date/Time:**

Received By: Carly Pt/Plaw **Date/Time:** 10/8/15 1040

Received By: **Date/Time:**

Received By: **Date/Time:**

Received By: **Date/Time:**

PACE Project No.
40122459

Receipt Temp = 10.1 °C

Sample Receipt pH
OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

(Please Print Clearly)

Company Name: _____
 Branch/Location: _____
 Project Contact: *See page one*
 Phone: _____
 Project Number: _____
 Project Name: _____
 Project State: _____
 Sampled By (Print): *one*
 Sampled By (Sign): _____
 PO #: _____



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

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	Pick Letter	Analyses Requested		DATE	TIME	MATRIX
		1	2			
N	B	PVOC NapH	VOOC 8260	10/6	8:45	GW
N	B	8260	VOOC 8260		9:05	
					9:48	
					9:15	
					9:30	
					9:35	
					9:20	
					9:25	

Quote #: _____
 Mail To Contact: _____
 Mail To Company: _____
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40mV ^B	
	2-40mV ^B	

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
014	MW-5/T66	10/6	8:45	GW
015	MW-6/T68		9:05	
016	MW-1R/T70		9:48	
017	MW-2R/T70		9:15	
018	MW-3/T70		9:30	
019	MW-4/T70		9:35	
020	MW-5/T70		9:20	
021	MWC/T70		9:25	
022	Trip Blank Z			

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <i>Marcus Musy</i>	Date/Time: <i>10-7-15/8:30</i>	Received By:	Date/Time:	PACE Project No. <i>40122459</i>
	Transmit Prelim Rush Results by (complete what you want): <i>Red Ex</i>	Date/Time: <i>10/8/15 1040</i>	Received By: <i>Corey RA/PAC</i>	Date/Time: <i>10/8/15 1040</i>	
Email #1:	Relinquished By:	Date/Time:	Received By:	Date/Time:	Sample Receipt pH
Email #2:	Relinquished By:	Date/Time:	Received By:	Date/Time:	OK / Adjusted
Telephone:	Relinquished By:	Date/Time:	Received By:	Date/Time:	Cooler Custody Seal
Fax:	Relinquished By:	Date/Time:	Received By:	Date/Time:	Present / Not Present
Samples on HOLD are subject to special pricing and release of liability	Relinquished By:	Date/Time:	Received By:	Date/Time:	Intact / Not Intact



Sample Condition Upon Receipt

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

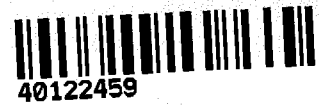
Project #:

WO#: 40122459

Client Name: Gunneth Fleming

Courier: Fed Ex UPS Client Pace Other: _____

Tracking #: 808913861809



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

Cooler Temperature: Uncorr: _____ /Corr: ROT Biological Tissue is Frozen: yes

Temp Blank Present: yes no no

Person examining contents:
Date: 10/8/15
Initials: CF

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <input checked="" type="checkbox"/> VOA coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
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>03 9415-3CC</u>	

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

Project Manager Review: [Signature] Date: 10/8/15

June 02, 2016

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

Project #34265.003
Calumet Superior
Reviewed by CCW
6/6/16

RE: Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40132890

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on May 25, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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
Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

Virginia VELAP ID: 460263

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Virginia VELAP ID: 460263

Virginia VELAP Certification ID: 460263

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40132890001	LRS-1	Water	05/24/16 11:30	05/25/16 12:45
40132890002	LRS-2	Water	05/24/16 11:40	05/25/16 12:45
40132890003	LRS-3	Water	05/24/16 11:50	05/25/16 12:45
40132890004	LRS-4	Water	05/24/16 11:55	05/25/16 12:45
40132890005	LRS-6	Water	05/24/16 11:45	05/25/16 12:45
40132890006	LRS-7	Water	05/24/16 12:05	05/25/16 12:45
40132890007	MW-1/FL	Water	05/24/16 10:30	05/25/16 12:45
40132890008	MW-2/FL	Water	05/24/16 10:20	05/25/16 12:45
40132890009	MW-3/FL	Water	05/24/16 10:05	05/25/16 12:45
40132890010	MW-9/FL	Water	05/24/16 12:15	05/25/16 12:45
40132890011	MW-10/FL	Water	05/24/16 12:20	05/25/16 12:45
40132890012	MW-11/FL	Water	05/24/16 10:45	05/25/16 12:45
40132890013	MW-13/FL	Water	05/24/16 11:25	05/25/16 12:45
40132890014	MW-14/FL	Water	05/24/16 11:10	05/25/16 12:45
40132890015	MW-1/CW	Water	05/24/16 09:05	05/25/16 12:45
40132890016	MW-2/CW	Water	05/24/16 09:00	05/25/16 12:45
40132890017	MW-3/CW	Water	05/24/16 09:10	05/25/16 12:45
40132890018	MW-4/CW	Water	05/24/16 08:50	05/25/16 12:45
40132890019	MW-1/T40	Water	05/24/16 13:30	05/25/16 12:45
40132890020	MW-2/T40	Water	05/24/16 13:05	05/25/16 12:45
40132890021	MW-4/T40	Water	05/24/16 13:25	05/25/16 12:45
40132890022	MW-5/T40	Water	05/24/16 13:10	05/25/16 12:45
40132890023	MW-6/T40	Water	05/24/16 13:15	05/25/16 12:45
40132890024	MW-7/T40	Water	05/24/16 13:20	05/25/16 12:45
40132890025	TS-1/T40	Water	05/24/16 13:35	05/25/16 12:45
40132890026	MW-1/T68	Water	05/24/16 14:00	05/25/16 12:45
40132890027	MW-2/T68	Water	05/24/16 14:15	05/25/16 12:45
40132890028	MW-4/T68	Water	05/24/16 14:10	05/25/16 12:45
40132890029	MW-5/T66	Water	05/24/16 14:20	05/25/16 12:45
40132890030	MW-1R/T70	Water	05/24/16 15:15	05/25/16 12:45
40132890031	MW-2R/T70	Water	05/24/16 14:50	05/25/16 12:45
40132890032	MW-3/T70	Water	05/24/16 14:25	05/25/16 12:45
40132890033	MW-4/T70	Water	05/24/16 14:20	05/25/16 12:45
40132890034	MW-5/T70	Water	05/24/16 14:55	05/25/16 12:45
40132890035	MW-6/T70	Water	05/24/16 15:00	05/25/16 12:45
40132890036	TRIP BLANK	Water	05/24/16 00:00	05/25/16 12:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40132890001	LRS-1	EPA 8021	PMS	9	PASI-G
40132890002	LRS-2	EPA 8021	PMS	9	PASI-G
40132890003	LRS-3	EPA 8021	PMS	9	PASI-G
40132890004	LRS-4	EPA 8021	PMS	9	PASI-G
40132890005	LRS-6	EPA 8021	PMS	9	PASI-G
40132890006	LRS-7	EPA 8021	PMS	9	PASI-G
40132890007	MW-1/FL	EPA 8021	PMS	9	PASI-G
40132890008	MW-2/FL	EPA 8021	PMS	9	PASI-G
40132890009	MW-3/FL	EPA 8021	PMS	9	PASI-G
40132890010	MW-9/FL	EPA 8021	PMS	9	PASI-G
40132890011	MW-10/FL	EPA 8021	PMS	9	PASI-G
40132890012	MW-11/FL	EPA 8021	PMS	9	PASI-G
40132890013	MW-13/FL	EPA 8021	PMS	9	PASI-G
40132890014	MW-14/FL	EPA 8021	PMS	9	PASI-G
40132890015	MW-1/CW	EPA 8260	LAP	12	PASI-G
40132890016	MW-2/CW	EPA 8260	LAP	12	PASI-G
40132890017	MW-3/CW	EPA 8260	LAP	12	PASI-G
40132890018	MW-4/CW	EPA 8260	HNW	12	PASI-G
40132890019	MW-1/T40	EPA 8260	HNW	11	PASI-G
40132890020	MW-2/T40	EPA 8260	HNW	11	PASI-G
40132890021	MW-4/T40	EPA 8260	HNW	11	PASI-G
40132890022	MW-5/T40	EPA 8260	HNW	11	PASI-G
40132890023	MW-6/T40	EPA 8260	HNW	11	PASI-G
40132890024	MW-7/T40	EPA 8260	HNW	11	PASI-G
40132890025	TS-1/T40	EPA 8260	HNW	11	PASI-G
40132890026	MW-1/T68	EPA 8260	LAP	63	PASI-G
40132890027	MW-2/T68	EPA 8260	LAP	63	PASI-G
40132890028	MW-4/T68	EPA 8260	LAP	63	PASI-G
40132890029	MW-5/T66	EPA 8260	LAP	63	PASI-G
40132890030	MW-1R/T70	EPA 8260	HNW	12	PASI-G
40132890031	MW-2R/T70	EPA 8260	HNW	12	PASI-G
40132890032	MW-3/T70	EPA 8260	HNW	12	PASI-G
40132890033	MW-4/T70	EPA 8260	HNW	12	PASI-G
40132890034	MW-5/T70	EPA 8260	HNW	12	PASI-G
40132890035	MW-6/T70	EPA 8260	HNW	12	PASI-G
40132890036	TRIP BLANK	EPA 8260	LAP	63	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40132890028	MW-4/T68					
EPA 8260	Benzene	282	ug/L	2.5	06/01/16 10:33	
EPA 8260	Ethylbenzene	30.6	ug/L	2.5	06/01/16 10:33	
EPA 8260	Isopropylbenzene (Cumene)	0.69J	ug/L	2.5	06/01/16 10:33	
EPA 8260	Toluene	2.2J	ug/L	2.5	06/01/16 10:33	
EPA 8260	m&p-Xylene	86.5	ug/L	5.0	06/01/16 10:33	
EPA 8260	o-Xylene	1.5J	ug/L	2.5	06/01/16 10:33	
40132890029	MW-5/T66					
EPA 8260	1,2,4-Trimethylbenzene	3760	ug/L	200	06/01/16 10:56	
EPA 8260	1,3,5-Trimethylbenzene	959	ug/L	200	06/01/16 10:56	
EPA 8260	Benzene	10600	ug/L	200	06/01/16 10:56	
EPA 8260	Ethylbenzene	3330	ug/L	200	06/01/16 10:56	
EPA 8260	Isopropylbenzene (Cumene)	118J	ug/L	200	06/01/16 10:56	
EPA 8260	Toluene	17000	ug/L	200	06/01/16 10:56	
EPA 8260	m&p-Xylene	13800	ug/L	400	06/01/16 10:56	
EPA 8260	n-Propylbenzene	419	ug/L	200	06/01/16 10:56	
EPA 8260	o-Xylene	5560	ug/L	200	06/01/16 10:56	
40132890030	MW-1R/T70					
EPA 8260	1,2,4-Trimethylbenzene	2150	ug/L	125	05/31/16 10:50	
EPA 8260	1,3,5-Trimethylbenzene	518	ug/L	125	05/31/16 10:50	
EPA 8260	Benzene	30800	ug/L	125	05/31/16 10:50	
EPA 8260	Ethylbenzene	1670	ug/L	125	05/31/16 10:50	
EPA 8260	Naphthalene	380J	ug/L	625	05/31/16 10:50	
EPA 8260	Toluene	20700	ug/L	125	05/31/16 10:50	
EPA 8260	m&p-Xylene	10100	ug/L	250	05/31/16 10:50	
EPA 8260	o-Xylene	3770	ug/L	125	05/31/16 10:50	
40132890031	MW-2R/T70					
EPA 8260	1,2,4-Trimethylbenzene	3230	ug/L	250	05/31/16 11:12	
EPA 8260	1,3,5-Trimethylbenzene	688	ug/L	250	05/31/16 11:12	
EPA 8260	Benzene	22000	ug/L	250	05/31/16 11:12	
EPA 8260	Ethylbenzene	2150	ug/L	250	05/31/16 11:12	
EPA 8260	Toluene	29500	ug/L	250	05/31/16 11:12	
EPA 8260	m&p-Xylene	13900	ug/L	500	05/31/16 11:12	
EPA 8260	o-Xylene	6080	ug/L	250	05/31/16 11:12	
40132890032	MW-3/T70					
EPA 8260	1,2,4-Trimethylbenzene	170	ug/L	10.0	05/31/16 15:06	
EPA 8260	1,3,5-Trimethylbenzene	48.4	ug/L	10.0	05/31/16 15:06	
EPA 8260	Benzene	748	ug/L	10.0	05/31/16 15:06	
EPA 8260	Ethylbenzene	44.5	ug/L	10.0	05/31/16 15:06	
EPA 8260	Toluene	12.2	ug/L	10.0	05/31/16 15:06	
EPA 8260	m&p-Xylene	398	ug/L	20.0	05/31/16 15:06	
EPA 8260	o-Xylene	124	ug/L	10.0	05/31/16 15:06	
40132890033	MW-4/T70					
EPA 8260	1,2,4-Trimethylbenzene	3270	ug/L	100	05/31/16 11:33	
EPA 8260	1,3,5-Trimethylbenzene	848	ug/L	100	05/31/16 11:33	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40132890033	MW-4/T70					
EPA 8260	Benzene	14700	ug/L	100	05/31/16 11:33	
EPA 8260	Ethylbenzene	2160	ug/L	100	05/31/16 11:33	
EPA 8260	Naphthalene	712	ug/L	500	05/31/16 11:33	
EPA 8260	Toluene	20700	ug/L	100	05/31/16 11:33	
EPA 8260	m&p-Xylene	16400	ug/L	200	05/31/16 11:33	
EPA 8260	o-Xylene	6800	ug/L	100	05/31/16 11:33	
40132890034	MW-5/T70					
EPA 8260	1,2,4-Trimethylbenzene	19.0	ug/L	1.0	05/31/16 12:58	
EPA 8260	1,3,5-Trimethylbenzene	6.8	ug/L	1.0	05/31/16 12:58	
EPA 8260	Benzene	4.9	ug/L	1.0	05/31/16 12:58	
EPA 8260	Ethylbenzene	20.7	ug/L	1.0	05/31/16 12:58	
EPA 8260	Naphthalene	61.4	ug/L	5.0	05/31/16 12:58	
EPA 8260	Toluene	11.3	ug/L	1.0	05/31/16 12:58	
EPA 8260	m&p-Xylene	25.8	ug/L	2.0	05/31/16 12:58	
EPA 8260	o-Xylene	21.1	ug/L	1.0	05/31/16 12:58	
40132890035	MW-6/T70					
EPA 8260	1,2,4-Trimethylbenzene	214	ug/L	10.0	06/01/16 02:33	
EPA 8260	1,3,5-Trimethylbenzene	81.5	ug/L	10.0	06/01/16 02:33	
EPA 8260	Benzene	1270	ug/L	10.0	06/01/16 02:33	
EPA 8260	Ethylbenzene	69.7	ug/L	10.0	06/01/16 02:33	
EPA 8260	Naphthalene	41.9J	ug/L	50.0	06/01/16 02:33	
EPA 8260	Toluene	158	ug/L	10.0	06/01/16 02:33	
EPA 8260	m&p-Xylene	861	ug/L	20.0	06/01/16 02:33	
EPA 8260	o-Xylene	297	ug/L	10.0	06/01/16 02:33	

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Method: EPA 8021

Description: 8021 GCV Short List

Client: Gannett Fleming Inc.

Date: June 02, 2016

General Information:

14 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 CALUMET SUPERIOR

Pace Project No.: 40132890

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: June 02, 2016

General Information:

5 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:

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40132890

Method: EPA 8260
Description: 8260 MSV UST
Client: Gannett Fleming Inc.
Date: June 02, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: MSV/33720

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40132890022

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

- MS (Lab ID: 1343305)
 - Ethylbenzene
 - m&p-Xylene
- MSD (Lab ID: 1343306)
 - Ethylbenzene

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 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-1R/T70 **Lab ID: 40132890030** Collected: 05/24/16 15:15 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2150	ug/L	125	62.5	125		05/31/16 10:50	95-63-6	
1,3,5-Trimethylbenzene	518	ug/L	125	62.5	125		05/31/16 10:50	108-67-8	
Benzene	30800	ug/L	125	62.5	125		05/31/16 10:50	71-43-2	
Ethylbenzene	1670	ug/L	125	62.5	125		05/31/16 10:50	100-41-4	
Methyl-tert-butyl ether	<21.8	ug/L	125	21.8	125		05/31/16 10:50	1634-04-4	
Naphthalene	380J	ug/L	625	312	125		05/31/16 10:50	91-20-3	
Toluene	20700	ug/L	125	62.5	125		05/31/16 10:50	108-88-3	
m&p-Xylene	10100	ug/L	250	125	125		05/31/16 10:50	179601-23-1	
o-Xylene	3770	ug/L	125	62.5	125		05/31/16 10:50	95-47-6	
Surrogates									
Dibromofluoromethane (S)	113	%	70-130		125		05/31/16 10:50	1868-53-7	
Toluene-d8 (S)	96	%	70-130		125		05/31/16 10:50	2037-26-5	
4-Bromofluorobenzene (S)	78	%	70-130		125		05/31/16 10:50	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-2R/T70 **Lab ID: 40132890031** Collected: 05/24/16 14:50 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	3230	ug/L	250	125	250		05/31/16 11:12	95-63-6	
1,3,5-Trimethylbenzene	688	ug/L	250	125	250		05/31/16 11:12	108-67-8	
Benzene	22000	ug/L	250	125	250		05/31/16 11:12	71-43-2	
Ethylbenzene	2150	ug/L	250	125	250		05/31/16 11:12	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		05/31/16 11:12	1634-04-4	
Naphthalene	<625	ug/L	1250	625	250		05/31/16 11:12	91-20-3	
Toluene	29500	ug/L	250	125	250		05/31/16 11:12	108-88-3	
m&p-Xylene	13900	ug/L	500	250	250		05/31/16 11:12	179601-23-1	
o-Xylene	6080	ug/L	250	125	250		05/31/16 11:12	95-47-6	
Surrogates									
Dibromofluoromethane (S)	109	%	70-130		250		05/31/16 11:12	1868-53-7	
Toluene-d8 (S)	94	%	70-130		250		05/31/16 11:12	2037-26-5	
4-Bromofluorobenzene (S)	75	%	70-130		250		05/31/16 11:12	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-3/T70 **Lab ID: 40132890032** Collected: 05/24/16 14:25 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	170	ug/L	10.0	5.0	10		05/31/16 15:06	95-63-6	
1,3,5-Trimethylbenzene	48.4	ug/L	10.0	5.0	10		05/31/16 15:06	108-67-8	
Benzene	748	ug/L	10.0	5.0	10		05/31/16 15:06	71-43-2	
Ethylbenzene	44.5	ug/L	10.0	5.0	10		05/31/16 15:06	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		05/31/16 15:06	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		05/31/16 15:06	91-20-3	
Toluene	12.2	ug/L	10.0	5.0	10		05/31/16 15:06	108-88-3	
m&p-Xylene	398	ug/L	20.0	10.0	10		05/31/16 15:06	179601-23-1	
o-Xylene	124	ug/L	10.0	5.0	10		05/31/16 15:06	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	70-130		10		05/31/16 15:06	1868-53-7	
Toluene-d8 (S)	96	%	70-130		10		05/31/16 15:06	2037-26-5	
4-Bromofluorobenzene (S)	74	%	70-130		10		05/31/16 15:06	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-4/T70 **Lab ID: 40132890033** Collected: 05/24/16 14:20 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	3270	ug/L	100	50.0	100		05/31/16 11:33	95-63-6	
1,3,5-Trimethylbenzene	848	ug/L	100	50.0	100		05/31/16 11:33	108-67-8	
Benzene	14700	ug/L	100	50.0	100		05/31/16 11:33	71-43-2	
Ethylbenzene	2160	ug/L	100	50.0	100		05/31/16 11:33	100-41-4	
Methyl-tert-butyl ether	<17.4	ug/L	100	17.4	100		05/31/16 11:33	1634-04-4	
Naphthalene	712	ug/L	500	250	100		05/31/16 11:33	91-20-3	
Toluene	20700	ug/L	100	50.0	100		05/31/16 11:33	108-88-3	
m&p-Xylene	16400	ug/L	200	100	100		05/31/16 11:33	179601-23-1	
o-Xylene	6800	ug/L	100	50.0	100		05/31/16 11:33	95-47-6	
Surrogates									
Dibromofluoromethane (S)	111	%	70-130		100		05/31/16 11:33	1868-53-7	
Toluene-d8 (S)	97	%	70-130		100		05/31/16 11:33	2037-26-5	
4-Bromofluorobenzene (S)	79	%	70-130		100		05/31/16 11:33	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-5/T70 **Lab ID: 40132890034** Collected: 05/24/16 14:55 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	19.0	ug/L	1.0	0.50	1		05/31/16 12:58	95-63-6	
1,3,5-Trimethylbenzene	6.8	ug/L	1.0	0.50	1		05/31/16 12:58	108-67-8	
Benzene	4.9	ug/L	1.0	0.50	1		05/31/16 12:58	71-43-2	
Ethylbenzene	20.7	ug/L	1.0	0.50	1		05/31/16 12:58	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		05/31/16 12:58	1634-04-4	
Naphthalene	61.4	ug/L	5.0	2.5	1		05/31/16 12:58	91-20-3	
Toluene	11.3	ug/L	1.0	0.50	1		05/31/16 12:58	108-88-3	
m&p-Xylene	25.8	ug/L	2.0	1.0	1		05/31/16 12:58	179601-23-1	
o-Xylene	21.1	ug/L	1.0	0.50	1		05/31/16 12:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	108	%	70-130		1		05/31/16 12:58	1868-53-7	
Toluene-d8 (S)	93	%	70-130		1		05/31/16 12:58	2037-26-5	
4-Bromofluorobenzene (S)	78	%	70-130		1		05/31/16 12:58	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: MW-6/T70 **Lab ID: 40132890035** Collected: 05/24/16 15:00 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	214	ug/L	10.0	5.0	10		06/01/16 02:33	95-63-6	
1,3,5-Trimethylbenzene	81.5	ug/L	10.0	5.0	10		06/01/16 02:33	108-67-8	
Benzene	1270	ug/L	10.0	5.0	10		06/01/16 02:33	71-43-2	
Ethylbenzene	69.7	ug/L	10.0	5.0	10		06/01/16 02:33	100-41-4	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		06/01/16 02:33	1634-04-4	
Naphthalene	41.9J	ug/L	50.0	25.0	10		06/01/16 02:33	91-20-3	
Toluene	158	ug/L	10.0	5.0	10		06/01/16 02:33	108-88-3	
m&p-Xylene	861	ug/L	20.0	10.0	10		06/01/16 02:33	179601-23-1	
o-Xylene	297	ug/L	10.0	5.0	10		06/01/16 02:33	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	70-130		10		06/01/16 02:33	1868-53-7	
Toluene-d8 (S)	92	%	70-130		10		06/01/16 02:33	2037-26-5	
4-Bromofluorobenzene (S)	78	%	70-130		10		06/01/16 02:33	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: TRIP BLANK **Lab ID: 40132890036** Collected: 05/24/16 00:00 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		06/01/16 11:41	630-20-6	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	71-55-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		06/01/16 11:41	79-34-5	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		06/01/16 11:41	79-00-5	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		06/01/16 11:41	75-34-3	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		06/01/16 11:41	75-35-4	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		06/01/16 11:41	563-58-6	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		06/01/16 11:41	87-61-6	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	96-18-4	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		06/01/16 11:41	120-82-1	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	95-63-6	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		06/01/16 11:41	96-12-8	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		06/01/16 11:41	106-93-4	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	95-50-1	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		06/01/16 11:41	107-06-2	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		06/01/16 11:41	78-87-5	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	108-67-8	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	541-73-1	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	142-28-9	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	106-46-7	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		06/01/16 11:41	594-20-7	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		06/01/16 11:41	106-43-4	
Benzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		06/01/16 11:41	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		06/01/16 11:41	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		06/01/16 11:41	74-83-9	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		06/01/16 11:41	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		06/01/16 11:41	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	74-87-3	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	124-48-1	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		06/01/16 11:41	74-95-3	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		06/01/16 11:41	75-71-8	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		06/01/16 11:41	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		06/01/16 11:41	98-82-8	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/01/16 11:41	1634-04-4	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		06/01/16 11:41	75-09-2	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/01/16 11:41	91-20-3	
Styrene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	100-42-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	108-88-3	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Sample: TRIP BLANK **Lab ID: 40132890036** Collected: 05/24/16 00:00 Received: 05/25/16 12:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Trichloroethene	<0.33	ug/L	1.0	0.33	1		06/01/16 11:41	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		06/01/16 11:41	75-69-4	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		06/01/16 11:41	75-01-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/01/16 11:41	156-59-2	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	10061-01-5	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/01/16 11:41	179601-23-1	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	104-51-8	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	103-65-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	95-47-6	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		06/01/16 11:41	99-87-6	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		06/01/16 11:41	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		06/01/16 11:41	98-06-6	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/01/16 11:41	156-60-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		06/01/16 11:41	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		06/01/16 11:41	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		1		06/01/16 11:41	1868-53-7	
Toluene-d8 (S)	108	%	70-130		1		06/01/16 11:41	2037-26-5	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

QC Batch:	GCV/16083	Analysis Method:	EPA 8021
QC Batch Method:	EPA 8021	Analysis Description:	8021 GCV BTEX
Associated Lab Samples:	40132890001, 40132890002, 40132890003, 40132890004, 40132890005, 40132890006, 40132890007, 40132890008, 40132890009, 40132890010, 40132890011, 40132890012, 40132890013, 40132890014		

METHOD BLANK:	1342348	Matrix:	Water
Associated Lab Samples:	40132890001, 40132890002, 40132890003, 40132890004, 40132890005, 40132890006, 40132890007, 40132890008, 40132890009, 40132890010, 40132890011, 40132890012, 40132890013, 40132890014		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	05/27/16 08:07	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	05/27/16 08:07	
Benzene	ug/L	<0.40	1.0	05/27/16 08:07	
Ethylbenzene	ug/L	<0.39	1.0	05/27/16 08:07	
m&p-Xylene	ug/L	<0.80	2.0	05/27/16 08:07	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	05/27/16 08:07	
o-Xylene	ug/L	<0.45	1.0	05/27/16 08:07	
Toluene	ug/L	<0.39	1.0	05/27/16 08:07	
a,a,a-Trifluorotoluene (S)	%	103	80-120	05/27/16 08:07	

Parameter	Units	1342349		1342350		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCS Result	LCS % Rec							
1,2,4-Trimethylbenzene	ug/L	20	21.8	21.0	109	105	80-120	4	20			
1,3,5-Trimethylbenzene	ug/L	20	21.1	20.4	106	102	80-120	4	20			
Benzene	ug/L	20	21.4	21.2	107	106	80-120	1	20			
Ethylbenzene	ug/L	20	20.9	20.4	105	102	80-120	3	20			
m&p-Xylene	ug/L	40	41.9	40.6	105	102	80-120	3	20			
Methyl-tert-butyl ether	ug/L	20	21.8	21.0	109	105	80-120	4	20			
o-Xylene	ug/L	20	21.5	20.8	108	104	80-120	3	20			
Toluene	ug/L	20	21.2	20.7	106	104	80-120	2	20			
a,a,a-Trifluorotoluene (S)	%				102	101	80-120					

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

QC Batch: MSV/33712 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
 Associated Lab Samples: 40132890026, 40132890027, 40132890028, 40132890029, 40132890036

METHOD BLANK: 1342374 Matrix: Water
 Associated Lab Samples: 40132890026, 40132890027, 40132890028, 40132890029, 40132890036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/01/16 06:47	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/01/16 06:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/01/16 06:47	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/01/16 06:47	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/01/16 06:47	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/01/16 06:47	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/01/16 06:47	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/01/16 06:47	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/01/16 06:47	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/01/16 06:47	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/01/16 06:47	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/01/16 06:47	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/01/16 06:47	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/01/16 06:47	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/01/16 06:47	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/01/16 06:47	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/01/16 06:47	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/01/16 06:47	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/01/16 06:47	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/01/16 06:47	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/01/16 06:47	
2-Chlorotoluene	ug/L	<0.50	1.0	06/01/16 06:47	
4-Chlorotoluene	ug/L	<0.21	1.0	06/01/16 06:47	
Benzene	ug/L	<0.50	1.0	06/01/16 06:47	
Bromobenzene	ug/L	<0.23	1.0	06/01/16 06:47	
Bromochloromethane	ug/L	<0.34	1.0	06/01/16 06:47	
Bromodichloromethane	ug/L	<0.50	1.0	06/01/16 06:47	
Bromoform	ug/L	<0.50	1.0	06/01/16 06:47	
Bromomethane	ug/L	<2.4	5.0	06/01/16 06:47	
Carbon tetrachloride	ug/L	<0.50	1.0	06/01/16 06:47	
Chlorobenzene	ug/L	<0.50	1.0	06/01/16 06:47	
Chloroethane	ug/L	<0.37	1.0	06/01/16 06:47	
Chloroform	ug/L	<2.5	5.0	06/01/16 06:47	
Chloromethane	ug/L	<0.50	1.0	06/01/16 06:47	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/01/16 06:47	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/01/16 06:47	
Dibromochloromethane	ug/L	<0.50	1.0	06/01/16 06:47	
Dibromomethane	ug/L	<0.43	1.0	06/01/16 06:47	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/01/16 06:47	
Ethylbenzene	ug/L	<0.50	1.0	06/01/16 06:47	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/01/16 06:47	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

METHOD BLANK: 1342374

Matrix: Water

Associated Lab Samples: 40132890026, 40132890027, 40132890028, 40132890029, 40132890036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/01/16 06:47	
m&p-Xylene	ug/L	<1.0	2.0	06/01/16 06:47	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/01/16 06:47	
Methylene Chloride	ug/L	<0.23	1.0	06/01/16 06:47	
n-Butylbenzene	ug/L	<0.50	1.0	06/01/16 06:47	
n-Propylbenzene	ug/L	<0.50	1.0	06/01/16 06:47	
Naphthalene	ug/L	<2.5	5.0	06/01/16 06:47	
o-Xylene	ug/L	<0.50	1.0	06/01/16 06:47	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/01/16 06:47	
sec-Butylbenzene	ug/L	<2.2	5.0	06/01/16 06:47	
Styrene	ug/L	<0.50	1.0	06/01/16 06:47	
tert-Butylbenzene	ug/L	<0.18	1.0	06/01/16 06:47	
Tetrachloroethene	ug/L	<0.50	1.0	06/01/16 06:47	
Toluene	ug/L	<0.50	1.0	06/01/16 06:47	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/01/16 06:47	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/01/16 06:47	
Trichloroethene	ug/L	<0.33	1.0	06/01/16 06:47	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/01/16 06:47	
Vinyl chloride	ug/L	<0.18	1.0	06/01/16 06:47	
4-Bromofluorobenzene (S)	%	92	70-130	06/01/16 06:47	
Dibromofluoromethane (S)	%	98	70-130	06/01/16 06:47	
Toluene-d8 (S)	%	102	70-130	06/01/16 06:47	

LABORATORY CONTROL SAMPLE: 1342375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.8	100	70-131	
1,1,2,2-Tetrachloroethane	ug/L	50	50.2	100	67-130	
1,1,2-Trichloroethane	ug/L	50	52.5	105	70-130	
1,1-Dichloroethane	ug/L	50	48.6	97	70-133	
1,1-Dichloroethene	ug/L	50	47.8	96	70-130	
1,2,4-Trichlorobenzene	ug/L	50	42.7	85	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.4	97	50-150	
1,2-Dibromoethane (EDB)	ug/L	50	54.5	109	70-130	
1,2-Dichlorobenzene	ug/L	50	49.8	100	70-130	
1,2-Dichloroethane	ug/L	50	50.3	101	70-130	
1,2-Dichloropropane	ug/L	50	50.7	101	70-130	
1,3-Dichlorobenzene	ug/L	50	48.9	98	70-130	
1,4-Dichlorobenzene	ug/L	50	48.1	96	70-130	
Benzene	ug/L	50	49.4	99	60-135	
Bromodichloromethane	ug/L	50	51.8	104	70-130	
Bromoform	ug/L	50	50.5	101	70-130	
Bromomethane	ug/L	50	34.7	69	33-130	
Carbon tetrachloride	ug/L	50	50.5	101	70-138	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

LABORATORY CONTROL SAMPLE: 1342375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	52.8	106	70-130	
Chloroethane	ug/L	50	50.2	100	51-130	
Chloroform	ug/L	50	49.3	99	70-130	
Chloromethane	ug/L	50	42.8	86	25-132	
cis-1,2-Dichloroethene	ug/L	50	48.0	96	69-130	
cis-1,3-Dichloropropene	ug/L	50	45.7	91	70-130	
Dibromochloromethane	ug/L	50	52.4	105	70-130	
Dichlorodifluoromethane	ug/L	50	35.2	70	23-130	
Ethylbenzene	ug/L	50	54.3	109	70-136	
Isopropylbenzene (Cumene)	ug/L	50	55.7	111	70-140	
m&p-Xylene	ug/L	100	114	114	70-138	
Methyl-tert-butyl ether	ug/L	50	48.7	97	66-138	
Methylene Chloride	ug/L	50	47.2	94	70-130	
o-Xylene	ug/L	50	54.7	109	70-134	
Styrene	ug/L	50	57.4	115	70-133	
Tetrachloroethene	ug/L	50	50.4	101	70-138	
Toluene	ug/L	50	54.1	108	70-130	
trans-1,2-Dichloroethene	ug/L	50	48.4	97	70-131	
trans-1,3-Dichloropropene	ug/L	50	48.6	97	69-130	
Trichloroethene	ug/L	50	51.2	102	70-130	
Trichlorofluoromethane	ug/L	50	49.8	100	50-150	
Vinyl chloride	ug/L	50	44.3	89	49-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			106	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1343476 1343477

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40132886002 Result	Spike Conc.	Spike Conc.	MSD Conc.								
1,1,1-Trichloroethane	ug/L	<1.0	50	50	50	45.7	43.0	91	86	70-134	6	20	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	50	50	50	51.0	48.9	102	98	67-130	4	20	
1,1,2-Trichloroethane	ug/L	<1.0	50	50	50	50.6	48.2	101	96	70-130	5	20	
1,1-Dichloroethane	ug/L	<1.0	50	50	50	44.0	41.8	88	84	70-134	5	20	
1,1-Dichloroethene	ug/L	<1.0	50	50	50	42.7	39.6	85	79	68-136	7	20	
1,2,4-Trichlorobenzene	ug/L	<5.0	50	50	50	41.1	39.4	82	78	62-139	4	20	
1,2-Dibromo-3-chloropropane	ug/L	<5.0	50	50	50	47.0	48.2	94	96	50-150	2	20	
1,2-Dibromoethane (EDB)	ug/L	<1.0	50	50	50	53.3	48.9	107	98	70-130	8	20	
1,2-Dichlorobenzene	ug/L	<1.0	50	50	50	48.4	45.9	97	92	70-130	5	20	
1,2-Dichloroethane	ug/L	<1.0	50	50	50	46.4	43.4	93	87	70-130	7	20	
1,2-Dichloropropane	ug/L	<1.0	50	50	50	48.5	47.1	97	94	70-130	3	20	
1,3-Dichlorobenzene	ug/L	<1.0	50	50	50	46.6	44.9	93	90	70-131	4	20	
1,4-Dichlorobenzene	ug/L	<1.0	50	50	50	46.2	44.7	92	89	70-130	3	20	
Benzene	ug/L	<1.0	50	50	50	45.2	42.7	90	85	57-138	6	20	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Parameter	Units	40132886002		1343476		1343477		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<1.0	50	50	48.8	45.5	98	91	70-130	7	20		
Bromoform	ug/L	<1.0	50	50	48.2	47.0	96	94	70-130	2	20		
Bromomethane	ug/L	<5.0	50	50	32.8	31.7	66	63	33-130	3	27		
Carbon tetrachloride	ug/L	<1.0	50	50	47.0	44.1	94	88	70-138	6	20		
Chlorobenzene	ug/L	<1.0	50	50	48.5	46.4	97	93	70-130	5	20		
Chloroethane	ug/L	<1.0	50	50	42.8	40.7	86	81	51-130	5	20		
Chloroform	ug/L	<5.0	50	50	45.8	42.8	92	86	70-130	7	20		
Chloromethane	ug/L	<1.0	50	50	35.6	33.0	71	66	25-132	8	20		
cis-1,2-Dichloroethene	ug/L	<1.0	50	50	43.4	40.4	87	81	61-140	7	20		
cis-1,3-Dichloropropene	ug/L	<1.0	50	50	44.7	42.0	89	84	70-130	6	20		
Dibromochloromethane	ug/L	<1.0	50	50	49.6	46.9	99	94	70-130	6	20		
Dichlorodifluoromethane	ug/L	<1.0	50	50	26.8	24.6	54	49	23-130	9	20		
Ethylbenzene	ug/L	<1.0	50	50	50.6	48.1	101	96	70-138	5	20		
Isopropylbenzene (Cumene)	ug/L	<1.0	50	50	51.6	48.9	103	98	70-152	5	20		
m&p-Xylene	ug/L	<2.0	100	100	105	99.2	105	99	70-140	5	20		
Methyl-tert-butyl ether	ug/L	<1.0	50	50	46.8	43.6	94	87	66-139	7	20		
Methylene Chloride	ug/L	<1.0	50	50	44.5	41.3	89	83	70-130	7	20		
o-Xylene	ug/L	<1.0	50	50	50.6	47.5	101	95	70-134	6	20		
Styrene	ug/L	<1.0	50	50	53.2	50.1	106	100	70-138	6	20		
Tetrachloroethene	ug/L	<1.0	50	50	47.2	44.5	94	89	70-148	6	20		
Toluene	ug/L	<1.0	50	50	50.5	48.3	101	97	70-130	4	20		
trans-1,2-Dichloroethene	ug/L	<1.0	50	50	43.0	41.1	86	82	70-133	5	20		
trans-1,3-Dichloropropene	ug/L	<1.0	50	50	46.1	43.9	92	88	69-130	5	20		
Trichloroethene	ug/L	<1.0	50	50	46.9	44.3	94	89	70-131	6	20		
Trichlorofluoromethane	ug/L	<1.0	50	50	43.7	41.1	87	82	50-150	6	20		
Vinyl chloride	ug/L	<1.0	50	50	38.1	35.6	76	71	49-133	7	20		
4-Bromofluorobenzene (S)	%						102	102	70-130				
Dibromofluoromethane (S)	%						97	97	70-130				
Toluene-d8 (S)	%						105	104	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

QC Batch: MSV/33697 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40132890015, 40132890016, 40132890017

METHOD BLANK: 1341593 Matrix: Water

Associated Lab Samples: 40132890015, 40132890016, 40132890017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/26/16 15:41	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/26/16 15:41	
Benzene	ug/L	<0.50	1.0	05/26/16 15:41	
Ethylbenzene	ug/L	<0.50	1.0	05/26/16 15:41	
m&p-Xylene	ug/L	<1.0	2.0	05/26/16 15:41	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/26/16 15:41	
Naphthalene	ug/L	<2.5	5.0	05/26/16 15:41	
o-Xylene	ug/L	<0.50	1.0	05/26/16 15:41	
Toluene	ug/L	<0.50	1.0	05/26/16 15:41	
4-Bromofluorobenzene (S)	%	87	70-130	05/26/16 15:41	
Dibromofluoromethane (S)	%	124	70-130	05/26/16 15:41	
Toluene-d8 (S)	%	86	70-130	05/26/16 15:41	

LABORATORY CONTROL SAMPLE: 1341594

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	56.6	113	60-135	
Ethylbenzene	ug/L	50	54.0	108	70-136	
m&p-Xylene	ug/L	100	112	112	70-138	
Methyl-tert-butyl ether	ug/L	50	42.4	85	66-138	
o-Xylene	ug/L	50	53.3	107	70-134	
Toluene	ug/L	50	54.0	108	70-130	
4-Bromofluorobenzene (S)	%			108	70-130	
Dibromofluoromethane (S)	%			118	70-130	
Toluene-d8 (S)	%			87	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1342376 1342377

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40132629002 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	<0.50	50	50	53.5	53.4	107	107	57-138	0	20
Ethylbenzene	ug/L	<0.50	50	50	51.1	50.7	102	101	70-138	1	20
m&p-Xylene	ug/L	<1.0	100	100	109	105	109	105	70-140	3	20
Methyl-tert-butyl ether	ug/L	<0.17	50	50	41.3	40.6	83	81	66-139	2	20
o-Xylene	ug/L	<0.50	50	50	50.4	50.0	101	100	70-134	1	20
Toluene	ug/L	<0.50	50	50	51.7	51.3	103	103	70-130	1	20
4-Bromofluorobenzene (S)	%						107	108	70-130		
Dibromofluoromethane (S)	%						118	119	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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without the written consent of Pace Analytical Services, Inc..

QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40132890

Parameter	Units	40132629002		1342376		1342377		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS Result	MSD Result							
Toluene-d8 (S)	%							87	88		70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

QC Batch:	MSV/33720	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV UST-WATER
Associated Lab Samples:	40132890018, 40132890019, 40132890020, 40132890021, 40132890022, 40132890023, 40132890024, 40132890025, 40132890030, 40132890031, 40132890032, 40132890033, 40132890034, 40132890035		

METHOD BLANK:	1343277	Matrix:	Water
Associated Lab Samples:	40132890018, 40132890019, 40132890020, 40132890021, 40132890022, 40132890023, 40132890024, 40132890025, 40132890030, 40132890031, 40132890032, 40132890033, 40132890034, 40132890035		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/31/16 07:17	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/31/16 07:17	
Benzene	ug/L	<0.50	1.0	05/31/16 07:17	
Ethylbenzene	ug/L	<0.50	1.0	05/31/16 07:17	
m&p-Xylene	ug/L	<1.0	2.0	05/31/16 07:17	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/31/16 07:17	
Naphthalene	ug/L	<2.5	5.0	05/31/16 07:17	
o-Xylene	ug/L	<0.50	1.0	05/31/16 07:17	
Toluene	ug/L	<0.50	1.0	05/31/16 07:17	
4-Bromofluorobenzene (S)	%	74	70-130	05/31/16 07:17	
Dibromofluoromethane (S)	%	105	70-130	05/31/16 07:17	
Toluene-d8 (S)	%	98	70-130	05/31/16 07:17	

LABORATORY CONTROL SAMPLE: 1343278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	53.1	106	60-135	
Ethylbenzene	ug/L	50	47.8	96	70-136	
m&p-Xylene	ug/L	100	99.9	100	70-138	
Methyl-tert-butyl ether	ug/L	50	43.7	87	66-138	
o-Xylene	ug/L	50	47.8	96	70-134	
Toluene	ug/L	50	46.5	93	70-130	
4-Bromofluorobenzene (S)	%			84	70-130	
Dibromofluoromethane (S)	%			107	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1343305 1343306

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40132890022 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	50.3	50	50	84.3	91.3	68	82	57-138	8	20	
Ethylbenzene	ug/L	152	50	50	168	179	33	55	70-138	6	20	M1
m&p-Xylene	ug/L	478	100	100	515	562	37	84	70-140	9	20	M1
Methyl-tert-butyl ether	ug/L	<0.35	50	50	41.1	43.6	82	87	66-139	6	20	
o-Xylene	ug/L	1.7J	50	50	49.7	50.2	96	97	70-134	1	20	
Toluene	ug/L	<1.0	50	50	45.3	46.7	91	93	70-130	3	20	
4-Bromofluorobenzene (S)	%						93	89	70-130			

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Parameter	Units	40132890022		1343305		1343306		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result								
Dibromofluoromethane (S)	%							100	100		70-130			
Toluene-d8 (S)	%							96	95		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 CALUMET SUPERIOR

Pace Project No.: 40132890

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40132890

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40132890001	LRS-1	EPA 8021	GCV/16083		
40132890002	LRS-2	EPA 8021	GCV/16083		
40132890003	LRS-3	EPA 8021	GCV/16083		
40132890004	LRS-4	EPA 8021	GCV/16083		
40132890005	LRS-6	EPA 8021	GCV/16083		
40132890006	LRS-7	EPA 8021	GCV/16083		
40132890007	MW-1/FL	EPA 8021	GCV/16083		
40132890008	MW-2/FL	EPA 8021	GCV/16083		
40132890009	MW-3/FL	EPA 8021	GCV/16083		
40132890010	MW-9/FL	EPA 8021	GCV/16083		
40132890011	MW-10/FL	EPA 8021	GCV/16083		
40132890012	MW-11/FL	EPA 8021	GCV/16083		
40132890013	MW-13/FL	EPA 8021	GCV/16083		
40132890014	MW-14/FL	EPA 8021	GCV/16083		
40132890026	MW-1/T68	EPA 8260	MSV/33712		
40132890027	MW-2/T68	EPA 8260	MSV/33712		
40132890028	MW-4/T68	EPA 8260	MSV/33712		
40132890029	MW-5/T66	EPA 8260	MSV/33712		
40132890036	TRIP BLANK	EPA 8260	MSV/33712		
40132890015	MW-1/CW	EPA 8260	MSV/33697		
40132890016	MW-2/CW	EPA 8260	MSV/33697		
40132890017	MW-3/CW	EPA 8260	MSV/33697		
40132890018	MW-4/CW	EPA 8260	MSV/33720		
40132890019	MW-1/T40	EPA 8260	MSV/33720		
40132890020	MW-2/T40	EPA 8260	MSV/33720		
40132890021	MW-4/T40	EPA 8260	MSV/33720		
40132890022	MW-5/T40	EPA 8260	MSV/33720		
40132890023	MW-6/T40	EPA 8260	MSV/33720		
40132890024	MW-7/T40	EPA 8260	MSV/33720		
40132890025	TS-1/T40	EPA 8260	MSV/33720		
40132890030	MW-1R/T70	EPA 8260	MSV/33720		
40132890031	MW-2R/T70	EPA 8260	MSV/33720		
40132890032	MW-3/T70	EPA 8260	MSV/33720		
40132890033	MW-4/T70	EPA 8260	MSV/33720		
40132890034	MW-5/T70	EPA 8260	MSV/33720		
40132890035	MW-6/T70	EPA 8260	MSV/33720		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

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



UPPER MIDWEST REGION

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

40132890

Page 66 of 69

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	Pick Letter	Analyses Requested	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
N	B	1205																					
		PVOCs																					

Quote #: Pace 2016
 Mail To Contact: Cliff Wright
 Mail To Company: Gannett Fleming
 Mail To Address: 8025 Excelsior Dr. Madison, WI 53717
 Invoice To Contact: See
 Invoice To Company: See
 Invoice To Address: above
 Invoice To Phone: _____
 CLIENT COMMENTS: _____
 LAB COMMENTS (Lab Use Only): 3-40ml vB
 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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX	Analyses Requested
		DATE	TIME		
001	LRS-1	5/24	11:30	GW	3
002	LRS-2		1140		3
003	LRS-3		1150		3
004	LRS-4		1155		3
005	LRS-6		1145		3
006	LRS-7		1205		3
	LRS-8		1200		
007	MW-1/ FL	5/24	1030	GW	3
008	MW-2/ FL		1020		
009	MW-3/ FL		1005		
010	MW-9/ FL		1215		
011	MW-10/ FL		1220		
012	MW-11/ FL		1045		

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: <u>[Signature]</u>	Date/Time: <u>16:30</u>	Received By: _____	Date/Time: _____
Relinquished By: <u>Fred Ex</u>	Date/Time: <u>5-25-16 1245</u>	Received By: <u>Susan Whye</u>	Date/Time: <u>5-25-16 1245</u>
Relinquished By: _____	Date/Time: _____	Received By: <u>Steve</u>	Date/Time: _____
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____

PACE Project No. 40132890
 Receipt Temp = ROI
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present
Intact / Not Intact

(Please Print Clearly)

Company Name: _____
 Branch/Location: _____
 Project Contact: *See page*
 Phone: _____
 Project Number: _____
 Project Name: _____
 Project State: _____
 Sampled By (Print): _____
 Sampled By (Sign): _____
 PO #: _____ Regulatory Program: _____



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

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	2	2	2								
Pick Letter	B	B	B								
Analyses Requested	PVOCs 8021	PVOCs/ Naph. 8260	PVOCs 8260								

Quote #: _____
 Mail To Contact: _____
 Mail To Company: *See page*
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____
 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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
013	MW-12/FL	5/24		GW
013	MW-13/FL	5/24	11:25	GW
014	MW-14/FL		11:10	
015	MW-1/CW		9:05	
016	MW-2/CW		9:00	
017	MW-3/CW		9:10	
018	MW-4/CW		8:50	
019	MW-1/T40		13:30	
020	MW-2/T40		13:05	
021	MW-5/T40		13:25	
022	MW-5/T40		13:10	
023	MW-6/T40		13:15	
024	MW-7/T40		13:20	

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: _____ Date/Time: 16:30	Received By: _____ Date/Time: _____	PACE Project No. 4032890
	Transmit Prelim Rush Results by (complete what you want): <i>Red Ex 5-25-16 1245</i>	Relinquished By: _____ Date/Time: _____	
Email #1:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Receipt Temp = <i>ROT</i> °C
Email #2:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Sample Receipt pH OK / Adjusted
Telephone:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	Cooler Custody Seal Present / Not Present Intact / Not Intact
Fax:	Relinquished By: _____ Date/Time: _____	Received By: _____ Date/Time: _____	

(Please Print Clearly)

Company Name:
 Branch/Location:
 Project Contact: *See page*
 Phone:
 Project Number:
 Project Name: *A*
 Project State:
 Sampled By (Print):
 Sampled By (Sign):
 PO #:
 Regulatory Program:



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

CHAIN OF CUSTODY

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

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

Y/N	N	N	N															
Pick Letter	B	B	B															
Analyses Requested	PVOCs 8260	VOCs 8260	PVOCs 8260 Napn															

Quote #:
 Mail To Contact: *See page*
 Mail To Company:
 Mail To Address:
 Invoice To Contact:
 Invoice To Company:
 Invoice To Address: *1*
 Invoice To Phone:
 CLIENT COMMENTS:
 LAB COMMENTS (Lab Use Only): *3-40ml VB*
 Profile #
240ml VB

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	
025	TS-1 / T90	5/24	13:35	GW
026	MW-1 / T68		14:00	
027	MW-2 / T68		14:15	
028	MW-4 / T68		14:10	
029	MW-5 / T66		14:20	
030	MW-1R / T70		15:15	
031	MW-2R / T70		14:50	
032	MW-3 / T70		14:25	
033	MW-4 / T70		14:20	
034	MW-5 / T70		14:55	
035	MW-6 / T70	↓	15:00	↓
	MW-7 / T70		15:05	↓
036	Trip Blank	↓		

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: 16:30
 Relinquished By: *Ted Ex* Date/Time: 5-25-16 12:45
 Relinquished By:
 Relinquished By:
 Relinquished By:

Received By: *[Signature]* Date/Time: 5:25:16 12:45
 Received By: *[Signature]* Date/Time: 5:25:16 12:45
 Received By:
 Received By:
 Received By:

PACE Project No. 40132890
 Receipt Temp = ROT °C
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present Intact / Not Intact

Sample Condition Upon Receipt

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



Project #

WO#: 40132890

Client Name: Gannett Fleming

Courier: Fed Ex UPS Client Pace Other: _____
Tracking #: 8718 1210 7902



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

Cooler Temperature: Uncorr: ROI / Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no no

Person examining contents:
Date: 5-25-16
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>024-1-40ml v3 collect time 13:40.</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>		<u>5-25-16</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: <u>VOA</u> coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
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):		

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

Project Manager Review: AMH-BRM Date: 5/25/16

October 17, 2016

Project #34265.003
Calumet Superior
Reviewed by CCW
10/18/16

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34265.003 CALUMET
Pace Project No.: 40139615

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 06, 2016. 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
Project Manager

Enclosures

cc: Dave Olig, Gannett Fleming



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

Virginia VELAP ID: 460263

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Virginia VELAP ID: 460263

Virginia VELAP Certification ID: 460263

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 34265.003 CALUMET
Pace Project No.: 40139615

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40139615001	MW-1/T40	Water	10/05/16 14:00	10/06/16 09:10
40139615002	MW-2/T40	Water	10/05/16 14:10	10/06/16 09:10
40139615003	MW-4/T40	Water	10/05/16 13:45	10/06/16 09:10
40139615004	MW-5/T40	Water	10/05/16 13:25	10/06/16 09:10
40139615005	MW-6/T40	Water	10/05/16 13:35	10/06/16 09:10
40139615006	MW-7/T40	Water	10/05/16 13:40	10/06/16 09:10
40139615007	TS-1/T40	Water	10/05/16 13:20	10/06/16 09:10
40139615008	MW-1/T68	Water	10/05/16 14:15	10/06/16 09:10
40139615009	MW-2/T68	Water	10/05/16 14:30	10/06/16 09:10
40139615010	MW-4/T68	Water	10/05/16 14:40	10/06/16 09:10
40139615011	MW-5/T66	Water	10/05/16 14:50	10/06/16 09:10
40139615012	MW-6/T68	Water	10/05/16 14:45	10/06/16 09:10
40139615013	MW-1R/T70	Water	10/05/16 15:40	10/06/16 09:10
40139615014	MW-2R/T70	Water	10/05/16 15:10	10/06/16 09:10
40139615015	MW-3/T70	Water	10/05/16 15:30	10/06/16 09:10
40139615016	MW-4/T70	Water	10/05/16 15:35	10/06/16 09:10
40139615017	MW-5/T70	Water	10/05/16 15:15	10/06/16 09:10
40139615018	MW-6/T70	Water	10/05/16 15:25	10/06/16 09:10
40139615019	TRIP BLANK	Water	10/05/16 00:00	10/06/16 09:10
40139615020	LRS-1	Water	10/05/16 10:45	10/06/16 09:10
40139615021	LRS-2	Water	10/05/16 10:55	10/06/16 09:10
40139615022	LRS-3	Water	10/05/16 11:15	10/06/16 09:10
40139615023	LRS-4	Water	10/05/16 11:30	10/06/16 09:10
40139615024	LRS-6	Water	10/05/16 11:10	10/06/16 09:10
40139615025	LRS-8	Water	10/05/16 11:45	10/06/16 09:10
40139615026	MW-1/FL	Water	10/05/16 10:30	10/06/16 09:10
40139615027	MW-2/FL	Water	10/05/16 10:25	10/06/16 09:10
40139615028	MW-3/FL	Water	10/05/16 10:20	10/06/16 09:10
40139615029	MW-9/FL	Water	10/05/16 12:10	10/06/16 09:10
40139615030	MW-10/FL	Water	10/05/16 12:15	10/06/16 09:10
40139615031	MW-11/FL	Water	10/05/16 12:00	10/06/16 09:10
40139615032	MW-13/FL	Water	10/05/16 11:55	10/06/16 09:10
40139615033	MW-14/FL	Water	10/05/16 11:50	10/06/16 09:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40139615001	MW-1/T40	EPA 8260	LAP	11	PASI-G
40139615002	MW-2/T40	EPA 8260	LAP	11	PASI-G
40139615003	MW-4/T40	EPA 8260	LAP	11	PASI-G
40139615004	MW-5/T40	EPA 8260	LAP	11	PASI-G
40139615005	MW-6/T40	EPA 8260	LAP	11	PASI-G
40139615006	MW-7/T40	EPA 8260	LAP	11	PASI-G
40139615007	TS-1/T40	EPA 8260	LAP	11	PASI-G
40139615008	MW-1/T68	EPA 8260	HNW	63	PASI-G
40139615009	MW-2/T68	EPA 8260	HNW	63	PASI-G
40139615010	MW-4/T68	EPA 8260	HNW	63	PASI-G
40139615011	MW-5/T66	EPA 8260	LAP	63	PASI-G
40139615012	MW-6/T68	EPA 8260	LAP	63	PASI-G
40139615013	MW-1R/T70	EPA 8260	LAP	12	PASI-G
40139615014	MW-2R/T70	EPA 8260	LAP	12	PASI-G
40139615015	MW-3/T70	EPA 8260	LAP	12	PASI-G
40139615016	MW-4/T70	EPA 8260	LAP	12	PASI-G
40139615017	MW-5/T70	EPA 8260	LAP	12	PASI-G
40139615018	MW-6/T70	EPA 8260	LAP	12	PASI-G
40139615019	TRIP BLANK	EPA 8260	LAP	63	PASI-G
40139615020	LRS-1	EPA 8021	PMS	9	PASI-G
40139615021	LRS-2	EPA 8021	PMS	9	PASI-G
40139615022	LRS-3	EPA 8021	PMS	9	PASI-G
40139615023	LRS-4	EPA 8021	PMS	9	PASI-G
40139615024	LRS-6	EPA 8021	PMS	9	PASI-G
40139615025	LRS-8	EPA 8021	PMS	9	PASI-G
40139615026	MW-1/FL	EPA 8021	PMS	9	PASI-G
40139615027	MW-2/FL	EPA 8021	PMS	9	PASI-G
40139615028	MW-3/FL	EPA 8021	PMS	9	PASI-G
40139615029	MW-9/FL	EPA 8021	PMS	9	PASI-G
40139615030	MW-10/FL	EPA 8021	PMS	9	PASI-G
40139615031	MW-11/FL	EPA 8021	PMS	9	PASI-G
40139615032	MW-13/FL	EPA 8021	PMS	9	PASI-G
40139615033	MW-14/FL	EPA 8021	PMS	9	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET
Pace Project No.: 40139615

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40139615009	MW-2/T68					
EPA 8260	o-Xylene	4970	ug/L	200	10/14/16 09:42	
40139615010	MW-4/T68					
EPA 8260	1,2,4-Trimethylbenzene	2.7	ug/L	1.0	10/14/16 15:59	
EPA 8260	Benzene	3.3	ug/L	1.0	10/14/16 15:59	
EPA 8260	Ethylbenzene	0.83J	ug/L	1.0	10/14/16 15:59	
EPA 8260	Toluene	0.99J	ug/L	1.0	10/14/16 15:59	
EPA 8260	m&p-Xylene	2.4	ug/L	2.0	10/14/16 15:59	
EPA 8260	o-Xylene	1.7	ug/L	1.0	10/14/16 15:59	
40139615011	MW-5/T66					
EPA 8260	1,2,4-Trimethylbenzene	2520	ug/L	200	10/14/16 12:01	
EPA 8260	1,3,5-Trimethylbenzene	721	ug/L	200	10/14/16 12:01	
EPA 8260	Benzene	9090	ug/L	200	10/14/16 12:01	
EPA 8260	Ethylbenzene	2700	ug/L	200	10/14/16 12:01	
EPA 8260	Isopropylbenzene (Cumene)	65.2J	ug/L	200	10/14/16 12:01	
EPA 8260	Toluene	15900	ug/L	200	10/14/16 12:01	
EPA 8260	m&p-Xylene	12100	ug/L	400	10/14/16 12:01	
EPA 8260	n-Propylbenzene	222	ug/L	200	10/14/16 12:01	
EPA 8260	o-Xylene	4700	ug/L	200	10/14/16 12:01	
40139615012	MW-6/T68					
EPA 8260	1,2,4-Trimethylbenzene	3200	ug/L	50.0	10/14/16 11:39	
EPA 8260	1,2-Dichloroethane	37.5J	ug/L	50.0	10/14/16 11:39	
EPA 8260	1,3,5-Trimethylbenzene	865	ug/L	50.0	10/14/16 11:39	
EPA 8260	Benzene	5070	ug/L	50.0	10/14/16 11:39	
EPA 8260	Ethylbenzene	45.5J	ug/L	50.0	10/14/16 11:39	
EPA 8260	Naphthalene	334	ug/L	250	10/14/16 11:39	
EPA 8260	Toluene	1560	ug/L	50.0	10/14/16 11:39	
EPA 8260	m&p-Xylene	9240	ug/L	100	10/14/16 11:39	
EPA 8260	o-Xylene	5080	ug/L	50.0	10/14/16 11:39	
40139615013	MW-1R/T70					
EPA 8260	1,2,4-Trimethylbenzene	969	ug/L	125	10/12/16 12:45	
EPA 8260	1,3,5-Trimethylbenzene	311	ug/L	125	10/12/16 12:45	
EPA 8260	Benzene	12400	ug/L	125	10/12/16 12:45	
EPA 8260	Ethylbenzene	106J	ug/L	125	10/12/16 12:45	
EPA 8260	Toluene	8630	ug/L	125	10/12/16 12:45	
EPA 8260	m&p-Xylene	5960	ug/L	250	10/12/16 12:45	
EPA 8260	o-Xylene	2490	ug/L	125	10/12/16 12:45	
40139615014	MW-2R/T70					
EPA 8260	1,2,4-Trimethylbenzene	2400	ug/L	250	10/12/16 13:08	
EPA 8260	1,3,5-Trimethylbenzene	686	ug/L	250	10/12/16 13:08	
EPA 8260	Benzene	19200	ug/L	250	10/12/16 13:08	
EPA 8260	Ethylbenzene	1480	ug/L	250	10/12/16 13:08	
EPA 8260	Toluene	25700	ug/L	250	10/12/16 13:08	
EPA 8260	m&p-Xylene	13100	ug/L	500	10/12/16 13:08	
EPA 8260	o-Xylene	5570	ug/L	250	10/12/16 13:08	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40139615016	MW-4/T70					
EPA 8260	1,2,4-Trimethylbenzene	2750	ug/L	100	10/12/16 23:58	
EPA 8260	1,3,5-Trimethylbenzene	696	ug/L	100	10/12/16 23:58	
EPA 8260	Benzene	10600	ug/L	100	10/12/16 23:58	
EPA 8260	Ethylbenzene	1520	ug/L	100	10/12/16 23:58	
EPA 8260	Naphthalene	686	ug/L	500	10/12/16 23:58	
EPA 8260	Toluene	15700	ug/L	100	10/12/16 23:58	
EPA 8260	m&p-Xylene	12600	ug/L	200	10/12/16 23:58	
EPA 8260	o-Xylene	5760	ug/L	100	10/12/16 23:58	
40139615017	MW-5/T70					
EPA 8260	1,2,4-Trimethylbenzene	12.1	ug/L	1.0	10/12/16 21:47	
EPA 8260	1,3,5-Trimethylbenzene	4.8	ug/L	1.0	10/12/16 21:47	
EPA 8260	Benzene	3.4	ug/L	1.0	10/12/16 21:47	
EPA 8260	Ethylbenzene	3.2	ug/L	1.0	10/12/16 21:47	
EPA 8260	Naphthalene	42.2	ug/L	5.0	10/12/16 21:47	
EPA 8260	Toluene	7.5	ug/L	1.0	10/12/16 21:47	
EPA 8260	m&p-Xylene	19.2	ug/L	2.0	10/12/16 21:47	
EPA 8260	o-Xylene	21.8	ug/L	1.0	10/12/16 21:47	
40139615018	MW-6/T70					
EPA 8260	1,2,4-Trimethylbenzene	41.7	ug/L	1.0	10/12/16 22:53	
EPA 8260	1,3,5-Trimethylbenzene	13.1	ug/L	1.0	10/12/16 22:53	
EPA 8260	Benzene	147	ug/L	1.0	10/12/16 22:53	
EPA 8260	Ethylbenzene	8.1	ug/L	1.0	10/12/16 22:53	
EPA 8260	Naphthalene	11.4	ug/L	5.0	10/12/16 22:53	
EPA 8260	Toluene	9.1	ug/L	1.0	10/12/16 22:53	
EPA 8260	m&p-Xylene	138	ug/L	2.0	10/12/16 22:53	
EPA 8260	o-Xylene	73.3	ug/L	1.0	10/12/16 22:53	
40139615020	LRS-1					
EPA 8021	Benzene	158	ug/L	5.0	10/07/16 14:28	
EPA 8021	Ethylbenzene	45.3	ug/L	5.0	10/07/16 14:28	
EPA 8021	Toluene	17.4	ug/L	5.0	10/07/16 14:28	
EPA 8021	1,2,4-Trimethylbenzene	201	ug/L	5.0	10/07/16 14:28	
EPA 8021	1,3,5-Trimethylbenzene	181	ug/L	5.0	10/07/16 14:28	M1
EPA 8021	m&p-Xylene	387	ug/L	10.0	10/07/16 14:28	
EPA 8021	o-Xylene	226	ug/L	5.0	10/07/16 14:28	
40139615021	LRS-2					
EPA 8021	Benzene	442	ug/L	5.0	10/07/16 15:45	
EPA 8021	Ethylbenzene	58.9	ug/L	5.0	10/07/16 15:45	
EPA 8021	Toluene	2.3J	ug/L	5.0	10/07/16 15:45	
EPA 8021	1,2,4-Trimethylbenzene	146	ug/L	5.0	10/07/16 15:45	
EPA 8021	1,3,5-Trimethylbenzene	73.9	ug/L	5.0	10/07/16 15:45	
EPA 8021	m&p-Xylene	338	ug/L	10.0	10/07/16 15:45	
EPA 8021	o-Xylene	204	ug/L	5.0	10/07/16 15:45	
40139615022	LRS-3					
EPA 8021	Benzene	1030	ug/L	5.0	10/07/16 16:10	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Method: EPA 8021

Description: 8021 GCV Short List

Client: Gannett Fleming Inc.

Date: October 17, 2016

General Information:

14 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.

QC Batch: 237415

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40139615020

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

- MS (Lab ID: 1407441)
- 1,3,5-Trimethylbenzene

Additional Comments:

Analyte Comments:

QC Batch: 237415

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

- LRS-1 (Lab ID: 40139615020)
- a,a,a-Trifluorotoluene (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: October 17, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 237506

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40139484001

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

- MSD (Lab ID: 1409837)
 - Styrene

R1: RPD value was outside control limits.

- MSD (Lab ID: 1409837)
 - Styrene

QC Batch: 237560

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40139746014

R1: RPD value was outside control limits.

- MSD (Lab ID: 1408145)
 - 1,1-Dichloroethane

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET
Pace Project No.: 40139615

Method: EPA 8260
Description: 8260 MSV UST
Client: Gannett Fleming Inc.
Date: October 17, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 237494

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40139530042

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

- MSD (Lab ID: 1408609)
- Methyl-tert-butyl ether

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 CALUMET

Pace Project No.: 40139615

Sample: MW-1R/T70 **Lab ID: 40139615013** Collected: 10/05/16 15:40 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	969	ug/L	125	62.5	125		10/12/16 12:45	95-63-6	
1,3,5-Trimethylbenzene	311	ug/L	125	62.5	125		10/12/16 12:45	108-67-8	
Benzene	12400	ug/L	125	62.5	125		10/12/16 12:45	71-43-2	
Ethylbenzene	106J	ug/L	125	62.5	125		10/12/16 12:45	100-41-4	
Methyl-tert-butyl ether	<21.8	ug/L	125	21.8	125		10/12/16 12:45	1634-04-4	
Naphthalene	<312	ug/L	625	312	125		10/12/16 12:45	91-20-3	
Toluene	8630	ug/L	125	62.5	125		10/12/16 12:45	108-88-3	
m&p-Xylene	5960	ug/L	250	125	125		10/12/16 12:45	179601-23-1	
o-Xylene	2490	ug/L	125	62.5	125		10/12/16 12:45	95-47-6	
Surrogates									
Dibromofluoromethane (S)	130	%	70-130		125		10/12/16 12:45	1868-53-7	
Toluene-d8 (S)	95	%	70-130		125		10/12/16 12:45	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		125		10/12/16 12:45	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: MW-2R/T70 **Lab ID: 40139615014** Collected: 10/05/16 15:10 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2400	ug/L	250	125	250		10/12/16 13:08	95-63-6	
1,3,5-Trimethylbenzene	686	ug/L	250	125	250		10/12/16 13:08	108-67-8	
Benzene	19200	ug/L	250	125	250		10/12/16 13:08	71-43-2	
Ethylbenzene	1480	ug/L	250	125	250		10/12/16 13:08	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		10/12/16 13:08	1634-04-4	
Naphthalene	<625	ug/L	1250	625	250		10/12/16 13:08	91-20-3	
Toluene	25700	ug/L	250	125	250		10/12/16 13:08	108-88-3	
m&p-Xylene	13100	ug/L	500	250	250		10/12/16 13:08	179601-23-1	
o-Xylene	5570	ug/L	250	125	250		10/12/16 13:08	95-47-6	
Surrogates									
Dibromofluoromethane (S)	129	%	70-130		250		10/12/16 13:08	1868-53-7	
Toluene-d8 (S)	95	%	70-130		250		10/12/16 13:08	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		250		10/12/16 13:08	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: MW-3/T70 **Lab ID: 40139615015** Collected: 10/05/16 15:30 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	108-67-8	
Benzene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/13/16 08:22	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/13/16 08:22	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/13/16 08:22	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/13/16 08:22	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		10/13/16 08:22	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/13/16 08:22	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		1		10/13/16 08:22	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: MW-4/T70 **Lab ID: 40139615016** Collected: 10/05/16 15:35 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2750	ug/L	100	50.0	100		10/12/16 23:58	95-63-6	
1,3,5-Trimethylbenzene	696	ug/L	100	50.0	100		10/12/16 23:58	108-67-8	
Benzene	10600	ug/L	100	50.0	100		10/12/16 23:58	71-43-2	
Ethylbenzene	1520	ug/L	100	50.0	100		10/12/16 23:58	100-41-4	
Methyl-tert-butyl ether	<17.4	ug/L	100	17.4	100		10/12/16 23:58	1634-04-4	
Naphthalene	686	ug/L	500	250	100		10/12/16 23:58	91-20-3	
Toluene	15700	ug/L	100	50.0	100		10/12/16 23:58	108-88-3	
m&p-Xylene	12600	ug/L	200	100	100		10/12/16 23:58	179601-23-1	
o-Xylene	5760	ug/L	100	50.0	100		10/12/16 23:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	94	%	70-130		100		10/12/16 23:58	1868-53-7	
Toluene-d8 (S)	98	%	70-130		100		10/12/16 23:58	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		100		10/12/16 23:58	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: MW-5/T70 **Lab ID: 40139615017** Collected: 10/05/16 15:15 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	12.1	ug/L	1.0	0.50	1		10/12/16 21:47	95-63-6	
1,3,5-Trimethylbenzene	4.8	ug/L	1.0	0.50	1		10/12/16 21:47	108-67-8	
Benzene	3.4	ug/L	1.0	0.50	1		10/12/16 21:47	71-43-2	
Ethylbenzene	3.2	ug/L	1.0	0.50	1		10/12/16 21:47	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/12/16 21:47	1634-04-4	
Naphthalene	42.2	ug/L	5.0	2.5	1		10/12/16 21:47	91-20-3	
Toluene	7.5	ug/L	1.0	0.50	1		10/12/16 21:47	108-88-3	
m&p-Xylene	19.2	ug/L	2.0	1.0	1		10/12/16 21:47	179601-23-1	
o-Xylene	21.8	ug/L	1.0	0.50	1		10/12/16 21:47	95-47-6	
Surrogates									
Dibromofluoromethane (S)	94	%	70-130		1		10/12/16 21:47	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		10/12/16 21:47	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		10/12/16 21:47	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: MW-6/T70 **Lab ID: 40139615018** Collected: 10/05/16 15:25 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	41.7	ug/L	1.0	0.50	1		10/12/16 22:53	95-63-6	
1,3,5-Trimethylbenzene	13.1	ug/L	1.0	0.50	1		10/12/16 22:53	108-67-8	
Benzene	147	ug/L	1.0	0.50	1		10/12/16 22:53	71-43-2	
Ethylbenzene	8.1	ug/L	1.0	0.50	1		10/12/16 22:53	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/12/16 22:53	1634-04-4	
Naphthalene	11.4	ug/L	5.0	2.5	1		10/12/16 22:53	91-20-3	
Toluene	9.1	ug/L	1.0	0.50	1		10/12/16 22:53	108-88-3	
m&p-Xylene	138	ug/L	2.0	1.0	1		10/12/16 22:53	179601-23-1	
o-Xylene	73.3	ug/L	1.0	0.50	1		10/12/16 22:53	95-47-6	
Surrogates									
Dibromofluoromethane (S)	90	%	70-130		1		10/12/16 22:53	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		10/12/16 22:53	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		10/12/16 22:53	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: TRIP BLANK **Lab ID: 40139615019** Collected: 10/05/16 00:00 Received: 10/06/16 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	<0.18	ug/L	1.0	0.18	1		10/13/16 16:01	630-20-6	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	71-55-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/13/16 16:01	79-34-5	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		10/13/16 16:01	79-00-5	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		10/13/16 16:01	75-34-3	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/13/16 16:01	75-35-4	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/13/16 16:01	563-58-6	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/13/16 16:01	87-61-6	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	96-18-4	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/13/16 16:01	120-82-1	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	95-63-6	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/13/16 16:01	96-12-8	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		10/13/16 16:01	106-93-4	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	95-50-1	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/13/16 16:01	107-06-2	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/13/16 16:01	78-87-5	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	108-67-8	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	541-73-1	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	142-28-9	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	106-46-7	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/13/16 16:01	594-20-7	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/13/16 16:01	106-43-4	
Benzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/13/16 16:01	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/13/16 16:01	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/13/16 16:01	74-83-9	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/13/16 16:01	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/13/16 16:01	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	74-87-3	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	124-48-1	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/13/16 16:01	74-95-3	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		10/13/16 16:01	75-71-8	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/13/16 16:01	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		10/13/16 16:01	98-82-8	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/13/16 16:01	1634-04-4	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/13/16 16:01	75-09-2	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/13/16 16:01	91-20-3	
Styrene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	100-42-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	108-88-3	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Sample: TRIP BLANK **Lab ID: 40139615019** Collected: 10/05/16 00:00 Received: 10/06/16 09:10 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Trichloroethene	<0.33	ug/L	1.0	0.33	1		10/13/16 16:01	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		10/13/16 16:01	75-69-4	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		10/13/16 16:01	75-01-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/13/16 16:01	156-59-2	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	10061-01-5	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/13/16 16:01	179601-23-1	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	104-51-8	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	103-65-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	95-47-6	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/13/16 16:01	99-87-6	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/13/16 16:01	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/13/16 16:01	98-06-6	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/13/16 16:01	156-60-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/13/16 16:01	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	86	%	70-130		1		10/13/16 16:01	460-00-4	
Dibromofluoromethane (S)	93	%	70-130		1		10/13/16 16:01	1868-53-7	
Toluene-d8 (S)	89	%	70-130		1		10/13/16 16:01	2037-26-5	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

QC Batch: 237415 Analysis Method: EPA 8021
 QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
 Associated Lab Samples: 40139615020, 40139615021, 40139615022, 40139615023, 40139615024, 40139615025, 40139615026, 40139615027, 40139615028, 40139615029, 40139615030, 40139615031, 40139615032, 40139615033

METHOD BLANK: 1407029 Matrix: Water
 Associated Lab Samples: 40139615020, 40139615021, 40139615022, 40139615023, 40139615024, 40139615025, 40139615026, 40139615027, 40139615028, 40139615029, 40139615030, 40139615031, 40139615032, 40139615033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	10/07/16 08:04	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	10/07/16 08:04	
Benzene	ug/L	<0.40	1.0	10/07/16 08:04	
Ethylbenzene	ug/L	<0.39	1.0	10/07/16 08:04	
m&p-Xylene	ug/L	<0.80	2.0	10/07/16 08:04	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	10/07/16 08:04	
o-Xylene	ug/L	<0.45	1.0	10/07/16 08:04	
Toluene	ug/L	<0.39	1.0	10/07/16 08:04	
a,a,a-Trifluorotoluene (S)	%	103	80-120	10/07/16 08:04	

LABORATORY CONTROL SAMPLE & LCSD: 1407030 1407031

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.9	19.9	104	99	80-120	5	20	
1,3,5-Trimethylbenzene	ug/L	20	19.8	18.8	99	94	80-120	5	20	
Benzene	ug/L	20	20.7	19.6	104	98	80-120	6	20	
Ethylbenzene	ug/L	20	19.9	18.8	100	94	80-120	6	20	
m&p-Xylene	ug/L	40	39.3	37.2	98	93	80-120	6	20	
Methyl-tert-butyl ether	ug/L	20	20.9	20.3	104	101	80-120	3	20	
o-Xylene	ug/L	20	20.2	19.2	101	96	80-120	5	20	
Toluene	ug/L	20	20.4	19.2	102	96	80-120	6	20	
a,a,a-Trifluorotoluene (S)	%				102	102	80-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1407441 1407442

Parameter	Units	40139615020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	201	100	100	348	332	148	131	48-177	5	20	
1,3,5-Trimethylbenzene	ug/L	181	100	100	328	311	147	130	73-145	5	20	M1
Benzene	ug/L	158	100	100	261	244	104	86	74-139	7	20	
Ethylbenzene	ug/L	45.3	100	100	148	129	102	83	74-140	14	20	
m&p-Xylene	ug/L	387	200	200	623	583	118	98	55-165	7	20	
Methyl-tert-butyl ether	ug/L	<2.4	100	100	98.4	81.6	98	82	80-120	19	20	
o-Xylene	ug/L	226	100	100	346	326	121	101	73-136	6	20	
Toluene	ug/L	17.4	100	100	120	100	103	83	80-128	18	20	
a,a,a-Trifluorotoluene (S)	%						105	106	80-120			

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 CALUMET
Pace Project No.: 40139615

QC Batch: 237506 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40139615019

METHOD BLANK: 1407486 Matrix: Water
Associated Lab Samples: 40139615019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/13/16 07:15	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/13/16 07:15	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/13/16 07:15	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/13/16 07:15	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/13/16 07:15	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/13/16 07:15	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/13/16 07:15	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/13/16 07:15	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/13/16 07:15	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/13/16 07:15	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/13/16 07:15	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/13/16 07:15	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/13/16 07:15	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/13/16 07:15	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/13/16 07:15	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/13/16 07:15	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/13/16 07:15	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/13/16 07:15	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/13/16 07:15	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/13/16 07:15	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/13/16 07:15	
2-Chlorotoluene	ug/L	<0.50	1.0	10/13/16 07:15	
4-Chlorotoluene	ug/L	<0.21	1.0	10/13/16 07:15	
Benzene	ug/L	<0.50	1.0	10/13/16 07:15	
Bromobenzene	ug/L	<0.23	1.0	10/13/16 07:15	
Bromochloromethane	ug/L	<0.34	1.0	10/13/16 07:15	
Bromodichloromethane	ug/L	<0.50	1.0	10/13/16 07:15	
Bromoform	ug/L	<0.50	1.0	10/13/16 07:15	
Bromomethane	ug/L	<2.4	5.0	10/13/16 07:15	
Carbon tetrachloride	ug/L	<0.50	1.0	10/13/16 07:15	
Chlorobenzene	ug/L	<0.50	1.0	10/13/16 07:15	
Chloroethane	ug/L	<0.37	1.0	10/13/16 07:15	
Chloroform	ug/L	<2.5	5.0	10/13/16 07:15	
Chloromethane	ug/L	<0.50	1.0	10/13/16 07:15	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/13/16 07:15	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/13/16 07:15	
Dibromochloromethane	ug/L	<0.50	1.0	10/13/16 07:15	
Dibromomethane	ug/L	<0.43	1.0	10/13/16 07:15	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/13/16 07:15	
Ethylbenzene	ug/L	<0.50	1.0	10/13/16 07:15	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/13/16 07:15	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

METHOD BLANK: 1407486 Matrix: Water
Associated Lab Samples: 40139615019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/13/16 07:15	
m&p-Xylene	ug/L	<1.0	2.0	10/13/16 07:15	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/13/16 07:15	
Methylene Chloride	ug/L	<0.23	1.0	10/13/16 07:15	
n-Butylbenzene	ug/L	<0.50	1.0	10/13/16 07:15	
n-Propylbenzene	ug/L	<0.50	1.0	10/13/16 07:15	
Naphthalene	ug/L	<2.5	5.0	10/13/16 07:15	
o-Xylene	ug/L	<0.50	1.0	10/13/16 07:15	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/13/16 07:15	
sec-Butylbenzene	ug/L	<2.2	5.0	10/13/16 07:15	
Styrene	ug/L	<0.50	1.0	10/13/16 07:15	
tert-Butylbenzene	ug/L	<0.18	1.0	10/13/16 07:15	
Tetrachloroethene	ug/L	<0.50	1.0	10/13/16 07:15	
Toluene	ug/L	<0.50	1.0	10/13/16 07:15	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/13/16 07:15	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/13/16 07:15	
Trichloroethene	ug/L	<0.33	1.0	10/13/16 07:15	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/13/16 07:15	
Vinyl chloride	ug/L	<0.18	1.0	10/13/16 07:15	
4-Bromofluorobenzene (S)	%	93	70-130	10/13/16 07:15	
Dibromofluoromethane (S)	%	94	70-130	10/13/16 07:15	
Toluene-d8 (S)	%	94	70-130	10/13/16 07:15	

LABORATORY CONTROL SAMPLE: 1407487

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.6	97	70-131	
1,1,2,2-Tetrachloroethane	ug/L	50	50.2	100	67-130	
1,1,2-Trichloroethane	ug/L	50	52.3	105	70-130	
1,1-Dichloroethane	ug/L	50	49.8	100	70-133	
1,1-Dichloroethene	ug/L	50	46.1	92	70-130	
1,2,4-Trichlorobenzene	ug/L	50	46.1	92	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	53.4	107	50-150	
1,2-Dibromoethane (EDB)	ug/L	50	52.5	105	70-130	
1,2-Dichlorobenzene	ug/L	50	48.5	97	70-130	
1,2-Dichloroethane	ug/L	50	51.7	103	70-130	
1,2-Dichloropropane	ug/L	50	50.0	100	70-130	
1,3-Dichlorobenzene	ug/L	50	48.2	96	70-130	
1,4-Dichlorobenzene	ug/L	50	47.6	95	70-130	
Benzene	ug/L	50	50.0	100	60-135	
Bromodichloromethane	ug/L	50	49.3	99	70-130	
Bromoform	ug/L	50	55.3	111	70-130	
Bromomethane	ug/L	50	44.4	89	33-130	
Carbon tetrachloride	ug/L	50	50.7	101	70-138	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

LABORATORY CONTROL SAMPLE: 1407487

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	50.0	100	70-130	
Chloroethane	ug/L	50	52.3	105	51-130	
Chloroform	ug/L	50	50.3	101	70-130	
Chloromethane	ug/L	50	45.0	90	25-132	
cis-1,2-Dichloroethene	ug/L	50	45.2	90	69-130	
cis-1,3-Dichloropropene	ug/L	50	48.1	96	70-130	
Dibromochloromethane	ug/L	50	50.1	100	70-130	
Dichlorodifluoromethane	ug/L	50	43.5	87	23-130	
Ethylbenzene	ug/L	50	49.8	100	70-136	
Isopropylbenzene (Cumene)	ug/L	50	50.7	101	70-140	
m&p-Xylene	ug/L	100	103	103	70-138	
Methyl-tert-butyl ether	ug/L	50	53.8	108	66-138	
Methylene Chloride	ug/L	50	49.1	98	70-130	
o-Xylene	ug/L	50	49.8	100	70-134	
Styrene	ug/L	50	51.6	103	70-133	
Tetrachloroethene	ug/L	50	50.2	100	70-138	
Toluene	ug/L	50	50.9	102	70-130	
trans-1,2-Dichloroethene	ug/L	50	46.2	92	70-131	
trans-1,3-Dichloropropene	ug/L	50	49.4	99	69-130	
Trichloroethene	ug/L	50	50.0	100	70-130	
Trichlorofluoromethane	ug/L	50	53.4	107	50-150	
Vinyl chloride	ug/L	50	54.8	110	49-130	
4-Bromofluorobenzene (S)	%			93	70-130	
Dibromofluoromethane (S)	%			96	70-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1409836 1409837

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40139484001 Result	Spike Conc.	Spike Conc.	MSD Result								
1,1,1-Trichloroethane	ug/L	<0.50	50	50	49.4	49.2	99	98	70-134	0	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	52.4	53.9	105	108	67-130	3	20		
1,1,2-Trichloroethane	ug/L	<0.20	50	50	52.4	52.5	105	105	70-130	0	20		
1,1-Dichloroethane	ug/L	<0.24	50	50	50.0	49.5	100	99	70-134	1	20		
1,1-Dichloroethene	ug/L	<0.41	50	50	46.1	45.2	92	90	68-136	2	20		
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	48.5	49.6	96	98	62-139	2	20		
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	53.6	53.2	107	106	50-150	1	20		
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	53.0	54.3	106	109	70-130	2	20		
1,2-Dichlorobenzene	ug/L	<0.50	50	50	49.3	50.2	99	100	70-130	2	20		
1,2-Dichloroethane	ug/L	<0.17	50	50	52.0	52.1	104	104	70-130	0	20		
1,2-Dichloropropane	ug/L	<0.23	50	50	51.8	51.9	104	104	70-130	0	20		
1,3-Dichlorobenzene	ug/L	<0.50	50	50	49.8	49.6	100	99	70-131	0	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	49.0	49.8	98	100	70-130	2	20		
Benzene	ug/L	<0.50	50	50	49.9	50.7	100	101	57-138	2	20		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1409836		1409837		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		40139484001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								MSD Result
Bromodichloromethane	ug/L	<0.50	50	50	51.1	49.7	102	99	70-130	3	20		
Bromoform	ug/L	<0.50	50	50	54.9	54.1	110	108	70-130	2	20		
Bromomethane	ug/L	<2.4	50	50	49.5	55.0	99	110	33-130	11	27		
Carbon tetrachloride	ug/L	<0.50	50	50	51.5	50.8	103	102	70-138	1	20		
Chlorobenzene	ug/L	<0.50	50	50	49.3	50.4	99	101	70-130	2	20		
Chloroethane	ug/L	<0.37	50	50	52.7	52.6	105	105	51-130	0	20		
Chloroform	ug/L	<2.5	50	50	49.9	49.9	100	100	70-130	0	20		
Chloromethane	ug/L	<0.50	50	50	44.4	46.7	89	93	25-132	5	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	48.1	46.2	96	92	61-140	4	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	49.8	48.2	100	96	70-130	3	20		
Dibromochloromethane	ug/L	<0.50	50	50	50.8	50.9	102	102	70-130	0	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	42.3	42.7	85	85	23-130	1	20		
Ethylbenzene	ug/L	<0.50	50	50	48.0	46.5	96	93	70-138	3	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	49.5	47.9	99	96	70-152	3	20		
m&p-Xylene	ug/L	<1.0	100	100	91.0	84.0	91	84	70-140	8	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	54.4	54.9	109	110	66-139	1	20		
Methylene Chloride	ug/L	<0.23	50	50	50.1	50.1	100	100	70-130	0	20		
o-Xylene	ug/L	<0.50	50	50	44.3	42.8	89	86	70-134	3	20		
Styrene	ug/L	<0.50	50	50	37.0	29.7	74	59	70-138	22	20	M1, R1	
Tetrachloroethene	ug/L	<0.50	50	50	48.6	49.6	97	99	70-148	2	20		
Toluene	ug/L	<0.50	50	50	48.5	49.7	97	99	70-130	2	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	47.9	47.0	96	94	70-133	2	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	49.2	47.8	98	96	69-130	3	20		
Trichloroethene	ug/L	<0.33	50	50	50.3	50.7	101	101	70-131	1	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	51.9	51.9	104	104	50-150	0	20		
Vinyl chloride	ug/L	<0.18	50	50	53.5	53.7	107	107	49-133	0	20		
4-Bromofluorobenzene (S)	%							92	89	70-130			
Dibromofluoromethane (S)	%							96	94	70-130			
Toluene-d8 (S)	%							94	91	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

QC Batch: 237560 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40139615008, 40139615009, 40139615010

METHOD BLANK: 1408142 Matrix: Water

Associated Lab Samples: 40139615008, 40139615009, 40139615010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/14/16 07:09	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/14/16 07:09	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/14/16 07:09	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/14/16 07:09	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/14/16 07:09	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/14/16 07:09	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/14/16 07:09	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/14/16 07:09	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/14/16 07:09	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/14/16 07:09	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/14/16 07:09	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/14/16 07:09	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/14/16 07:09	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 07:09	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/14/16 07:09	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/14/16 07:09	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/14/16 07:09	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 07:09	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/14/16 07:09	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 07:09	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/14/16 07:09	
2-Chlorotoluene	ug/L	<0.50	1.0	10/14/16 07:09	
4-Chlorotoluene	ug/L	<0.21	1.0	10/14/16 07:09	
Benzene	ug/L	<0.50	1.0	10/14/16 07:09	
Bromobenzene	ug/L	<0.23	1.0	10/14/16 07:09	
Bromochloromethane	ug/L	<0.34	1.0	10/14/16 07:09	
Bromodichloromethane	ug/L	<0.50	1.0	10/14/16 07:09	
Bromoform	ug/L	<0.50	1.0	10/14/16 07:09	
Bromomethane	ug/L	<2.4	5.0	10/14/16 07:09	
Carbon tetrachloride	ug/L	<0.50	1.0	10/14/16 07:09	
Chlorobenzene	ug/L	<0.50	1.0	10/14/16 07:09	
Chloroethane	ug/L	<0.37	1.0	10/14/16 07:09	
Chloroform	ug/L	<2.5	5.0	10/14/16 07:09	
Chloromethane	ug/L	<0.50	1.0	10/14/16 07:09	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/14/16 07:09	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/14/16 07:09	
Dibromochloromethane	ug/L	<0.50	1.0	10/14/16 07:09	
Dibromomethane	ug/L	<0.43	1.0	10/14/16 07:09	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/14/16 07:09	
Ethylbenzene	ug/L	<0.50	1.0	10/14/16 07:09	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/14/16 07:09	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

METHOD BLANK: 1408142

Matrix: Water

Associated Lab Samples: 40139615008, 40139615009, 40139615010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/14/16 07:09	
m&p-Xylene	ug/L	<1.0	2.0	10/14/16 07:09	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/14/16 07:09	
Methylene Chloride	ug/L	<0.23	1.0	10/14/16 07:09	
n-Butylbenzene	ug/L	<0.50	1.0	10/14/16 07:09	
n-Propylbenzene	ug/L	<0.50	1.0	10/14/16 07:09	
Naphthalene	ug/L	<2.5	5.0	10/14/16 07:09	
o-Xylene	ug/L	<0.50	1.0	10/14/16 07:09	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/14/16 07:09	
sec-Butylbenzene	ug/L	<2.2	5.0	10/14/16 07:09	
Styrene	ug/L	<0.50	1.0	10/14/16 07:09	
tert-Butylbenzene	ug/L	<0.18	1.0	10/14/16 07:09	
Tetrachloroethene	ug/L	<0.50	1.0	10/14/16 07:09	
Toluene	ug/L	<0.50	1.0	10/14/16 07:09	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/14/16 07:09	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/14/16 07:09	
Trichloroethene	ug/L	<0.33	1.0	10/14/16 07:09	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/14/16 07:09	
Vinyl chloride	ug/L	<0.18	1.0	10/14/16 07:09	
4-Bromofluorobenzene (S)	%	93	70-130	10/14/16 07:09	
Dibromofluoromethane (S)	%	100	70-130	10/14/16 07:09	
Toluene-d8 (S)	%	99	70-130	10/14/16 07:09	

LABORATORY CONTROL SAMPLE: 1408143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	51.6	103	70-131	
1,1,2,2-Tetrachloroethane	ug/L	50	46.3	93	67-130	
1,1,2-Trichloroethane	ug/L	50	47.7	95	70-130	
1,1-Dichloroethane	ug/L	50	53.9	108	70-133	
1,1-Dichloroethene	ug/L	50	47.5	95	70-130	
1,2,4-Trichlorobenzene	ug/L	50	44.4	89	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.6	91	50-150	
1,2-Dibromoethane (EDB)	ug/L	50	47.9	96	70-130	
1,2-Dichlorobenzene	ug/L	50	47.8	96	70-130	
1,2-Dichloroethane	ug/L	50	49.9	100	70-130	
1,2-Dichloropropane	ug/L	50	49.8	100	70-130	
1,3-Dichlorobenzene	ug/L	50	48.4	97	70-130	
1,4-Dichlorobenzene	ug/L	50	48.8	98	70-130	
Benzene	ug/L	50	51.6	103	60-135	
Bromodichloromethane	ug/L	50	47.8	96	70-130	
Bromoform	ug/L	50	44.8	90	70-130	
Bromomethane	ug/L	50	39.1	78	33-130	
Carbon tetrachloride	ug/L	50	51.1	102	70-138	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

LABORATORY CONTROL SAMPLE: 1408143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	50.2	100	70-130	
Chloroethane	ug/L	50	44.4	89	51-130	
Chloroform	ug/L	50	51.3	103	70-130	
Chloromethane	ug/L	50	33.6	67	25-132	
cis-1,2-Dichloroethene	ug/L	50	52.2	104	69-130	
cis-1,3-Dichloropropene	ug/L	50	48.8	98	70-130	
Dibromochloromethane	ug/L	50	47.9	96	70-130	
Dichlorodifluoromethane	ug/L	50	29.1	58	23-130	
Ethylbenzene	ug/L	50	52.2	104	70-136	
Isopropylbenzene (Cumene)	ug/L	50	53.2	106	70-140	
m&p-Xylene	ug/L	100	105	105	70-138	
Methyl-tert-butyl ether	ug/L	50	49.8	100	66-138	
Methylene Chloride	ug/L	50	48.1	96	70-130	
o-Xylene	ug/L	50	52.0	104	70-134	
Styrene	ug/L	50	51.7	103	70-133	
Tetrachloroethene	ug/L	50	47.7	95	70-138	
Toluene	ug/L	50	51.5	103	70-130	
trans-1,2-Dichloroethene	ug/L	50	46.3	93	70-131	
trans-1,3-Dichloropropene	ug/L	50	50.7	101	69-130	
Trichloroethene	ug/L	50	49.6	99	70-130	
Trichlorofluoromethane	ug/L	50	50.8	102	50-150	
Vinyl chloride	ug/L	50	46.0	92	49-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1408144 1408145

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40139746014 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	<0.50	50	50	49.9	51.4	100	103	70-134	3	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	44.2	48.6	88	97	67-130	9	20	
1,1,2-Trichloroethane	ug/L	<0.20	50	50	44.3	48.2	89	96	70-130	8	20	
1,1-Dichloroethane	ug/L	<0.24	50	50	51.5	41.6	103	83	70-134	21	20	R1
1,1-Dichloroethene	ug/L	<0.41	50	50	42.8	49.5	86	99	68-136	15	20	
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	44.7	47.6	88	93	62-139	6	20	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	43.0	49.9	86	100	50-150	15	20	
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	44.9	49.2	90	98	70-130	9	20	
1,2-Dichlorobenzene	ug/L	<0.50	50	50	48.4	51.2	97	102	70-130	6	20	
1,2-Dichloroethane	ug/L	<0.17	50	50	46.8	50.9	94	102	70-130	8	20	
1,2-Dichloropropane	ug/L	<0.23	50	50	45.7	52.2	91	104	70-130	13	20	
1,3-Dichlorobenzene	ug/L	<0.50	50	50	48.5	50.9	97	101	70-131	5	20	
1,4-Dichlorobenzene	ug/L	<0.50	50	50	49.1	51.7	98	103	70-130	5	20	
Benzene	ug/L	<0.50	50	50	50.6	52.7	101	105	57-138	4	20	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Parameter	Units	40139746014		1408144		1408145		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<0.50	50	50	47.2	51.0	94	102	70-130	8	20		
Bromoform	ug/L	<0.50	50	50	42.4	46.2	85	92	70-130	9	20		
Bromomethane	ug/L	<2.4	50	50	43.9	45.5	88	91	33-130	3	27		
Carbon tetrachloride	ug/L	<0.50	50	50	51.6	53.2	103	106	70-138	3	20		
Chlorobenzene	ug/L	<0.50	50	50	49.3	51.3	99	103	70-130	4	20		
Chloroethane	ug/L	<0.37	50	50	41.4	43.3	83	87	51-130	5	20		
Chloroform	ug/L	<2.5	50	50	49.1	52.1	98	104	70-130	6	20		
Chloromethane	ug/L	<0.50	50	50	31.1	33.3	62	67	25-132	7	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	50.0	52.0	100	104	61-140	4	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	49.1	52.6	98	105	70-130	7	20		
Dibromochloromethane	ug/L	<0.50	50	50	46.5	49.9	93	100	70-130	7	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	28.2	28.6	56	57	23-130	1	20		
Ethylbenzene	ug/L	<0.50	50	50	51.3	54.2	103	108	70-138	6	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	52.7	56.4	105	113	70-152	7	20		
m&p-Xylene	ug/L	<1.0	100	100	103	108	103	108	70-140	4	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	49.7	51.5	99	103	66-139	3	20		
Methylene Chloride	ug/L	<0.23	50	50	48.2	51.9	96	104	70-130	7	20		
o-Xylene	ug/L	<0.50	50	50	51.5	54.2	103	108	70-134	5	20		
Styrene	ug/L	<0.50	50	50	50.6	53.8	101	108	70-138	6	20		
Tetrachloroethene	ug/L	<0.50	50	50	46.8	50.1	94	100	70-148	7	20		
Toluene	ug/L	<0.50	50	50	51.0	53.2	102	106	70-130	4	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	50.1	51.8	100	104	70-133	3	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	47.6	51.7	95	103	69-130	8	20		
Trichloroethene	ug/L	<0.33	50	50	49.3	52.6	99	105	70-131	7	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	52.0	50.5	104	101	50-150	3	20		
Vinyl chloride	ug/L	<0.18	50	50	44.2	45.5	88	91	49-133	3	20		
4-Bromofluorobenzene (S)	%						96	101	70-130				
Dibromofluoromethane (S)	%						101	98	70-130				
Toluene-d8 (S)	%						98	99	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

QC Batch: 237951 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40139615011, 40139615012

METHOD BLANK: 1409719 Matrix: Water
Associated Lab Samples: 40139615011, 40139615012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/14/16 06:55	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/14/16 06:55	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/14/16 06:55	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/14/16 06:55	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/14/16 06:55	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/14/16 06:55	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/14/16 06:55	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/14/16 06:55	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/14/16 06:55	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/14/16 06:55	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/14/16 06:55	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/14/16 06:55	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/14/16 06:55	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 06:55	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/14/16 06:55	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/14/16 06:55	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/14/16 06:55	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 06:55	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/14/16 06:55	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/14/16 06:55	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/14/16 06:55	
2-Chlorotoluene	ug/L	<0.50	1.0	10/14/16 06:55	
4-Chlorotoluene	ug/L	<0.21	1.0	10/14/16 06:55	
Benzene	ug/L	<0.50	1.0	10/14/16 06:55	
Bromobenzene	ug/L	<0.23	1.0	10/14/16 06:55	
Bromochloromethane	ug/L	<0.34	1.0	10/14/16 06:55	
Bromodichloromethane	ug/L	<0.50	1.0	10/14/16 06:55	
Bromoform	ug/L	<0.50	1.0	10/14/16 06:55	
Bromomethane	ug/L	<2.4	5.0	10/14/16 06:55	
Carbon tetrachloride	ug/L	<0.50	1.0	10/14/16 06:55	
Chlorobenzene	ug/L	<0.50	1.0	10/14/16 06:55	
Chloroethane	ug/L	<0.37	1.0	10/14/16 06:55	
Chloroform	ug/L	<2.5	5.0	10/14/16 06:55	
Chloromethane	ug/L	<0.50	1.0	10/14/16 06:55	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/14/16 06:55	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/14/16 06:55	
Dibromochloromethane	ug/L	<0.50	1.0	10/14/16 06:55	
Dibromomethane	ug/L	<0.43	1.0	10/14/16 06:55	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/14/16 06:55	
Ethylbenzene	ug/L	<0.50	1.0	10/14/16 06:55	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/14/16 06:55	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

METHOD BLANK: 1409719 Matrix: Water
Associated Lab Samples: 40139615011, 40139615012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/14/16 06:55	
m&p-Xylene	ug/L	<1.0	2.0	10/14/16 06:55	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/14/16 06:55	
Methylene Chloride	ug/L	<0.23	1.0	10/14/16 06:55	
n-Butylbenzene	ug/L	<0.50	1.0	10/14/16 06:55	
n-Propylbenzene	ug/L	<0.50	1.0	10/14/16 06:55	
Naphthalene	ug/L	<2.5	5.0	10/14/16 06:55	
o-Xylene	ug/L	<0.50	1.0	10/14/16 06:55	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/14/16 06:55	
sec-Butylbenzene	ug/L	<2.2	5.0	10/14/16 06:55	
Styrene	ug/L	<0.50	1.0	10/14/16 06:55	
tert-Butylbenzene	ug/L	<0.18	1.0	10/14/16 06:55	
Tetrachloroethene	ug/L	<0.50	1.0	10/14/16 06:55	
Toluene	ug/L	<0.50	1.0	10/14/16 06:55	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/14/16 06:55	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/14/16 06:55	
Trichloroethene	ug/L	<0.33	1.0	10/14/16 06:55	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/14/16 06:55	
Vinyl chloride	ug/L	<0.18	1.0	10/14/16 06:55	
4-Bromofluorobenzene (S)	%	86	70-130	10/14/16 06:55	
Dibromofluoromethane (S)	%	91	70-130	10/14/16 06:55	
Toluene-d8 (S)	%	95	70-130	10/14/16 06:55	

LABORATORY CONTROL SAMPLE: 1409720

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.4	99	70-131	
1,1,2,2-Tetrachloroethane	ug/L	50	49.9	100	67-130	
1,1,2-Trichloroethane	ug/L	50	49.9	100	70-130	
1,1-Dichloroethane	ug/L	50	42.0	84	70-133	
1,1-Dichloroethene	ug/L	50	40.9	82	70-130	
1,2,4-Trichlorobenzene	ug/L	50	49.5	99	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.8	96	50-150	
1,2-Dibromoethane (EDB)	ug/L	50	55.3	111	70-130	
1,2-Dichlorobenzene	ug/L	50	52.7	105	70-130	
1,2-Dichloroethane	ug/L	50	47.9	96	70-130	
1,2-Dichloropropane	ug/L	50	50.6	101	70-130	
1,3-Dichlorobenzene	ug/L	50	53.2	106	70-130	
1,4-Dichlorobenzene	ug/L	50	51.2	102	70-130	
Benzene	ug/L	50	50.8	102	60-135	
Bromodichloromethane	ug/L	50	51.3	103	70-130	
Bromoform	ug/L	50	48.6	97	70-130	
Bromomethane	ug/L	50	30.6	61	33-130	
Carbon tetrachloride	ug/L	50	51.8	104	70-138	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

LABORATORY CONTROL SAMPLE: 1409720

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	55.1	110	70-130	
Chloroethane	ug/L	50	40.9	82	51-130	
Chloroform	ug/L	50	47.8	96	70-130	
Chloromethane	ug/L	50	34.4	69	25-132	
cis-1,2-Dichloroethene	ug/L	50	39.9	80	69-130	
cis-1,3-Dichloropropene	ug/L	50	48.5	97	70-130	
Dibromochloromethane	ug/L	50	54.1	108	70-130	
Dichlorodifluoromethane	ug/L	50	31.0	62	23-130	
Ethylbenzene	ug/L	50	54.7	109	70-136	
Isopropylbenzene (Cumene)	ug/L	50	54.9	110	70-140	
m&p-Xylene	ug/L	100	111	111	70-138	
Methyl-tert-butyl ether	ug/L	50	40.4	81	66-138	
Methylene Chloride	ug/L	50	41.3	83	70-130	
o-Xylene	ug/L	50	55.0	110	70-134	
Styrene	ug/L	50	53.0	106	70-133	
Tetrachloroethene	ug/L	50	57.5	115	70-138	
Toluene	ug/L	50	53.6	107	70-130	
trans-1,2-Dichloroethene	ug/L	50	41.3	83	70-131	
trans-1,3-Dichloropropene	ug/L	50	48.6	97	69-130	
Trichloroethene	ug/L	50	53.3	107	70-130	
Trichlorofluoromethane	ug/L	50	46.0	92	50-150	
Vinyl chloride	ug/L	50	44.4	89	49-130	
4-Bromofluorobenzene (S)	%			97	70-130	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1410881 1410882

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40139749001 Result	Spike Conc.	Spike Conc.	MSD Result								
1,1,1-Trichloroethane	ug/L	<0.50	50	50	49.1	50.4	98	101	70-134	3	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	50.0	50.3	100	101	67-130	0	20		
1,1,2-Trichloroethane	ug/L	<0.20	50	50	51.3	50.8	103	102	70-130	1	20		
1,1-Dichloroethane	ug/L	<0.24	50	50	37.1	42.5	74	85	70-134	13	20		
1,1-Dichloroethene	ug/L	<0.41	50	50	35.5	41.2	71	82	68-136	15	20		
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	50.7	51.0	100	101	62-139	1	20		
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	48.9	48.7	98	97	50-150	0	20		
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	53.9	53.9	108	108	70-130	0	20		
1,2-Dichlorobenzene	ug/L	<0.50	50	50	53.0	52.9	106	106	70-130	0	20		
1,2-Dichloroethane	ug/L	<0.17	50	50	41.0	48.5	82	97	70-130	17	20		
1,2-Dichloropropane	ug/L	<0.23	50	50	49.9	50.6	100	101	70-130	1	20		
1,3-Dichlorobenzene	ug/L	<0.50	50	50	53.7	54.2	107	108	70-131	1	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	51.0	52.4	102	105	70-130	3	20		
Benzene	ug/L	<0.50	50	50	44.2	52.2	88	104	57-138	17	20		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1410881		1410882		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40139749001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Bromodichloromethane	ug/L	<0.50	50	50	51.8	52.3	104	105	70-130	1	20	
Bromoform	ug/L	<0.50	50	50	49.8	48.8	100	98	70-130	2	20	
Bromomethane	ug/L	<2.4	50	50	26.7	32.4	53	65	33-130	19	27	
Carbon tetrachloride	ug/L	<0.50	50	50	51.4	53.6	103	107	70-138	4	20	
Chlorobenzene	ug/L	<0.50	50	50	55.0	54.9	110	110	70-130	0	20	
Chloroethane	ug/L	<0.37	50	50	35.9	41.9	72	84	51-130	15	20	
Chloroform	ug/L	<2.5	50	50	47.7	49.5	95	99	70-130	4	20	
Chloromethane	ug/L	<0.50	50	50	28.7	34.2	57	68	25-132	18	20	
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	36.2	38.7	72	77	61-140	7	20	
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	49.2	49.5	98	99	70-130	1	20	
Dibromochloromethane	ug/L	<0.50	50	50	54.7	54.5	109	109	70-130	0	20	
Dichlorodifluoromethane	ug/L	<0.22	50	50	24.6	29.5	49	59	23-130	18	20	
Ethylbenzene	ug/L	<0.50	50	50	55.6	54.7	111	109	70-138	2	20	
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	55.7	55.1	111	110	70-152	1	20	
m&p-Xylene	ug/L	<1.0	100	100	112	112	112	111	70-140	1	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	35.1	41.5	70	83	66-139	17	20	
Methylene Chloride	ug/L	<0.23	50	50	35.4	42.5	71	85	70-130	18	20	
o-Xylene	ug/L	<0.50	50	50	54.7	53.2	109	106	70-134	3	20	
Styrene	ug/L	<0.50	50	50	52.0	51.4	104	103	70-138	1	20	
Tetrachloroethene	ug/L	0.58J	50	50	59.1	56.8	117	112	70-148	4	20	
Toluene	ug/L	<0.50	50	50	54.3	53.9	109	108	70-130	1	20	
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	36.2	43.3	72	87	70-133	18	20	
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	49.0	48.4	98	97	69-130	1	20	
Trichloroethene	ug/L	<0.33	50	50	54.0	53.9	108	108	70-131	0	20	
Trichlorofluoromethane	ug/L	<0.18	50	50	38.9	46.0	78	92	50-150	17	20	
Vinyl chloride	ug/L	<0.18	50	50	38.6	45.0	77	90	49-133	15	20	
4-Bromofluorobenzene (S)	%						97	97	70-130			
Dibromofluoromethane (S)	%						92	97	70-130			
Toluene-d8 (S)	%						97	96	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

QC Batch: 237494 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40139615001, 40139615002, 40139615003, 40139615004, 40139615005

METHOD BLANK: 1407451 Matrix: Water
Associated Lab Samples: 40139615001, 40139615002, 40139615003, 40139615004, 40139615005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/10/16 16:12	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/10/16 16:12	
Benzene	ug/L	<0.50	1.0	10/10/16 16:12	
Ethylbenzene	ug/L	<0.50	1.0	10/10/16 16:12	
m&p-Xylene	ug/L	<1.0	2.0	10/10/16 16:12	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/10/16 16:12	
o-Xylene	ug/L	<0.50	1.0	10/10/16 16:12	
Toluene	ug/L	<0.50	1.0	10/10/16 16:12	
4-Bromofluorobenzene (S)	%	85	70-130	10/10/16 16:12	
Dibromofluoromethane (S)	%	100	70-130	10/10/16 16:12	
Toluene-d8 (S)	%	90	70-130	10/10/16 16:12	

LABORATORY CONTROL SAMPLE: 1407452

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.0	90	60-135	
Ethylbenzene	ug/L	20	17.8	89	70-136	
m&p-Xylene	ug/L	40	39.4	98	70-138	
Methyl-tert-butyl ether	ug/L	20	15.9	80	66-138	
o-Xylene	ug/L	20	18.6	93	70-134	
Toluene	ug/L	20	17.5	87	70-130	
4-Bromofluorobenzene (S)	%			89	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			92	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1408608 1408609

Parameter	Units	40139530042		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Benzene	ug/L	4.5	50	50	51.8	52.1	95	95	57-138	1	20		
Ethylbenzene	ug/L	<1.0	50	50	49.3	49.0	98	98	70-138	1	20		
m&p-Xylene	ug/L	<2.0	100	100	104	104	104	104	70-140	0	20		
Methyl-tert-butyl ether	ug/L	<1.0	50	50	34.4	31.7	69	63	66-139	8	20	M1	
o-Xylene	ug/L	<1.0	50	50	50.8	49.9	101	99	70-134	2	20		
Toluene	ug/L	<1.0	50	50	47.8	46.6	95	92	70-130	3	20		
4-Bromofluorobenzene (S)	%						92	92	70-130				
Dibromofluoromethane (S)	%						105	99	70-130				
Toluene-d8 (S)	%						91	90	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

QC Batch: 237572 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40139615013, 40139615014

METHOD BLANK: 1408185 Matrix: Water
Associated Lab Samples: 40139615013, 40139615014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/12/16 09:46	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/12/16 09:46	
Benzene	ug/L	<0.50	1.0	10/12/16 09:46	
Ethylbenzene	ug/L	<0.50	1.0	10/12/16 09:46	
m&p-Xylene	ug/L	<1.0	2.0	10/12/16 09:46	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/12/16 09:46	
Naphthalene	ug/L	<2.5	5.0	10/12/16 09:46	
o-Xylene	ug/L	<0.50	1.0	10/12/16 09:46	
Toluene	ug/L	<0.50	1.0	10/12/16 09:46	
4-Bromofluorobenzene (S)	%	85	70-130	10/12/16 09:46	
Dibromofluoromethane (S)	%	128	70-130	10/12/16 09:46	
Toluene-d8 (S)	%	96	70-130	10/12/16 09:46	

LABORATORY CONTROL SAMPLE: 1408186

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	56.3	113	60-135	
Ethylbenzene	ug/L	50	57.6	115	70-136	
m&p-Xylene	ug/L	100	120	120	70-138	
Methyl-tert-butyl ether	ug/L	50	57.3	115	66-138	
o-Xylene	ug/L	50	58.2	116	70-134	
Toluene	ug/L	50	59.0	118	70-130	
4-Bromofluorobenzene (S)	%			105	70-130	
Dibromofluoromethane (S)	%			127	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1409361 1409362

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40139746025 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.50	50	50	58.0	58.0	116	116	57-138	0	20	
Ethylbenzene	ug/L	<0.50	50	50	57.0	57.6	114	115	70-138	1	20	
m&p-Xylene	ug/L	<1.0	100	100	121	123	121	123	70-140	1	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	58.8	59.5	118	119	66-139	1	20	
o-Xylene	ug/L	<0.50	50	50	57.5	58.5	115	117	70-134	2	20	
Toluene	ug/L	0.56J	50	50	59.3	60.4	118	120	70-130	2	20	
4-Bromofluorobenzene (S)	%						101	103	70-130			
Dibromofluoromethane (S)	%						108	127	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1409361		1409362									
Parameter	Units	40139746025 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						97	99	70-130				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET
Pace Project No.: 40139615

QC Batch: 237908 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40139615006, 40139615007, 40139615015, 40139615016, 40139615017, 40139615018

METHOD BLANK: 1409580 Matrix: Water
Associated Lab Samples: 40139615006, 40139615007, 40139615015, 40139615016, 40139615017, 40139615018

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/12/16 15:57	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/12/16 15:57	
Benzene	ug/L	<0.50	1.0	10/12/16 15:57	
Ethylbenzene	ug/L	<0.50	1.0	10/12/16 15:57	
m&p-Xylene	ug/L	<1.0	2.0	10/12/16 15:57	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/12/16 15:57	
Naphthalene	ug/L	<2.5	5.0	10/12/16 15:57	
o-Xylene	ug/L	<0.50	1.0	10/12/16 15:57	
Toluene	ug/L	<0.50	1.0	10/12/16 15:57	
4-Bromofluorobenzene (S)	%	87	70-130	10/12/16 15:57	
Dibromofluoromethane (S)	%	96	70-130	10/12/16 15:57	
Toluene-d8 (S)	%	98	70-130	10/12/16 15:57	

LABORATORY CONTROL SAMPLE: 1409581

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	51.3	103	60-135	
Ethylbenzene	ug/L	50	54.0	108	70-136	
m&p-Xylene	ug/L	100	109	109	70-138	
Methyl-tert-butyl ether	ug/L	50	42.0	84	66-138	
o-Xylene	ug/L	50	53.2	106	70-134	
Toluene	ug/L	50	53.7	107	70-130	
4-Bromofluorobenzene (S)	%			96	70-130	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1409582 1409583

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40139750021 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.50	50	50	50.4	50.7	101	101	57-138	0	20	
Ethylbenzene	ug/L	<0.50	50	50	53.0	53.9	106	108	70-138	2	20	
m&p-Xylene	ug/L	<1.0	100	100	107	107	107	106	70-140	0	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	40.1	41.2	80	82	66-139	3	20	
o-Xylene	ug/L	<0.50	50	50	51.7	53.0	103	106	70-134	2	20	
Toluene	ug/L	<0.50	50	50	51.9	52.6	104	105	70-130	2	20	
4-Bromofluorobenzene (S)	%						100	97	70-130			
Dibromofluoromethane (S)	%						98	98	70-130			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET

Pace Project No.: 40139615

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1409582		1409583									
Parameter	Units	40139750021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						97	96	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 34265.003 CALUMET
Pace Project No.: 40139615

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

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

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

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CALUMET

Pace Project No.: 40139615

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40139615020	LRS-1	EPA 8021	237415		
40139615021	LRS-2	EPA 8021	237415		
40139615022	LRS-3	EPA 8021	237415		
40139615023	LRS-4	EPA 8021	237415		
40139615024	LRS-6	EPA 8021	237415		
40139615025	LRS-8	EPA 8021	237415		
40139615026	MW-1/FL	EPA 8021	237415		
40139615027	MW-2/FL	EPA 8021	237415		
40139615028	MW-3/FL	EPA 8021	237415		
40139615029	MW-9/FL	EPA 8021	237415		
40139615030	MW-10/FL	EPA 8021	237415		
40139615031	MW-11/FL	EPA 8021	237415		
40139615032	MW-13/FL	EPA 8021	237415		
40139615033	MW-14/FL	EPA 8021	237415		
40139615008	MW-1/T68	EPA 8260	237560		
40139615009	MW-2/T68	EPA 8260	237560		
40139615010	MW-4/T68	EPA 8260	237560		
40139615011	MW-5/T66	EPA 8260	237951		
40139615012	MW-6/T68	EPA 8260	237951		
40139615019	TRIP BLANK	EPA 8260	237506		
40139615001	MW-1/T40	EPA 8260	237494		
40139615002	MW-2/T40	EPA 8260	237494		
40139615003	MW-4/T40	EPA 8260	237494		
40139615004	MW-5/T40	EPA 8260	237494		
40139615005	MW-6/T40	EPA 8260	237494		
40139615006	MW-7/T40	EPA 8260	237908		
40139615007	TS-1/T40	EPA 8260	237908		
40139615013	MW-1R/T70	EPA 8260	237572		
40139615014	MW-2R/T70	EPA 8260	237572		
40139615015	MW-3/T70	EPA 8260	237908		
40139615016	MW-4/T70	EPA 8260	237908		
40139615017	MW-5/T70	EPA 8260	237908		
40139615018	MW-6/T70	EPA 8260	237908		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

40139615

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



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	Pick Letter	Analysis Requested	Matrix Codes
N	B	PVOCs 8260	W = Water
N	B	VOCs 8260	DW = Drinking Water
N	B	PVOCs/Naph 8260	GW = Ground Water
			SW = Surface Water
			WW = Waste Water
			WP = Wipe

Quote #: Pace 2016
Mail To Contact: Cliff Wright
Mail To Company: GF
Mail To Address: 8025 Excelsior Madison, WI 53717
Invoice To Contact:
Invoice To Company: See above ↑
Invoice To Address:
Invoice To Phone:
CLIENT COMMENTS:
LAB COMMENTS (Lab Use Only): 3-40ml vB
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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW-1/T40	10/5	14:00	6W
002	MW-2/T40		1410	
003	MW-4/T40		13:45	
004	MW-5/T40		13:25	
005	MW-6/T40		1335	
006	MW-7/T40		1340	
007	TS-1/T40		13:20	
008	MW-1/T68		1415	
009	MW-2/T68		1430	
010	MW-4/T68		1440	
011	MW-5/T66		1450	
012	MW-6/T68		1445	
013	MW-1R/T70		1540	

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

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

Relinquished By: Marcus Mussey	Date/Time: 10/5, 1700	Received By:	Date/Time:
Relinquished By: FedEx	Date/Time: 10/6/16 0910	Received By: [Signature]	Date/Time: 10/6/16 0910
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

PACE Project No.: 40139615
Receipt Temp = RSI °C
Sample Receipt pH: OK / Adjusted
Cooler Custody Seal: Present / Not Present
 Intact / Not Intact

(Please Print Clearly)

Company Name: _____
 Branch/Location: _____
 Project Contact: *see*
 Phone: _____
 Project Number: _____
 Project Name: *page*
 Project State: _____
 Sampled By (Print): _____
 Sampled By (Sign): *I*



UPPER MIDWEST REGION

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

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	Pick Letter	Analysis Requested
N	B	PVOCs Naph
N	B	8260
		PVOCs 8021

Quote #: _____
 Mail To Contact: *see*
 Mail To Company: _____
 Mail To Address: *page*
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: *I*
 Invoice To Phone: _____

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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
014	MW-2R/T70	10/5	15:10	GW
015	MW-3/T70		15:30	
016	MW-4/T70		15:35	
017	MW-5/T70		15:15	
018	MW-6/T70		15:25	
019	Trip Blank			
020	LRS-1	10/5	10:45	GW
021	LRS-2		10:55	
022	LRS-3		11:15	
023	LRS-4		11:30	
024	LRS-6		11:10	
025	LRS-8		11:45	
026	MW-1/FL		10:30	

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40mlvB	
	↓	
	2-40mlvB	
	3-40mlvB	
	↓	

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: <i>Marshall</i>	Date/Time: 10/5, 1700
Relinquished By: <i>Fed Ex</i>	Date/Time: 10/6/16 0910
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____

Received By: _____	Date/Time: _____
Received By: <i>Paul</i>	Date/Time: 10/6/16 0910
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____

PACE Project No. 40139015

Receipt Temp = *ROI*°C

Sample Receipt pH *OK/Adjusted*

Cooler Custody Seal Present / Not Present Intact / Not Intact

(Please Print Clearly)

Company Name: _____
 Branch/Location: *see*
 Project Contact: _____
 Phone: _____
 Project Number: *page*
 Project Name: _____
 Project State: *I*
 Sampled By (Print): _____
 Sampled By (Sign): _____



UPPER MIDWEST REGION

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

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	Pick Letter	Analysis Requested																			
N	B	PVOCs 8021																			

Quote #: _____
 Mail To Contact: _____
 Mail To Company: _____
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____

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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
027	MW-2/FL	10/5	1025	GW
028	MW-3/FL		1020	
029	MW-4/FL		1210	
030	MW-10/FL		1215	
031	MW-11/FL		1200	
032	MW-13/FL		1155	
033	MW-14/FL		1150	

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40mlVB	

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

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

Email #1: _____
 Email #2: _____
 Telephone: _____
 Fax: _____

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

Relinquished By: *[Signature]* Date/Time: 10/5/17 00
 Relinquished By: *[Signature]* Date/Time: 10/6/16 0910
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____
 Received By: *[Signature]* Date/Time: 10/6/16 0910
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

PACE Project No. 40139615
 Receipt Temp = *ROJ* °C
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present Intact / Not Intact

Sample Condition Upon Receipt

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



Project #: **WO# : 40139615**



Client Name: Gannett Fleming

Courier: Fed Ex UPS Client Pace Other: _____

Tracking #: 8103 9247 1304

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

Cooler Temperature Uncorr: KOT / Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 10/6/16
Initials: BJ

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input 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 <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>01-2D MW-5/T60 mm10616</u>
-Includes date/time/ID/Analysis Matrix:	<u>mm 10616</u> <u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 <2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
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>369</u>	

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: AMH for DM

Date: 10/6/16

May 25, 2017

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

Project #34265.003
Calumet West,
T40/T68, and
ERP & T70 (2 of 2)
Reviewed by CCW
5/26/17

RE: Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2017. 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 CALUMET SUPERIOR

Pace Project No.: 40150095

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 CALUMET SUPERIOR

Pace Project No.: 40150095

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40150095001	MW-12	Water	05/16/17 09:35	05/17/17 10:30
40150095002	MW-13	Water	05/16/17 09:25	05/17/17 10:30
40150095003	PZ-13	Water	05/16/17 09:30	05/17/17 10:30
40150095004	MW-19	Water	05/16/17 10:00	05/17/17 10:30
40150095005	MW-20	Water	05/16/17 10:45	05/17/17 10:30
40150095006	MW-21	Water	05/16/17 10:15	05/17/17 10:30
40150095007	PZ-21	Water	05/16/17 10:10	05/17/17 10:30
40150095008	MW-22	Water	05/16/17 10:35	05/17/17 10:30
40150095009	MW-1/CW	Water	05/16/17 13:30	05/17/17 10:30
40150095010	MW-2/CW	Water	05/16/17 13:20	05/17/17 10:30
40150095011	MW-3/CW	Water	05/16/17 13:05	05/17/17 10:30
40150095012	MW-4/CW	Water	05/16/17 13:00	05/17/17 10:30
40150095013	MW-1/T40	Water	05/16/17 14:30	05/17/17 10:30
40150095014	MW-2/T40	Water	05/16/17 14:35	05/17/17 10:30
40150095015	MW-4/T40	Water	05/16/17 14:55	05/17/17 10:30
40150095016	MW-5/T40	Water	05/16/17 14:40	05/17/17 10:30
40150095017	MW-6/T40	Water	05/16/17 14:45	05/17/17 10:30
40150095018	MW-7/T40	Water	05/16/17 14:50	05/17/17 10:30
40150095019	TS-1/T40	Water	05/16/17 15:00	05/17/17 10:30
40150095020	MW-1/T68	Water	05/16/17 14:10	05/17/17 10:30
40150095021	MW-2/T68	Water	05/16/17 14:20	05/17/17 10:30
40150095022	MW-4/T68	Water	05/16/17 14:15	05/17/17 10:30
40150095023	MW-5/T66	Water	05/16/17 11:20	05/17/17 10:30
40150095024	MW-5/T68	Water	05/16/17 11:40	05/17/17 10:30
40150095025	MW-6/T68	Water	05/16/17 11:30	05/17/17 10:30
40150095026	MW-2R/T70	Water	05/16/17 15:15	05/17/17 10:30
40150095027	MW-5/T70	Water	05/16/17 15:10	05/17/17 10:30
40150095028	MW-6/T70	Water	05/16/17 15:20	05/17/17 10:30
40150095029	TRIP BLANK	Water	05/16/17 00:00	05/17/17 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40150095001	MW-12	EPA 8021	ALD	10	PASI-G
40150095002	MW-13	EPA 8021	ALD	10	PASI-G
40150095003	PZ-13	EPA 8021	ALD	10	PASI-G
40150095004	MW-19	EPA 8021	ALD	10	PASI-G
40150095005	MW-20	EPA 8021	ALD	10	PASI-G
40150095006	MW-21	EPA 8021	ALD	10	PASI-G
40150095007	PZ-21	EPA 8021	ALD	10	PASI-G
40150095008	MW-22	EPA 8021	ALD	10	PASI-G
40150095009	MW-1/CW	EPA 8260	SMT	12	PASI-G
40150095010	MW-2/CW	EPA 8260	SMT	12	PASI-G
40150095011	MW-3/CW	EPA 8260	SMT	12	PASI-G
40150095012	MW-4/CW	EPA 8260	SMT	12	PASI-G
40150095013	MW-1/T40	EPA 8260	SMT	11	PASI-G
40150095014	MW-2/T40	EPA 8260	SMT	11	PASI-G
40150095015	MW-4/T40	EPA 8260	SMT	11	PASI-G
40150095016	MW-5/T40	EPA 8260	SMT	11	PASI-G
40150095017	MW-6/T40	EPA 8260	SMT	11	PASI-G
40150095018	MW-7/T40	EPA 8260	SMT	11	PASI-G
40150095019	TS-1/T40	EPA 8260	SMT	11	PASI-G
40150095020	MW-1/T68	EPA 8260	LAP	63	PASI-G
40150095021	MW-2/T68	EPA 8260	LAP	63	PASI-G
40150095022	MW-4/T68	EPA 8260	LAP	63	PASI-G
40150095023	MW-5/T66	EPA 8260	LAP	63	PASI-G
40150095024	MW-5/T68	EPA 8260	LAP	63	PASI-G
40150095025	MW-6/T68	EPA 8260	LAP	63	PASI-G
40150095026	MW-2R/T70	EPA 8260	SMT	12	PASI-G
40150095027	MW-5/T70	EPA 8260	HNW	12	PASI-G
40150095028	MW-6/T70	EPA 8260	LAP	12	PASI-G
40150095029	TRIP BLANK	EPA 8260	LAP	63	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40150095022	MW-4/T68					
EPA 8260	m&p-Xylene	1580	ug/L	80.0	05/19/17 10:21	
40150095023	MW-5/T66					
EPA 8260	1,2,4-Trimethylbenzene	2350	ug/L	200	05/18/17 15:16	
EPA 8260	1,3,5-Trimethylbenzene	552	ug/L	200	05/18/17 15:16	
EPA 8260	Benzene	10600	ug/L	200	05/18/17 15:16	
EPA 8260	Ethylbenzene	2950	ug/L	200	05/18/17 15:16	
EPA 8260	Isopropylbenzene (Cumene)	74.4J	ug/L	200	05/18/17 15:16	
EPA 8260	Toluene	16300	ug/L	200	05/18/17 15:16	
EPA 8260	m&p-Xylene	13700	ug/L	400	05/18/17 15:16	
EPA 8260	n-Propylbenzene	209	ug/L	200	05/18/17 15:16	
EPA 8260	o-Xylene	5030	ug/L	200	05/18/17 15:16	
40150095024	MW-5/T68					
EPA 8260	1,2,4-Trimethylbenzene	2830	ug/L	625	05/18/17 15:39	
EPA 8260	1,3,5-Trimethylbenzene	991	ug/L	625	05/18/17 15:39	
EPA 8260	Benzene	25600	ug/L	625	05/18/17 15:39	
EPA 8260	Ethylbenzene	3200	ug/L	625	05/18/17 15:39	
EPA 8260	Toluene	42700	ug/L	625	05/18/17 15:39	
EPA 8260	m&p-Xylene	16500	ug/L	1250	05/18/17 15:39	
EPA 8260	n-Butylbenzene	623J	ug/L	625	05/18/17 15:39	
EPA 8260	o-Xylene	6700	ug/L	625	05/18/17 15:39	
40150095025	MW-6/T68					
EPA 8260	1,2,4-Trimethylbenzene	3070	ug/L	100	05/18/17 16:01	
EPA 8260	1,2-Dichloroethane	240	ug/L	100	05/18/17 16:01	
EPA 8260	1,3,5-Trimethylbenzene	858	ug/L	100	05/18/17 16:01	
EPA 8260	Benzene	21000	ug/L	100	05/18/17 16:01	
EPA 8260	Ethylbenzene	1170	ug/L	100	05/18/17 16:01	
EPA 8260	Isopropylbenzene (Cumene)	30.8J	ug/L	100	05/18/17 16:01	
EPA 8260	Naphthalene	273J	ug/L	500	05/18/17 16:01	
EPA 8260	Toluene	19600	ug/L	100	05/18/17 16:01	
EPA 8260	m&p-Xylene	14500	ug/L	200	05/18/17 16:01	
EPA 8260	n-Propylbenzene	81.8J	ug/L	100	05/18/17 16:01	
EPA 8260	o-Xylene	6480	ug/L	100	05/18/17 16:01	
40150095026	MW-2R/T70					
EPA 8260	1,2,4-Trimethylbenzene	3170	ug/L	250	05/19/17 17:30	
EPA 8260	1,3,5-Trimethylbenzene	874	ug/L	250	05/19/17 17:30	
EPA 8260	Benzene	23000	ug/L	250	05/19/17 17:30	
EPA 8260	Ethylbenzene	2510	ug/L	250	05/19/17 17:30	
EPA 8260	Toluene	31500	ug/L	250	05/19/17 17:30	
EPA 8260	m&p-Xylene	16300	ug/L	500	05/19/17 17:30	
EPA 8260	o-Xylene	7240	ug/L	250	05/19/17 17:30	
40150095027	MW-5/T70					
EPA 8260	1,2,4-Trimethylbenzene	7.8	ug/L	1.0	05/23/17 03:19	
EPA 8260	1,3,5-Trimethylbenzene	2.9	ug/L	1.0	05/23/17 03:19	
EPA 8260	Benzene	1.7	ug/L	1.0	05/23/17 03:19	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40150095027	MW-5/T70					
EPA 8260	Ethylbenzene	8.8	ug/L	1.0	05/23/17 03:19	
EPA 8260	Naphthalene	20.4	ug/L	5.0	05/23/17 03:19	
EPA 8260	Toluene	4.1	ug/L	1.0	05/23/17 03:19	
EPA 8260	m&p-Xylene	10.6	ug/L	2.0	05/23/17 03:19	
EPA 8260	o-Xylene	9.8	ug/L	1.0	05/23/17 03:19	
40150095028	MW-6/T70					
EPA 8260	1,2,4-Trimethylbenzene	499	ug/L	50.0	05/24/17 11:00	
EPA 8260	1,3,5-Trimethylbenzene	148	ug/L	50.0	05/24/17 11:00	
EPA 8260	Benzene	2380	ug/L	50.0	05/24/17 11:00	
EPA 8260	Ethylbenzene	394	ug/L	50.0	05/24/17 11:00	
EPA 8260	Toluene	191	ug/L	50.0	05/24/17 11:00	
EPA 8260	m&p-Xylene	2010	ug/L	100	05/24/17 11:00	
EPA 8260	o-Xylene	397	ug/L	50.0	05/24/17 11:00	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Method: EPA 8021

Description: 8021 GCV Short List

Client: Gannett Fleming Inc.

Date: May 25, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

Method: EPA 8260
Description: 8260 MSV
Client: Gannett Fleming Inc.
Date: May 25, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Method: EPA 8260

Description: 8260 MSV UST

Client: Gannett Fleming Inc.

Date: May 25, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Sample: MW-2R/T70 **Lab ID: 40150095026** Collected: 05/16/17 15:15 Received: 05/17/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	3170	ug/L	250	125	250		05/19/17 17:30	95-63-6	
1,3,5-Trimethylbenzene	874	ug/L	250	125	250		05/19/17 17:30	108-67-8	
Benzene	23000	ug/L	250	125	250		05/19/17 17:30	71-43-2	
Ethylbenzene	2510	ug/L	250	125	250		05/19/17 17:30	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		05/19/17 17:30	1634-04-4	
Naphthalene	<625	ug/L	1250	625	250		05/19/17 17:30	91-20-3	
Toluene	31500	ug/L	250	125	250		05/19/17 17:30	108-88-3	
m&p-Xylene	16300	ug/L	500	250	250		05/19/17 17:30	179601-23-1	
o-Xylene	7240	ug/L	250	125	250		05/19/17 17:30	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	67-124		250		05/19/17 17:30	1868-53-7	
Toluene-d8 (S)	95	%	80-120		250		05/19/17 17:30	2037-26-5	
4-Bromofluorobenzene (S)	96	%	61-118		250		05/19/17 17:30	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Sample: MW-5/T70 **Lab ID: 40150095027** Collected: 05/16/17 15:10 Received: 05/17/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	7.8	ug/L	1.0	0.50	1		05/23/17 03:19	95-63-6	
1,3,5-Trimethylbenzene	2.9	ug/L	1.0	0.50	1		05/23/17 03:19	108-67-8	
Benzene	1.7	ug/L	1.0	0.50	1		05/23/17 03:19	71-43-2	
Ethylbenzene	8.8	ug/L	1.0	0.50	1		05/23/17 03:19	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		05/23/17 03:19	1634-04-4	
Naphthalene	20.4	ug/L	5.0	2.5	1		05/23/17 03:19	91-20-3	
Toluene	4.1	ug/L	1.0	0.50	1		05/23/17 03:19	108-88-3	
m&p-Xylene	10.6	ug/L	2.0	1.0	1		05/23/17 03:19	179601-23-1	
o-Xylene	9.8	ug/L	1.0	0.50	1		05/23/17 03:19	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	67-124		1		05/23/17 03:19	1868-53-7	
Toluene-d8 (S)	102	%	80-120		1		05/23/17 03:19	2037-26-5	
4-Bromofluorobenzene (S)	98	%	61-118		1		05/23/17 03:19	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Sample: MW-6/T70 **Lab ID: 40150095028** Collected: 05/16/17 15:20 Received: 05/17/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	499	ug/L	50.0	25.0	50		05/24/17 11:00	95-63-6	
1,3,5-Trimethylbenzene	148	ug/L	50.0	25.0	50		05/24/17 11:00	108-67-8	
Benzene	2380	ug/L	50.0	25.0	50		05/24/17 11:00	71-43-2	
Ethylbenzene	394	ug/L	50.0	25.0	50		05/24/17 11:00	100-41-4	
Methyl-tert-butyl ether	<8.7	ug/L	50.0	8.7	50		05/24/17 11:00	1634-04-4	
Naphthalene	<125	ug/L	250	125	50		05/24/17 11:00	91-20-3	
Toluene	191	ug/L	50.0	25.0	50		05/24/17 11:00	108-88-3	
m&p-Xylene	2010	ug/L	100	50.0	50		05/24/17 11:00	179601-23-1	
o-Xylene	397	ug/L	50.0	25.0	50		05/24/17 11:00	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	67-124		50		05/24/17 11:00	1868-53-7	
Toluene-d8 (S)	100	%	80-120		50		05/24/17 11:00	2037-26-5	
4-Bromofluorobenzene (S)	92	%	61-118		50		05/24/17 11:00	460-00-4	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Sample: TRIP BLANK **Lab ID: 40150095029** Collected: 05/16/17 00:00 Received: 05/17/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		05/19/17 09:59	630-20-6	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	71-55-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		05/19/17 09:59	79-34-5	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		05/19/17 09:59	79-00-5	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		05/19/17 09:59	75-34-3	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		05/19/17 09:59	75-35-4	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		05/19/17 09:59	563-58-6	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		05/19/17 09:59	87-61-6	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	96-18-4	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		05/19/17 09:59	120-82-1	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	95-63-6	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		05/19/17 09:59	96-12-8	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		05/19/17 09:59	106-93-4	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	95-50-1	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		05/19/17 09:59	107-06-2	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		05/19/17 09:59	78-87-5	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	108-67-8	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	541-73-1	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	142-28-9	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	106-46-7	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		05/19/17 09:59	594-20-7	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		05/19/17 09:59	106-43-4	
Benzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		05/19/17 09:59	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		05/19/17 09:59	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		05/19/17 09:59	74-83-9	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		05/19/17 09:59	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		05/19/17 09:59	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	74-87-3	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	124-48-1	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		05/19/17 09:59	74-95-3	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		05/19/17 09:59	75-71-8	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		05/19/17 09:59	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		05/19/17 09:59	98-82-8	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		05/19/17 09:59	1634-04-4	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		05/19/17 09:59	75-09-2	
Naphthalene	<2.5	ug/L	5.0	2.5	1		05/19/17 09:59	91-20-3	
Styrene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	100-42-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	108-88-3	

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Sample: TRIP BLANK **Lab ID: 40150095029** Collected: 05/16/17 00:00 Received: 05/17/17 10:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Trichloroethene	<0.33	ug/L	1.0	0.33	1		05/19/17 09:59	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		05/19/17 09:59	75-69-4	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		05/19/17 09:59	75-01-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		05/19/17 09:59	156-59-2	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	10061-01-5	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		05/19/17 09:59	179601-23-1	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	104-51-8	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	103-65-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	95-47-6	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		05/19/17 09:59	99-87-6	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		05/19/17 09:59	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		05/19/17 09:59	98-06-6	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		05/19/17 09:59	156-60-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		05/19/17 09:59	10061-02-6	
Surrogates									
4-Bromofluorobenzene (S)	80	%	61-118		1		05/19/17 09:59	460-00-4	
Dibromofluoromethane (S)	96	%	67-124		1		05/19/17 09:59	1868-53-7	
Toluene-d8 (S)	99	%	80-120		1		05/19/17 09:59	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

QC Batch: 255985 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40150095001, 40150095002, 40150095003, 40150095004, 40150095005, 40150095006, 40150095007, 40150095008

METHOD BLANK: 1509027 Matrix: Water
Associated Lab Samples: 40150095001, 40150095002, 40150095003, 40150095004, 40150095005, 40150095006, 40150095007, 40150095008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	05/19/17 08:32	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	05/19/17 08:32	
Benzene	ug/L	<0.40	1.0	05/19/17 08:32	
Ethylbenzene	ug/L	<0.39	1.0	05/19/17 08:32	
m&p-Xylene	ug/L	<0.80	2.0	05/19/17 08:32	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	05/19/17 08:32	
Naphthalene	ug/L	<0.42	5.0	05/19/17 08:32	
o-Xylene	ug/L	<0.45	1.0	05/19/17 08:32	
Toluene	ug/L	<0.39	1.0	05/19/17 08:32	
a,a,a-Trifluorotoluene (S)	%	99	85-115	05/19/17 08:32	

LABORATORY CONTROL SAMPLE & LCSD: 1509028

Parameter	Units	1509029								Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	
1,2,4-Trimethylbenzene	ug/L	20	20.5	20.4	102	102	85-115	0	20	
1,3,5-Trimethylbenzene	ug/L	20	19.8	19.7	99	99	85-115	0	20	
Benzene	ug/L	20	21.1	21.0	106	105	85-115	1	20	
Ethylbenzene	ug/L	20	20.8	20.7	104	103	85-115	1	20	
m&p-Xylene	ug/L	40	41.5	41.1	104	103	85-115	1	20	
Methyl-tert-butyl ether	ug/L	20	19.4	18.6	97	93	85-115	4	20	
Naphthalene	ug/L	20	22.7	22.2	113	111	85-122	2	20	
o-Xylene	ug/L	20	20.8	20.6	104	103	85-115	1	20	
Toluene	ug/L	20	20.6	20.5	103	102	85-115	1	20	
a,a,a-Trifluorotoluene (S)	%				100	100	85-115			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

QC Batch: 255978 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
 Associated Lab Samples: 40150095020, 40150095021, 40150095022, 40150095023, 40150095024, 40150095025, 40150095029

METHOD BLANK: 1509016 Matrix: Water
 Associated Lab Samples: 40150095020, 40150095021, 40150095022, 40150095023, 40150095024, 40150095025, 40150095029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	05/18/17 10:06	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	05/18/17 10:06	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	05/18/17 10:06	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	05/18/17 10:06	
1,1-Dichloroethane	ug/L	<0.24	1.0	05/18/17 10:06	
1,1-Dichloroethene	ug/L	<0.41	1.0	05/18/17 10:06	
1,1-Dichloropropene	ug/L	<0.44	1.0	05/18/17 10:06	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	05/18/17 10:06	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	05/18/17 10:06	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	05/18/17 10:06	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/18/17 10:06	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	05/18/17 10:06	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	05/18/17 10:06	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	05/18/17 10:06	
1,2-Dichloroethane	ug/L	<0.17	1.0	05/18/17 10:06	
1,2-Dichloropropane	ug/L	<0.23	1.0	05/18/17 10:06	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/18/17 10:06	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	05/18/17 10:06	
1,3-Dichloropropane	ug/L	<0.50	1.0	05/18/17 10:06	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	05/18/17 10:06	
2,2-Dichloropropane	ug/L	<0.48	1.0	05/18/17 10:06	
2-Chlorotoluene	ug/L	<0.50	1.0	05/18/17 10:06	
4-Chlorotoluene	ug/L	<0.21	1.0	05/18/17 10:06	
Benzene	ug/L	<0.50	1.0	05/18/17 10:06	
Bromobenzene	ug/L	<0.23	1.0	05/18/17 10:06	
Bromochloromethane	ug/L	<0.34	1.0	05/18/17 10:06	
Bromodichloromethane	ug/L	<0.50	1.0	05/18/17 10:06	
Bromoform	ug/L	<0.50	1.0	05/18/17 10:06	
Bromomethane	ug/L	<2.4	5.0	05/18/17 10:06	
Carbon tetrachloride	ug/L	<0.50	1.0	05/18/17 10:06	
Chlorobenzene	ug/L	<0.50	1.0	05/18/17 10:06	
Chloroethane	ug/L	<0.37	1.0	05/18/17 10:06	
Chloroform	ug/L	<2.5	5.0	05/18/17 10:06	
Chloromethane	ug/L	<0.50	1.0	05/18/17 10:06	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	05/18/17 10:06	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	05/18/17 10:06	
Dibromochloromethane	ug/L	<0.50	1.0	05/18/17 10:06	
Dibromomethane	ug/L	<0.43	1.0	05/18/17 10:06	
Dichlorodifluoromethane	ug/L	<0.22	1.0	05/18/17 10:06	
Ethylbenzene	ug/L	<0.50	1.0	05/18/17 10:06	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	05/18/17 10:06	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

METHOD BLANK: 1509016

Matrix: Water

Associated Lab Samples: 40150095020, 40150095021, 40150095022, 40150095023, 40150095024, 40150095025, 40150095029

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	05/18/17 10:06	
m&p-Xylene	ug/L	<1.0	2.0	05/18/17 10:06	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/18/17 10:06	
Methylene Chloride	ug/L	<0.23	1.0	05/18/17 10:06	
n-Butylbenzene	ug/L	<0.50	1.0	05/18/17 10:06	
n-Propylbenzene	ug/L	<0.50	1.0	05/18/17 10:06	
Naphthalene	ug/L	<2.5	5.0	05/18/17 10:06	
o-Xylene	ug/L	<0.50	1.0	05/18/17 10:06	
p-Isopropyltoluene	ug/L	<0.50	1.0	05/18/17 10:06	
sec-Butylbenzene	ug/L	<2.2	5.0	05/18/17 10:06	
Styrene	ug/L	<0.50	1.0	05/18/17 10:06	
tert-Butylbenzene	ug/L	<0.18	1.0	05/18/17 10:06	
Tetrachloroethene	ug/L	<0.50	1.0	05/18/17 10:06	
Toluene	ug/L	<0.50	1.0	05/18/17 10:06	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	05/18/17 10:06	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	05/18/17 10:06	
Trichloroethene	ug/L	<0.33	1.0	05/18/17 10:06	
Trichlorofluoromethane	ug/L	<0.18	1.0	05/18/17 10:06	
Vinyl chloride	ug/L	<0.18	1.0	05/18/17 10:06	
4-Bromofluorobenzene (S)	%	84	61-118	05/18/17 10:06	
Dibromofluoromethane (S)	%	95	67-124	05/18/17 10:06	
Toluene-d8 (S)	%	99	80-120	05/18/17 10:06	

LABORATORY CONTROL SAMPLE: 1509017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.1	98	85-130	
1,1,2,2-Tetrachloroethane	ug/L	50	46.6	93	72-114	
1,1,2-Trichloroethane	ug/L	50	57.0	114	80-120	
1,1-Dichloroethane	ug/L	50	46.3	93	71-132	
1,1-Dichloroethene	ug/L	50	47.4	95	75-130	
1,2,4-Trichlorobenzene	ug/L	50	49.2	98	74-117	
1,2-Dibromo-3-chloropropane	ug/L	50	40.3	81	63-121	
1,2-Dibromoethane (EDB)	ug/L	50	54.8	110	80-120	
1,2-Dichlorobenzene	ug/L	50	51.3	103	80-120	
1,2-Dichloroethane	ug/L	50	46.8	94	79-131	
1,2-Dichloropropane	ug/L	50	57.3	115	80-120	
1,3-Dichlorobenzene	ug/L	50	49.2	98	80-120	
1,4-Dichlorobenzene	ug/L	50	50.8	102	80-120	
Benzene	ug/L	50	56.0	112	81-142	
Bromodichloromethane	ug/L	50	49.0	98	80-120	
Bromoform	ug/L	50	55.0	110	67-122	
Bromomethane	ug/L	50	40.0	80	40-128	
Carbon tetrachloride	ug/L	50	48.6	97	85-133	

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

LABORATORY CONTROL SAMPLE: 1509017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	50	56.1	112	80-120	
Chloroethane	ug/L	50	53.8	108	58-120	
Chloroform	ug/L	50	48.2	96	80-121	
Chloromethane	ug/L	50	46.9	94	40-127	
cis-1,2-Dichloroethene	ug/L	50	54.6	109	83-129	
cis-1,3-Dichloropropene	ug/L	50	48.8	98	80-120	
Dibromochloromethane	ug/L	50	55.2	110	80-120	
Dichlorodifluoromethane	ug/L	50	42.0	84	20-135	
Ethylbenzene	ug/L	50	57.3	115	87-129	
Isopropylbenzene (Cumene)	ug/L	50	58.0	116	82-128	
m&p-Xylene	ug/L	100	124	124	87-130	
Methyl-tert-butyl ether	ug/L	50	46.1	92	66-143	
Methylene Chloride	ug/L	50	43.4	87	73-126	
o-Xylene	ug/L	50	59.5	119	84-130	
Styrene	ug/L	50	59.9	120	82-122	
Tetrachloroethene	ug/L	50	57.2	114	80-120	
Toluene	ug/L	50	60.1	120	82-130	
trans-1,2-Dichloroethene	ug/L	50	46.5	93	75-132	
trans-1,3-Dichloropropene	ug/L	50	52.6	105	71-114	
Trichloroethene	ug/L	50	53.8	108	80-120	
Trichlorofluoromethane	ug/L	50	44.8	90	82-133	
Vinyl chloride	ug/L	50	54.3	109	57-136	
4-Bromofluorobenzene (S)	%			99	61-118	
Dibromofluoromethane (S)	%			92	67-124	
Toluene-d8 (S)	%			103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1509302 1509303

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40150015002 Result	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	<1.0	50	50	48.2	49.2	96	98	85-134	2	20		
1,1,2,2-Tetrachloroethane	ug/L	<1.0	50	50	49.0	51.6	98	103	72-114	5	20		
1,1,2-Trichloroethane	ug/L	<1.0	50	50	54.5	54.7	109	109	80-120	0	20		
1,1-Dichloroethane	ug/L	<1.0	50	50	46.0	45.8	92	92	71-133	0	20		
1,1-Dichloroethene	ug/L	<1.0	50	50	47.3	44.0	95	88	75-136	7	20		
1,2,4-Trichlorobenzene	ug/L	<5.0	50	50	56.7	46.6	113	93	74-117	20	20		
1,2-Dibromo-3-chloropropane	ug/L	<5.0	50	50	43.1	38.8	86	78	63-123	11	20		
1,2-Dibromoethane (EDB)	ug/L	<1.0	50	50	52.2	54.9	104	110	80-120	5	20		
1,2-Dichlorobenzene	ug/L	<1.0	50	50	55.0	51.3	110	103	80-120	7	20		
1,2-Dichloroethane	ug/L	<1.0	50	50	45.0	42.7	90	85	79-131	5	20		
1,2-Dichloropropane	ug/L	<1.0	50	50	54.6	55.4	109	111	80-120	2	20		
1,3-Dichlorobenzene	ug/L	<1.0	50	50	48.5	49.2	97	98	80-120	1	20		
1,4-Dichlorobenzene	ug/L	<1.0	50	50	49.5	50.6	99	101	80-120	2	20		
Benzene	ug/L	<1.0	50	50	54.8	53.3	110	107	81-142	3	20		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1509302		1509303		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40150015002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Bromodichloromethane	ug/L	<1.0	50	50	47.4	48.2	95	96	80-120	2	20		
Bromoform	ug/L	<1.0	50	50	49.7	53.5	99	107	67-122	7	20		
Bromomethane	ug/L	<5.0	50	50	41.7	40.3	83	81	40-129	4	20		
Carbon tetrachloride	ug/L	<1.0	50	50	48.1	49.1	96	98	85-134	2	20		
Chlorobenzene	ug/L	<1.0	50	50	53.7	54.6	107	109	80-120	2	20		
Chloroethane	ug/L	<1.0	50	50	51.5	50.7	103	101	58-120	2	20		
Chloroform	ug/L	<5.0	50	50	47.3	48.3	95	97	80-121	2	20		
Chloromethane	ug/L	<1.0	50	50	42.8	50.8	86	102	40-128	17	20		
cis-1,2-Dichloroethene	ug/L	<1.0	50	50	53.2	54.1	106	108	83-129	2	20		
cis-1,3-Dichloropropene	ug/L	<1.0	50	50	48.0	46.9	96	94	80-120	2	20		
Dibromochloromethane	ug/L	<1.0	50	50	52.2	55.2	104	110	80-120	5	20		
Dichlorodifluoromethane	ug/L	<1.0	50	50	38.3	41.0	77	82	20-146	7	20		
Ethylbenzene	ug/L	<1.0	50	50	54.5	57.3	109	115	87-129	5	20		
Isopropylbenzene (Cumene)	ug/L	<1.0	50	50	51.1	57.7	102	115	80-128	12	20		
m&p-Xylene	ug/L	<2.0	100	100	117	121	117	121	87-130	3	20		
Methyl-tert-butyl ether	ug/L	<1.0	50	50	45.6	44.6	91	89	66-143	2	20		
Methylene Chloride	ug/L	<1.0	50	50	44.0	42.3	88	85	73-127	4	20		
o-Xylene	ug/L	<1.0	50	50	55.1	56.6	110	113	84-130	3	20		
Styrene	ug/L	<1.0	50	50	54.3	58.1	109	116	80-122	7	20		
Tetrachloroethene	ug/L	<1.0	50	50	54.4	53.3	109	107	80-120	2	20		
Toluene	ug/L	<1.0	50	50	59.7	54.2	119	108	82-131	10	20		
trans-1,2-Dichloroethene	ug/L	<1.0	50	50	46.6	44.3	93	89	75-135	5	20		
trans-1,3-Dichloropropene	ug/L	<1.0	50	50	49.4	48.9	99	98	71-120	1	20		
Trichloroethene	ug/L	<1.0	50	50	51.3	53.6	103	107	80-120	4	20		
Trichlorofluoromethane	ug/L	<1.0	50	50	44.1	44.4	88	89	76-150	1	20		
Vinyl chloride	ug/L	<1.0	50	50	48.8	53.6	98	107	56-143	9	20		
4-Bromofluorobenzene (S)	%						85	93	61-118				
Dibromofluoromethane (S)	%						93	94	67-124				
Toluene-d8 (S)	%						101	96	80-120				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

QC Batch: 256061 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40150095009, 40150095010, 40150095011, 40150095012, 40150095013, 40150095014, 40150095015, 40150095016, 40150095017, 40150095018, 40150095019, 40150095026

METHOD BLANK: 1509353 Matrix: Water
Associated Lab Samples: 40150095009, 40150095010, 40150095011, 40150095012, 40150095013, 40150095014, 40150095015, 40150095016, 40150095017, 40150095018, 40150095019, 40150095026

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/19/17 09:16	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/19/17 09:16	
Benzene	ug/L	<0.50	1.0	05/19/17 09:16	
Ethylbenzene	ug/L	<0.50	1.0	05/19/17 09:16	
m&p-Xylene	ug/L	<1.0	2.0	05/19/17 09:16	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/19/17 09:16	
Naphthalene	ug/L	<2.5	5.0	05/19/17 09:16	
o-Xylene	ug/L	<0.50	1.0	05/19/17 09:16	
Toluene	ug/L	<0.50	1.0	05/19/17 09:16	
4-Bromofluorobenzene (S)	%	90	61-118	05/19/17 09:16	
Dibromofluoromethane (S)	%	94	67-124	05/19/17 09:16	
Toluene-d8 (S)	%	96	80-120	05/19/17 09:16	

LABORATORY CONTROL SAMPLE: 1509354

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	50.1	100	81-142	
Ethylbenzene	ug/L	50	53.9	108	87-129	
m&p-Xylene	ug/L	100	116	116	87-130	
Methyl-tert-butyl ether	ug/L	50	51.3	103	66-143	
o-Xylene	ug/L	50	57.2	114	84-130	
Toluene	ug/L	50	53.0	106	82-130	
4-Bromofluorobenzene (S)	%			101	61-118	
Dibromofluoromethane (S)	%			94	67-124	
Toluene-d8 (S)	%			96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1509355 1509356

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40150111006 Result	Spike Conc.	Spike Conc.	MSD Result							
Benzene	ug/L	<0.50	50	50	51.3	48.4	103	97	81-142	6	20	
Ethylbenzene	ug/L	<0.50	50	50	54.4	54.0	109	108	87-129	1	20	
m&p-Xylene	ug/L	<1.0	100	100	117	115	117	115	87-130	2	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	54.1	51.0	108	102	66-143	6	20	
o-Xylene	ug/L	<0.50	50	50	58.1	56.3	116	113	84-130	3	20	
Toluene	ug/L	<0.50	50	50	54.0	52.3	108	105	82-131	3	20	
4-Bromofluorobenzene (S)	%						102	103	61-118			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

Parameter	Units	1509355		1509356		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					
Dibromofluoromethane (S)	%	40150111006				96	94	67-124		
Toluene-d8 (S)	%					98	98	80-120		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

QC Batch: 256183 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40150095027

METHOD BLANK: 1509959 Matrix: Water
Associated Lab Samples: 40150095027

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/22/17 08:49	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/22/17 08:49	
Benzene	ug/L	<0.50	1.0	05/22/17 08:49	
Ethylbenzene	ug/L	<0.50	1.0	05/22/17 08:49	
m&p-Xylene	ug/L	<1.0	2.0	05/22/17 08:49	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/22/17 08:49	
Naphthalene	ug/L	<2.5	5.0	05/22/17 08:49	
o-Xylene	ug/L	<0.50	1.0	05/22/17 08:49	
Toluene	ug/L	<0.50	1.0	05/22/17 08:49	
4-Bromofluorobenzene (S)	%	98	61-118	05/22/17 08:49	
Dibromofluoromethane (S)	%	94	67-124	05/22/17 08:49	
Toluene-d8 (S)	%	100	80-120	05/22/17 08:49	

LABORATORY CONTROL SAMPLE: 1509960

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	53.6	107	81-142	
Ethylbenzene	ug/L	50	54.4	109	87-129	
m&p-Xylene	ug/L	100	105	105	87-130	
Methyl-tert-butyl ether	ug/L	50	41.6	83	66-143	
o-Xylene	ug/L	50	51.0	102	84-130	
Toluene	ug/L	50	50.7	101	82-130	
4-Bromofluorobenzene (S)	%			109	61-118	
Dibromofluoromethane (S)	%			95	67-124	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1511079 1511080

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40150035015 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<1.0	50	50	54.0	55.9	108	112	81-142	3	20	
Ethylbenzene	ug/L	<1.0	50	50	54.6	56.6	109	113	87-129	4	20	
m&p-Xylene	ug/L	<2.0	100	100	105	110	105	109	87-130	4	20	
Methyl-tert-butyl ether	ug/L	<1.0	50	50	45.2	44.0	90	88	66-143	3	20	
o-Xylene	ug/L	<1.0	50	50	52.0	54.7	104	109	84-130	5	20	
Toluene	ug/L	<1.0	50	50	51.2	53.6	102	107	82-131	4	20	
4-Bromofluorobenzene (S)	%						108	108	61-118			
Dibromofluoromethane (S)	%						98	97	67-124			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1511079		1511080									
Parameter	Units	40150035015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						102	100	80-120				

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

QC Batch: 256588 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40150095028

METHOD BLANK: 1512205 Matrix: Water
Associated Lab Samples: 40150095028

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/24/17 08:00	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/24/17 08:00	
Benzene	ug/L	<0.50	1.0	05/24/17 08:00	
Ethylbenzene	ug/L	<0.50	1.0	05/24/17 08:00	
m&p-Xylene	ug/L	<1.0	2.0	05/24/17 08:00	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/24/17 08:00	
Naphthalene	ug/L	<2.5	5.0	05/24/17 08:00	
o-Xylene	ug/L	<0.50	1.0	05/24/17 08:00	
Toluene	ug/L	<0.50	1.0	05/24/17 08:00	
4-Bromofluorobenzene (S)	%	95	61-118	05/24/17 08:00	
Dibromofluoromethane (S)	%	99	67-124	05/24/17 08:00	
Toluene-d8 (S)	%	102	80-120	05/24/17 08:00	

LABORATORY CONTROL SAMPLE: 1512206

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	50	47.4	95	70-130	
1,3,5-Trimethylbenzene	ug/L	50	47.9	96	70-130	
Benzene	ug/L	50	45.6	91	81-142	
Ethylbenzene	ug/L	50	49.7	99	87-129	
m&p-Xylene	ug/L	100	102	102	87-130	
Methyl-tert-butyl ether	ug/L	50	56.1	112	66-143	
Naphthalene	ug/L	50	46.7	93	70-130	
o-Xylene	ug/L	50	50.6	101	84-130	
Toluene	ug/L	50	48.2	96	82-130	
4-Bromofluorobenzene (S)	%			105	61-118	
Dibromofluoromethane (S)	%			99	67-124	
Toluene-d8 (S)	%			102	80-120	

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QUALIFIERS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150095

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150095

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40150095001	MW-12	EPA 8021	255985		
40150095002	MW-13	EPA 8021	255985		
40150095003	PZ-13	EPA 8021	255985		
40150095004	MW-19	EPA 8021	255985		
40150095005	MW-20	EPA 8021	255985		
40150095006	MW-21	EPA 8021	255985		
40150095007	PZ-21	EPA 8021	255985		
40150095008	MW-22	EPA 8021	255985		
40150095020	MW-1/T68	EPA 8260	255978		
40150095021	MW-2/T68	EPA 8260	255978		
40150095022	MW-4/T68	EPA 8260	255978		
40150095023	MW-5/T66	EPA 8260	255978		
40150095024	MW-5/T68	EPA 8260	255978		
40150095025	MW-6/T68	EPA 8260	255978		
40150095029	TRIP BLANK	EPA 8260	255978		
40150095009	MW-1/CW	EPA 8260	256061		
40150095010	MW-2/CW	EPA 8260	256061		
40150095011	MW-3/CW	EPA 8260	256061		
40150095012	MW-4/CW	EPA 8260	256061		
40150095013	MW-1/T40	EPA 8260	256061		
40150095014	MW-2/T40	EPA 8260	256061		
40150095015	MW-4/T40	EPA 8260	256061		
40150095016	MW-5/T40	EPA 8260	256061		
40150095017	MW-6/T40	EPA 8260	256061		
40150095018	MW-7/T40	EPA 8260	256061		
40150095019	TS-1/T40	EPA 8260	256061		
40150095026	MW-2R/T70	EPA 8260	256061		
40150095027	MW-5/T70	EPA 8260	256183		
40150095028	MW-6/T70	EPA 8260	256588		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

UPPER MIDWEST REGION

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



40150095

Company Name:
 Branch/Location:
 Project Contact: *See Page 1*
 Phone:
 Project Number:
 Project Name:
 Project State:
 Sampled By (Print):
 Sampled By (Sign):
 PO #:
 Regulatory Program:

CHAIN OF CUSTODY

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

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

Y/N	N	N	N															
Pick Letter	B	B	B															
Analysis Requested	PVOCs 8220	VOCs 8220	PVOCs/Naph 8220															

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
014	MW-2/T40	5/16	1435	GW
015	MW-4/T40		1435	
016	MW-5/T40		1450	
017	MW-6/T40		1445	
018	MW-7/T40		1450	
019	TS-1/T40		1500	
020	MW-1/T68		1410	
021	MW-2/T68		1420	
022	MW-4/T68		1415	
023	MW-5/T66		1120	
024	MW-5/T68		1140	
025	MW-6/T68		1130	
026	MW-2R/T70		1515	

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

Rush Turnaround Time Requested - Prelims
 (Rush TAT subject to approval/surcharge)
 Date Needed:
 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:	Date/Time:	Received By:	Date/Time:
Relinquished By: <i>FED EX</i>	Date/Time: <i>5-17-17</i>	Received By: <i>Chloe Rose Pace</i>	Date/Time: <i>1030</i>
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

PACE Project No. *40150095*
 Receipt Temp = *ROI* °C
 Sample Receipt pH *OK*
 Adjusted
 Cooler Custody Seal
 Present / Not Present
 Intact / Not Intact

(Please Print Clearly)

UPPER MIDWEST REGION

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

Page 3 of 3

40150095



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	Pick Letter	Analyses Requested
N	B	PVOCs/Naph 8260

Company Name: _____
 Branch/Location: _____
 Project Contact: *see page 1*
 Phone: _____
 Project Number: _____
 Project Name: _____
 Project State: _____
 Sampled By (Print): _____
 Sampled By (Sign): _____
 PO #: _____

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
027	MW-5/T70	5/16	1510	GW
028	MW-6/T70	5/16	1520	GW
029	Temp Blank			

Quote #: _____
 Mail To Contact: _____
 Mail To Company: _____
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40MLV B	
	↓ 2-40MLV B	

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: _____	Date/Time: _____
Relinquished By: <i>FED EX</i>	Date/Time: <i>5-17-17 1030</i>
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____

Received By: _____	Date/Time: _____
Received By: <i>Melissa Reed Pace</i>	Date/Time: <i>5-17-17 1030</i>
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____

PACE Project No. *40150095*

Receipt Temp = *ROT* °C

Sample Receipt pH *8.5*

Cooler Custody Seal Present / Not Present Intact / Not Intact



Sample Condition Upon Receipt

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

Client Name: Gannett Fleming

Project #: WO#: 40150095

Courier: [X] Fed Ex [] UPS [] Client [] Pace Other:

Tracking #: 8718 1210 6424



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

Custody Seal on Samples Present: [] yes [X] no Seals intact: [] yes [] no

Packing Material: [X] Bubble Wrap [X] Bubble Bags [] None [] Other

Thermometer Used SR67 Type of Ice: [X] Wet [] Blue [] Dry [] None [X] Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 0 /Corr: 0.5 Biological Tissue is Frozen: [] yes [] no

Temp Blank Present: [] yes [X] no

Person examining contents:
Date: 5-17-17
Initials: ER

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like Chain of Custody Present, Short Hold Time Analysis, and Sample Labels match COC. Handwritten notes and initials are present throughout.

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 5/17/17

May 23, 2017

Project #34265.003
LDA and T70 (1 of 2)
Reviewed by CCW
5/24/17

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150178

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on May 18, 2017. 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 CALUMET SUPERIOR

Pace Project No.: 40150178

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 CALUMET SUPERIOR
Pace Project No.: 40150178

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40150178001	MW-1R/T70	Water	05/17/17 08:15	05/18/17 09:25
40150178002	MW-3/T70	Water	05/17/17 08:10	05/18/17 09:25
40150178003	MW-4/T70	Water	05/17/17 08:05	05/18/17 09:25
40150178004	LRS-1	Water	05/17/17 10:20	05/18/17 09:25
40150178005	LRS-2	Water	05/17/17 10:25	05/18/17 09:25
40150178006	LRS-3	Water	05/17/17 10:35	05/18/17 09:25
40150178007	LRS-4	Water	05/17/17 10:50	05/18/17 09:25
40150178008	LRS-6	Water	05/17/17 10:30	05/18/17 09:25
40150178009	LRS-7	Water	05/17/17 10:15	05/18/17 09:25
40150178010	MW-1/FL	Water	05/17/17 08:50	05/18/17 09:25
40150178011	MW-2/FL	Water	05/17/17 08:55	05/18/17 09:25
40150178012	MW-3/FL	Water	05/17/17 09:00	05/18/17 09:25
40150178013	MW-9/FL	Water	05/17/17 11:05	05/18/17 09:25
40150178014	MW-10/FL	Water	05/17/17 11:00	05/18/17 09:25
40150178015	MW-11/FL	Water	05/17/17 09:05	05/18/17 09:25
40150178016	MW-13/FL	Water	05/17/17 09:10	05/18/17 09:25
40150178017	MW-14/FL	Water	05/17/17 10:10	05/18/17 09:25
40150178018	TRIP BLANK	Water	05/17/17 00:00	05/18/17 09:25

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150178

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40150178001	MW-1R/T70	EPA 8260	LAP	12	PASI-G
40150178002	MW-3/T70	EPA 8260	LAP	12	PASI-G
40150178003	MW-4/T70	EPA 8260	LAP	12	PASI-G
40150178004	LRS-1	EPA 8021	ALD	9	PASI-G
40150178005	LRS-2	EPA 8021	ALD	9	PASI-G
40150178006	LRS-3	EPA 8021	ALD	9	PASI-G
40150178007	LRS-4	EPA 8021	ALD	9	PASI-G
40150178008	LRS-6	EPA 8021	ALD	9	PASI-G
40150178009	LRS-7	EPA 8021	ALD	9	PASI-G
40150178010	MW-1/FL	EPA 8021	ALD	9	PASI-G
40150178011	MW-2/FL	EPA 8021	ALD	9	PASI-G
40150178012	MW-3/FL	EPA 8021	ALD	9	PASI-G
40150178013	MW-9/FL	EPA 8021	ALD	9	PASI-G
40150178014	MW-10/FL	EPA 8021	ALD	9	PASI-G
40150178015	MW-11/FL	EPA 8021	ALD	9	PASI-G
40150178016	MW-13/FL	EPA 8021	ALD	9	PASI-G
40150178017	MW-14/FL	EPA 8021	ALD	9	PASI-G
40150178018	TRIP BLANK	EPA 8021	ALD	10	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40150178001	MW-1R/T70					
EPA 8260	1,2,4-Trimethylbenzene	1780	ug/L	200	05/23/17 09:15	
EPA 8260	1,3,5-Trimethylbenzene	489	ug/L	200	05/23/17 09:15	
EPA 8260	Benzene	30400	ug/L	200	05/23/17 09:15	
EPA 8260	Ethylbenzene	2020	ug/L	200	05/23/17 09:15	
EPA 8260	Naphthalene	599J	ug/L	1000	05/23/17 09:15	
EPA 8260	Toluene	21100	ug/L	200	05/23/17 09:15	
EPA 8260	m&p-Xylene	10600	ug/L	400	05/23/17 09:15	
EPA 8260	o-Xylene	3680	ug/L	200	05/23/17 09:15	
40150178002	MW-3/T70					
EPA 8260	1,2,4-Trimethylbenzene	0.82J	ug/L	1.0	05/23/17 10:22	
EPA 8260	1,3,5-Trimethylbenzene	7.6	ug/L	1.0	05/23/17 10:22	
EPA 8260	Benzene	56.1	ug/L	1.0	05/23/17 10:22	
EPA 8260	Naphthalene	3.2J	ug/L	5.0	05/23/17 10:22	
EPA 8260	Toluene	0.78J	ug/L	1.0	05/23/17 10:22	
EPA 8260	m&p-Xylene	7.9	ug/L	2.0	05/23/17 10:22	
EPA 8260	o-Xylene	14.7	ug/L	1.0	05/23/17 10:22	
40150178003	MW-4/T70					
EPA 8260	1,2,4-Trimethylbenzene	3050	ug/L	125	05/23/17 07:44	
EPA 8260	1,3,5-Trimethylbenzene	856	ug/L	125	05/23/17 07:44	
EPA 8260	Benzene	16700	ug/L	125	05/23/17 07:44	
EPA 8260	Ethylbenzene	1750	ug/L	125	05/23/17 07:44	
EPA 8260	Naphthalene	584J	ug/L	625	05/23/17 07:44	
EPA 8260	Toluene	25900	ug/L	125	05/23/17 07:44	
EPA 8260	m&p-Xylene	15000	ug/L	250	05/23/17 07:44	
EPA 8260	o-Xylene	6540	ug/L	125	05/23/17 07:44	
40150178004	LRS-1					
EPA 8021	Benzene	118	ug/L	4.0	05/22/17 12:31	
EPA 8021	Ethylbenzene	38.9	ug/L	4.0	05/22/17 12:31	
EPA 8021	Toluene	29.2	ug/L	4.0	05/22/17 12:31	
EPA 8021	1,2,4-Trimethylbenzene	158	ug/L	4.0	05/22/17 12:31	
EPA 8021	1,3,5-Trimethylbenzene	156	ug/L	4.0	05/22/17 12:31	
EPA 8021	m&p-Xylene	377	ug/L	8.0	05/22/17 12:31	
EPA 8021	o-Xylene	279	ug/L	4.0	05/22/17 12:31	
40150178005	LRS-2					
EPA 8021	Benzene	103	ug/L	2.0	05/22/17 12:57	
EPA 8021	Ethylbenzene	23.7	ug/L	2.0	05/22/17 12:57	
EPA 8021	Toluene	2.1	ug/L	2.0	05/22/17 12:57	
EPA 8021	1,2,4-Trimethylbenzene	64.2	ug/L	2.0	05/22/17 12:57	
EPA 8021	1,3,5-Trimethylbenzene	73.1	ug/L	2.0	05/22/17 12:57	
EPA 8021	m&p-Xylene	184	ug/L	4.0	05/22/17 12:57	
EPA 8021	o-Xylene	150	ug/L	2.0	05/22/17 12:57	
40150178006	LRS-3					
EPA 8021	Benzene	2350	ug/L	25.0	05/22/17 10:43	
EPA 8021	Ethylbenzene	85.1	ug/L	25.0	05/22/17 10:43	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Method: EPA 8021

Description: 8021 GCV Short List

Client: Gannett Fleming Inc.

Date: May 23, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150178

Method: EPA 8260
Description: 8260 MSV UST
Client: Gannett Fleming Inc.
Date: May 23, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Sample: MW-1R/T70 **Lab ID: 40150178001** Collected: 05/17/17 08:15 Received: 05/18/17 09:25 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	1780	ug/L	200	100	200		05/23/17 09:15	95-63-6	
1,3,5-Trimethylbenzene	489	ug/L	200	100	200		05/23/17 09:15	108-67-8	
Benzene	30400	ug/L	200	100	200		05/23/17 09:15	71-43-2	
Ethylbenzene	2020	ug/L	200	100	200		05/23/17 09:15	100-41-4	
Methyl-tert-butyl ether	<34.8	ug/L	200	34.8	200		05/23/17 09:15	1634-04-4	
Naphthalene	599J	ug/L	1000	500	200		05/23/17 09:15	91-20-3	
Toluene	21100	ug/L	200	100	200		05/23/17 09:15	108-88-3	
m&p-Xylene	10600	ug/L	400	200	200		05/23/17 09:15	179601-23-1	
o-Xylene	3680	ug/L	200	100	200		05/23/17 09:15	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	67-124		200		05/23/17 09:15	1868-53-7	
Toluene-d8 (S)	93	%	80-120		200		05/23/17 09:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%	61-118		200		05/23/17 09:15	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Sample: MW-3/T70 **Lab ID: 40150178002** Collected: 05/17/17 08:10 Received: 05/18/17 09:25 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	0.82J	ug/L	1.0	0.50	1		05/23/17 10:22	95-63-6	
1,3,5-Trimethylbenzene	7.6	ug/L	1.0	0.50	1		05/23/17 10:22	108-67-8	
Benzene	56.1	ug/L	1.0	0.50	1		05/23/17 10:22	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		05/23/17 10:22	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		05/23/17 10:22	1634-04-4	
Naphthalene	3.2J	ug/L	5.0	2.5	1		05/23/17 10:22	91-20-3	
Toluene	0.78J	ug/L	1.0	0.50	1		05/23/17 10:22	108-88-3	
m&p-Xylene	7.9	ug/L	2.0	1.0	1		05/23/17 10:22	179601-23-1	
o-Xylene	14.7	ug/L	1.0	0.50	1		05/23/17 10:22	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%	67-124		1		05/23/17 10:22	1868-53-7	
Toluene-d8 (S)	95	%	80-120		1		05/23/17 10:22	2037-26-5	
4-Bromofluorobenzene (S)	97	%	61-118		1		05/23/17 10:22	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Sample: MW-4/T70 **Lab ID: 40150178003** Collected: 05/17/17 08:05 Received: 05/18/17 09:25 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
1,2,4-Trimethylbenzene	3050	ug/L	125	62.5	125		05/23/17 07:44	95-63-6	
1,3,5-Trimethylbenzene	856	ug/L	125	62.5	125		05/23/17 07:44	108-67-8	
Benzene	16700	ug/L	125	62.5	125		05/23/17 07:44	71-43-2	
Ethylbenzene	1750	ug/L	125	62.5	125		05/23/17 07:44	100-41-4	
Methyl-tert-butyl ether	<21.8	ug/L	125	21.8	125		05/23/17 07:44	1634-04-4	
Naphthalene	584J	ug/L	625	312	125		05/23/17 07:44	91-20-3	
Toluene	25900	ug/L	125	62.5	125		05/23/17 07:44	108-88-3	
m&p-Xylene	15000	ug/L	250	125	125		05/23/17 07:44	179601-23-1	
o-Xylene	6540	ug/L	125	62.5	125		05/23/17 07:44	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	67-124		125		05/23/17 07:44	1868-53-7	
Toluene-d8 (S)	96	%	80-120		125		05/23/17 07:44	2037-26-5	
4-Bromofluorobenzene (S)	94	%	61-118		125		05/23/17 07:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Sample: TRIP BLANK **Lab ID: 40150178018** Collected: 05/17/17 00:00 Received: 05/18/17 09:25 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.40	ug/L	1.0	0.40	1		05/19/17 12:16	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		05/19/17 12:16	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		05/19/17 12:16	1634-04-4	
Naphthalene	<0.42	ug/L	5.0	0.42	1		05/19/17 12:16	91-20-3	
Toluene	<0.39	ug/L	1.0	0.39	1		05/19/17 12:16	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		05/19/17 12:16	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		05/19/17 12:16	108-67-8	
m&p-Xylene	<0.80	ug/L	2.0	0.80	1		05/19/17 12:16	179601-23-1	
o-Xylene	<0.45	ug/L	1.0	0.45	1		05/19/17 12:16	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	102	%	85-115		1		05/19/17 12:16	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

QC Batch:	256128	Analysis Method:	EPA 8021
QC Batch Method:	EPA 8021	Analysis Description:	8021 GCV BTEX
Associated Lab Samples:	40150178004, 40150178005, 40150178006, 40150178007, 40150178008, 40150178009, 40150178010, 40150178011, 40150178012, 40150178013, 40150178014, 40150178015, 40150178016, 40150178017, 40150178018		

METHOD BLANK:	1509765	Matrix:	Water
Associated Lab Samples:	40150178004, 40150178005, 40150178006, 40150178007, 40150178008, 40150178009, 40150178010, 40150178011, 40150178012, 40150178013, 40150178014, 40150178015, 40150178016, 40150178017, 40150178018		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	05/19/17 08:23	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	05/19/17 08:23	
Benzene	ug/L	<0.40	1.0	05/19/17 08:23	
Ethylbenzene	ug/L	<0.39	1.0	05/19/17 08:23	
m&p-Xylene	ug/L	<0.80	2.0	05/19/17 08:23	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	05/19/17 08:23	
Naphthalene	ug/L	<0.42	5.0	05/19/17 08:23	
o-Xylene	ug/L	<0.45	1.0	05/19/17 08:23	
Toluene	ug/L	<0.39	1.0	05/19/17 08:23	
a,a,a-Trifluorotoluene (S)	%	102	85-115	05/19/17 08:23	

Parameter	Units	1509766		1509767		% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec				
1,2,4-Trimethylbenzene	ug/L	20	20.3	19.8	102	99	85-115	3	20
1,3,5-Trimethylbenzene	ug/L	20	19.9	19.4	99	97	85-115	3	20
Benzene	ug/L	20	21.0	20.8	105	104	85-115	1	20
Ethylbenzene	ug/L	20	20.2	19.9	101	100	85-115	1	20
m&p-Xylene	ug/L	40	40.7	39.6	102	99	85-115	3	20
Methyl-tert-butyl ether	ug/L	20	21.5	21.9	107	109	85-115	2	20
Naphthalene	ug/L	20	18.6	19.8	93	99	85-122	6	20
o-Xylene	ug/L	20	20.4	19.8	102	99	85-115	3	20
Toluene	ug/L	20	20.4	20.3	102	102	85-115	1	20
a,a,a-Trifluorotoluene (S)	%				101	101	85-115		

Parameter	Units	1509922		1509923		% Rec Limits	RPD	Max RPD	Qual		
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
1,2,4-Trimethylbenzene	ug/L	674	200	200	881	920	104	123	11-200	4	20
1,3,5-Trimethylbenzene	ug/L	412	200	200	613	635	100	112	54-142	4	20
Benzene	ug/L	94.0	200	200	290	282	98	94	66-140	3	20
Ethylbenzene	ug/L	84.7	200	200	287	287	101	101	66-143	0	20
m&p-Xylene	ug/L	1440	400	400	1820	1890	95	112	60-141	4	20
Methyl-tert-butyl ether	ug/L	<4.8	200	200	211	203	105	102	70-129	3	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1509922		1509923		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40150178012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Naphthalene	ug/L	78.0	200	200	295	325	108	124	64-129	10	20
o-Xylene	ug/L	288	200	200	486	499	99	106	68-132	3	20
Toluene	ug/L	35.1	200	200	236	234	101	99	76-130	1	20
a,a,a-Trifluorotoluene (S)	%						104	104	85-115		

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR
Pace Project No.: 40150178

QC Batch: 256203 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40150178001, 40150178002, 40150178003

METHOD BLANK: 1510087 Matrix: Water
Associated Lab Samples: 40150178001, 40150178002, 40150178003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	05/22/17 16:26	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	05/22/17 16:26	
Benzene	ug/L	<0.50	1.0	05/22/17 16:26	
Ethylbenzene	ug/L	<0.50	1.0	05/22/17 16:26	
m&p-Xylene	ug/L	<1.0	2.0	05/22/17 16:26	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	05/22/17 16:26	
Naphthalene	ug/L	<2.5	5.0	05/22/17 16:26	
o-Xylene	ug/L	<0.50	1.0	05/22/17 16:26	
Toluene	ug/L	<0.50	1.0	05/22/17 16:26	
4-Bromofluorobenzene (S)	%	82	61-118	05/22/17 16:26	
Dibromofluoromethane (S)	%	112	67-124	05/22/17 16:26	
Toluene-d8 (S)	%	95	80-120	05/22/17 16:26	

LABORATORY CONTROL SAMPLE: 1510088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	50.3	101	81-142	
Ethylbenzene	ug/L	50	59.3	119	87-129	
m&p-Xylene	ug/L	100	118	118	87-130	
Methyl-tert-butyl ether	ug/L	50	42.5	85	66-143	
o-Xylene	ug/L	50	54.6	109	84-130	
Toluene	ug/L	50	56.8	114	82-130	
4-Bromofluorobenzene (S)	%			105	61-118	
Dibromofluoromethane (S)	%			98	67-124	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1510089 1510090

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40150198006 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.50	50	50	51.0	52.9	102	106	81-142	3	20	
Ethylbenzene	ug/L	<0.50	50	50	55.0	57.7	110	115	87-129	5	20	
m&p-Xylene	ug/L	<1.0	100	100	112	115	111	114	87-130	3	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	43.2	44.8	86	90	66-143	3	20	
o-Xylene	ug/L	<0.50	50	50	51.1	53.5	102	107	84-130	5	20	
Toluene	ug/L	<0.50	50	50	58.1	57.9	116	116	82-131	0	20	
4-Bromofluorobenzene (S)	%						106	105	61-118			
Dibromofluoromethane (S)	%						96	101	67-124			

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QUALITY CONTROL DATA

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1510089		1510090									
Parameter	Units	40150198006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						102	100	80-120				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34265.003 CALUMET SUPERIOR

Pace Project No.: 40150178

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40150178004	LRS-1	EPA 8021	256128		
40150178005	LRS-2	EPA 8021	256128		
40150178006	LRS-3	EPA 8021	256128		
40150178007	LRS-4	EPA 8021	256128		
40150178008	LRS-6	EPA 8021	256128		
40150178009	LRS-7	EPA 8021	256128		
40150178010	MW-1/FL	EPA 8021	256128		
40150178011	MW-2/FL	EPA 8021	256128		
40150178012	MW-3/FL	EPA 8021	256128		
40150178013	MW-9/FL	EPA 8021	256128		
40150178014	MW-10/FL	EPA 8021	256128		
40150178015	MW-11/FL	EPA 8021	256128		
40150178016	MW-13/FL	EPA 8021	256128		
40150178017	MW-14/FL	EPA 8021	256128		
40150178018	TRIP BLANK	EPA 8021	256128		
40150178001	MW-1R/T70	EPA 8260	256203		
40150178002	MW-3/T70	EPA 8260	256203		
40150178003	MW-4/T70	EPA 8260	256203		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **Gannett Fleming**
 Branch/Location: **Madison, WI**
 Project Contact: **Cliff Wright**
 Phone: **608 836 1500**
 Project Number: **34265,003**
 Project Name: **Calumet Superior**
 Project State: **WI**
 Sampled By (Print): **Marcus Mussey**
 Sampled By (Sign):

PO #: Regulatory Program:

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW-1R/T70	5/17	815	60
002	MW-3/T70		810	
003	MW-4/T70		805	
004	LRS-1		1020	
005	LRS-2		1025	
006	LRS-3		1035	
007	LRS-4		1050	
008	LRS-6		1030	
009	LRS-7		1015	
010	MW-1/FL		850	
011	MW-2/FL		855	
012	MW-3/FL		900	
013	MW-4/FL		1105	

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:

Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By: Fed Cox	Date/Time: 5/18/17 0935	Received By: Susan Taylor	Date/Time: 5/18/17 0925
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

PACE Project No. **40150178**
 Receipt Temp = **ROT°C**
 Sample Receipt pH **OK / Adjusted**
 Cooler Custody Seal **Present / Not Present**
 Intact / Not Intact



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

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

Y/N	N	N																		
Filtered? (YES/NO)	Pick Letter																			
	B	B																		
	Analyses Requested: PVOCS / Naph 8260 PVOCS 8021																			

Quote #: **Pace 2017**
 Mail To Contact: **Cliff Wright**
 Mail To Company: **Gannett Fleming**
 Mail To Address: **8025 Excelsior Dr. Madison, WI 53717**
 Invoice To Contact: **See**
 Invoice To Company: **See**
 Invoice To Address: **Above**
 Invoice To Phone: **608 836 1500**
 CLIENT COMMENTS: **3-40ml VB**
 LAB COMMENTS (Lab Use Only): **3-40ml VB**
 Profile #

Sample Condition Upon Receipt

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

Pace Analytical
Client Name: Garnett Fleming

Project #: **WO# : 40150178**

Courier: Fed Ex UPS Client Pace Other:
Tracking #: 871812106435



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: N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun
Cooler Temperature: Uncorr: ROT /Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 5-18-17
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	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 <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>014-1-40ml VB no date + time</u>
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	<u>5-18-17 SKW</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions (VOA) coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
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>372</u>	<u>5-18-17 SKW</u>

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

Project Manager Review: Rmk for DM Date: 5/18/17

November 02, 2017

Project #34265.003
Calumet Superior
Reviewed by CCW
11/2/13

Clifford Wright
Gannett Fleming
8025 Excelsior Drive
Madison, WI 53717

RE: Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Dear Clifford Wright:

Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2017. 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: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

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: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40159507001	MW-1/T40	Water	10/25/17 13:20	10/26/17 10:40
40159507002	MW-4/T40	Water	10/25/17 13:10	10/26/17 10:40
40159507003	MW-5/T40	Water	10/25/17 12:50	10/26/17 10:40
40159507004	MW-6/T40	Water	10/25/17 13:00	10/26/17 10:40
40159507005	MW-7/T40	Water	10/25/17 13:05	10/26/17 10:40
40159507006	TS-1/T40	Water	10/25/17 13:15	10/26/17 10:40
40159507007	MW-1/T68	Water	10/25/17 13:40	10/26/17 10:40
40159507008	MW-2/T68	Water	10/25/17 13:45	10/26/17 10:40
40159507009	MW-4/T68	Water	10/25/17 13:30	10/26/17 10:40
40159507010	MW-5/T66	Water	10/25/17 13:50	10/26/17 10:40
40159507011	MW-6/T68	Water	10/25/17 13:55	10/26/17 10:40
40159507012	MW-1R/T70	Water	10/25/17 14:25	10/26/17 10:40
40159507013	MW-2R/T70	Water	10/25/17 14:15	10/26/17 10:40
40159507014	MW-3/T70	Water	10/25/17 14:05	10/26/17 10:40
40159507015	MW-4/T70	Water	10/25/17 14:00	10/26/17 10:40
40159507016	MW-5/T70	Water	10/25/17 14:10	10/26/17 10:40
40159507017	MW-6/T70	Water	10/25/17 14:20	10/26/17 10:40
40159507018	LRS-1	Water	10/25/17 11:00	10/26/17 10:40
40159507019	LRS-2	Water	10/25/17 10:45	10/26/17 10:40
40159507020	LRS-3	Water	10/25/17 11:20	10/26/17 10:40
40159507021	LRS-4	Water	10/25/17 11:25	10/26/17 10:40
40159507022	LRS-6	Water	10/25/17 11:10	10/26/17 10:40
40159507023	LRS-7	Water	10/25/17 10:35	10/26/17 10:40
40159507024	MW-1/FL	Water	10/25/17 10:10	10/26/17 10:40
40159507025	MW-2/FL	Water	10/25/17 10:05	10/26/17 10:40
40159507026	MW-3/FL	Water	10/25/17 13:00	10/26/17 10:40
40159507027	MW-9/FL	Water	10/25/17 11:30	10/26/17 10:40
40159507028	MW-10/FL	Water	10/25/17 11:35	10/26/17 10:40
40159507029	MW-11/FL	Water	10/25/17 10:15	10/26/17 10:40
40159507030	MW-13/FL	Water	10/25/17 10:20	10/26/17 10:40
40159507031	MW-14/FL	Water	10/25/17 10:25	10/26/17 10:40
40159507032	TRIP BLANK	Water	10/25/17 00:00	10/26/17 10:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40159507001	MW-1/T40	EPA 8260	LAP	11	PASI-G
40159507002	MW-4/T40	EPA 8260	LAP	11	PASI-G
40159507003	MW-5/T40	EPA 8260	LAP	11	PASI-G
40159507004	MW-6/T40	EPA 8260	LAP	11	PASI-G
40159507005	MW-7/T40	EPA 8260	LAP	11	PASI-G
40159507006	TS-1/T40	EPA 8260	LAP	11	PASI-G
40159507007	MW-1/T68	EPA 8260	MDS	63	PASI-G
40159507008	MW-2/T68	EPA 8260	MDS	63	PASI-G
40159507009	MW-4/T68	EPA 8260	MDS	63	PASI-G
40159507010	MW-5/T66	EPA 8260	MDS	63	PASI-G
40159507011	MW-6/T68	EPA 8260	HNW	63	PASI-G
40159507012	MW-1R/T70	EPA 8260	LAP	12	PASI-G
40159507013	MW-2R/T70	EPA 8260	LAP	12	PASI-G
40159507014	MW-3/T70	EPA 8260	MDS	12	PASI-G
40159507015	MW-4/T70	EPA 8260	LAP	12	PASI-G
40159507016	MW-5/T70	EPA 8260	MDS	12	PASI-G
40159507017	MW-6/T70	EPA 8260	LAP	12	PASI-G
40159507018	LRS-1	EPA 8021	ALD	9	PASI-G
40159507019	LRS-2	EPA 8021	ALD	9	PASI-G
40159507020	LRS-3	EPA 8021	ALD	9	PASI-G
40159507021	LRS-4	EPA 8021	ALD	9	PASI-G
40159507022	LRS-6	EPA 8021	ALD	9	PASI-G
40159507023	LRS-7	EPA 8021	ALD	9	PASI-G
40159507024	MW-1/FL	EPA 8021	ALD	9	PASI-G
40159507025	MW-2/FL	EPA 8021	ALD	9	PASI-G
40159507026	MW-3/FL	EPA 8021	ALD	9	PASI-G
40159507027	MW-9/FL	EPA 8021	ALD	9	PASI-G
40159507028	MW-10/FL	EPA 8021	ALD	9	PASI-G
40159507029	MW-11/FL	EPA 8021	ALD	9	PASI-G
40159507030	MW-13/FL	EPA 8021	ALD	9	PASI-G
40159507031	MW-14/FL	EPA 8021	ALD	9	PASI-G
40159507032	TRIP BLANK	EPA 8021	ALD	9	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40159507009	MW-4/T68					
EPA 8260	1,2,4-Trimethylbenzene	31.1	ug/L	2.5	10/28/17 12:45	
EPA 8260	1,3,5-Trimethylbenzene	9.5	ug/L	2.5	10/28/17 12:45	
EPA 8260	Benzene	79.6	ug/L	2.5	10/28/17 12:45	
EPA 8260	Ethylbenzene	9.7	ug/L	2.5	10/28/17 12:45	
EPA 8260	Isopropylbenzene (Cumene)	0.43J	ug/L	2.5	10/28/17 12:45	
EPA 8260	Toluene	3.6	ug/L	2.5	10/28/17 12:45	
EPA 8260	m&p-Xylene	25.2	ug/L	5.0	10/28/17 12:45	
EPA 8260	n-Propylbenzene	2.1J	ug/L	2.5	10/28/17 12:45	
EPA 8260	o-Xylene	5.4	ug/L	2.5	10/28/17 12:45	
EPA 8260	sec-Butylbenzene	8.3J	ug/L	12.5	10/28/17 12:45	
40159507010	MW-5/T66					
EPA 8260	1,2,4-Trimethylbenzene	1810	ug/L	125	10/27/17 21:40	
EPA 8260	1,3,5-Trimethylbenzene	554	ug/L	125	10/27/17 21:40	
EPA 8260	1,3-Dichloropropane	244	ug/L	125	10/27/17 21:40	
EPA 8260	Benzene	8790	ug/L	125	10/27/17 21:40	
EPA 8260	Ethylbenzene	2300	ug/L	125	10/27/17 21:40	
EPA 8260	Isopropylbenzene (Cumene)	66.4J	ug/L	125	10/27/17 21:40	
EPA 8260	Toluene	15400	ug/L	125	10/27/17 21:40	
EPA 8260	m&p-Xylene	12400	ug/L	250	10/27/17 21:40	
EPA 8260	n-Propylbenzene	167	ug/L	125	10/27/17 21:40	
EPA 8260	o-Xylene	4850	ug/L	125	10/27/17 21:40	
40159507011	MW-6/T68					
EPA 8260	1,2,4-Trimethylbenzene	2830	ug/L	125	10/30/17 13:39	
EPA 8260	1,2-Dichloroethane	225	ug/L	125	10/30/17 13:39	
EPA 8260	1,3,5-Trimethylbenzene	739	ug/L	125	10/30/17 13:39	
EPA 8260	Benzene	17500	ug/L	125	10/30/17 13:39	
EPA 8260	Ethylbenzene	576	ug/L	125	10/30/17 13:39	
EPA 8260	Toluene	12500	ug/L	125	10/30/17 13:39	
EPA 8260	m&p-Xylene	10900	ug/L	250	10/30/17 13:39	
EPA 8260	o-Xylene	5670	ug/L	125	10/30/17 13:39	
40159507012	MW-1R/T70					
EPA 8260	1,2,4-Trimethylbenzene	1730	ug/L	200	10/27/17 16:38	
EPA 8260	1,3,5-Trimethylbenzene	545	ug/L	200	10/27/17 16:38	
EPA 8260	Benzene	22000	ug/L	200	10/27/17 16:38	
EPA 8260	Ethylbenzene	1410	ug/L	200	10/27/17 16:38	
EPA 8260	Toluene	13900	ug/L	200	10/27/17 16:38	
EPA 8260	m&p-Xylene	8390	ug/L	400	10/27/17 16:38	
EPA 8260	o-Xylene	3030	ug/L	200	10/27/17 16:38	
40159507013	MW-2R/T70					
EPA 8260	1,2,4-Trimethylbenzene	2800	ug/L	250	10/30/17 19:58	
EPA 8260	1,3,5-Trimethylbenzene	878	ug/L	250	10/30/17 19:58	
EPA 8260	Benzene	19800	ug/L	250	10/30/17 19:58	
EPA 8260	Ethylbenzene	2250	ug/L	250	10/30/17 19:58	
EPA 8260	Toluene	28400	ug/L	250	10/30/17 19:58	
EPA 8260	m&p-Xylene	14600	ug/L	500	10/30/17 19:58	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40159507013	MW-2R/T70					
EPA 8260	o-Xylene	6460	ug/L	250	10/30/17 19:58	
40159507014	MW-3/T70					
EPA 8260	1,2,4-Trimethylbenzene	0.62J	ug/L	1.0	10/27/17 20:13	
EPA 8260	Benzene	0.83J	ug/L	1.0	10/27/17 20:13	
EPA 8260	Methyl-tert-butyl ether	108	ug/L	1.0	10/27/17 20:13	
EPA 8260	m&p-Xylene	1.6J	ug/L	2.0	10/27/17 20:13	
EPA 8260	o-Xylene	0.60J	ug/L	1.0	10/27/17 20:13	
40159507015	MW-4/T70					
EPA 8260	1,2,4-Trimethylbenzene	1700	ug/L	200	10/30/17 12:38	
EPA 8260	1,3,5-Trimethylbenzene	448	ug/L	200	10/30/17 12:38	
EPA 8260	Benzene	11100	ug/L	200	10/30/17 12:38	
EPA 8260	Ethylbenzene	954	ug/L	200	10/30/17 12:38	
EPA 8260	Toluene	13600	ug/L	200	10/30/17 12:38	
EPA 8260	m&p-Xylene	8020	ug/L	400	10/30/17 12:38	
EPA 8260	o-Xylene	3700	ug/L	200	10/30/17 12:38	
40159507016	MW-5/T70					
EPA 8260	1,2,4-Trimethylbenzene	46.5	ug/L	1.0	10/27/17 19:51	
EPA 8260	1,3,5-Trimethylbenzene	10.3	ug/L	1.0	10/27/17 19:51	
EPA 8260	Benzene	179	ug/L	1.0	10/27/17 19:51	
EPA 8260	Ethylbenzene	9.9	ug/L	1.0	10/27/17 19:51	
EPA 8260	Naphthalene	17.9	ug/L	5.0	10/27/17 19:51	
EPA 8260	Toluene	1.6	ug/L	1.0	10/27/17 19:51	
EPA 8260	m&p-Xylene	96.7	ug/L	2.0	10/27/17 19:51	
EPA 8260	o-Xylene	40.1	ug/L	1.0	10/27/17 19:51	
40159507017	MW-6/T70					
EPA 8260	1,2,4-Trimethylbenzene	69.1	ug/L	4.0	10/30/17 12:16	
EPA 8260	1,3,5-Trimethylbenzene	19.5	ug/L	4.0	10/30/17 12:16	
EPA 8260	Benzene	350	ug/L	4.0	10/30/17 12:16	
EPA 8260	Ethylbenzene	4.0J	ug/L	4.0	10/30/17 12:16	
EPA 8260	Naphthalene	12.5J	ug/L	20.0	10/30/17 12:16	
EPA 8260	Toluene	12.0	ug/L	4.0	10/30/17 12:16	
EPA 8260	m&p-Xylene	196	ug/L	8.0	10/30/17 12:16	
EPA 8260	o-Xylene	80.4	ug/L	4.0	10/30/17 12:16	
40159507018	LRS-1					
EPA 8021	Benzene	211	ug/L	4.0	10/31/17 20:07	
EPA 8021	Ethylbenzene	58.0	ug/L	4.0	10/31/17 20:07	
EPA 8021	Toluene	28.1	ug/L	4.0	10/31/17 20:07	
EPA 8021	1,2,4-Trimethylbenzene	272	ug/L	4.0	10/31/17 20:07	
EPA 8021	1,3,5-Trimethylbenzene	293	ug/L	4.0	10/31/17 20:07	
EPA 8021	m&p-Xylene	581	ug/L	8.0	10/31/17 20:07	
EPA 8021	o-Xylene	424	ug/L	4.0	10/31/17 20:07	
40159507019	LRS-2					
EPA 8021	Benzene	1790	ug/L	50.0	11/01/17 11:33	
EPA 8021	Ethylbenzene	1400	ug/L	50.0	11/01/17 11:33	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Method: EPA 8021

Description: 8021 GCV Short List

Client: Gannett Fleming Inc.

Date: November 02, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Method: EPA 8260
Description: 8260 MSV
Client: Gannett Fleming Inc.
Date: November 02, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 272177

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40159567004

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

- MSD (Lab ID: 1600920)
 - Chloroethane
 - Trichloroethene

R1: RPD value was outside control limits.

- MSD (Lab ID: 1600920)
 - Bromomethane

QC Batch: 272258

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40159632008

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

- MS (Lab ID: 1601755)
 - Chloroethane
- MSD (Lab ID: 1601756)

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PROJECT NARRATIVE

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Method: EPA 8260

Description: 8260 MSV

Client: Gannett Fleming Inc.

Date: November 02, 2017

QC Batch: 272258

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40159632008

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

- 1,1-Dichloroethane
- Chloroethane

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Method: EPA 8260

Description: 8260 MSV UST

Client: Gannett Fleming Inc.

Date: November 02, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

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

Matrix Spikes:

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

QC Batch: 272089

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 40159544001

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

- MS (Lab ID: 1600424)
 - Toluene
- MSD (Lab ID: 1600425)
 - Toluene

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: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-1R/T70 **Lab ID: 40159507012** Collected: 10/25/17 14:25 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	1730	ug/L	200	100	200		10/27/17 16:38	95-63-6	
1,3,5-Trimethylbenzene	545	ug/L	200	100	200		10/27/17 16:38	108-67-8	
Benzene	22000	ug/L	200	100	200		10/27/17 16:38	71-43-2	
Ethylbenzene	1410	ug/L	200	100	200		10/27/17 16:38	100-41-4	
Methyl-tert-butyl ether	<34.8	ug/L	200	34.8	200		10/27/17 16:38	1634-04-4	
Naphthalene	<500	ug/L	1000	500	200		10/27/17 16:38	91-20-3	
Toluene	13900	ug/L	200	100	200		10/27/17 16:38	108-88-3	
m&p-Xylene	8390	ug/L	400	200	200		10/27/17 16:38	179601-23-1	
o-Xylene	3030	ug/L	200	100	200		10/27/17 16:38	95-47-6	
Surrogates									
Dibromofluoromethane (S)	102	%	67-130		200		10/27/17 16:38	1868-53-7	
Toluene-d8 (S)	98	%	70-130		200		10/27/17 16:38	2037-26-5	
4-Bromofluorobenzene (S)	92	%	61-130		200		10/27/17 16:38	460-00-4	

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-2R/T70 **Lab ID: 40159507013** Collected: 10/25/17 14:15 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	2800	ug/L	250	125	250		10/30/17 19:58	95-63-6	
1,3,5-Trimethylbenzene	878	ug/L	250	125	250		10/30/17 19:58	108-67-8	
Benzene	19800	ug/L	250	125	250		10/30/17 19:58	71-43-2	
Ethylbenzene	2250	ug/L	250	125	250		10/30/17 19:58	100-41-4	
Methyl-tert-butyl ether	<43.6	ug/L	250	43.6	250		10/30/17 19:58	1634-04-4	
Naphthalene	<625	ug/L	1250	625	250		10/30/17 19:58	91-20-3	
Toluene	28400	ug/L	250	125	250		10/30/17 19:58	108-88-3	
m&p-Xylene	14600	ug/L	500	250	250		10/30/17 19:58	179601-23-1	
o-Xylene	6460	ug/L	250	125	250		10/30/17 19:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	67-130		250		10/30/17 19:58	1868-53-7	
Toluene-d8 (S)	97	%	70-130		250		10/30/17 19:58	2037-26-5	
4-Bromofluorobenzene (S)	94	%	61-130		250		10/30/17 19:58	460-00-4	

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-3/T70 **Lab ID: 40159507014** Collected: 10/25/17 14:05 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
1,2,4-Trimethylbenzene	0.62J	ug/L	1.0	0.50	1		10/27/17 20:13	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/27/17 20:13	108-67-8	
Benzene	0.83J	ug/L	1.0	0.50	1		10/27/17 20:13	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/27/17 20:13	100-41-4	
Methyl-tert-butyl ether	108	ug/L	1.0	0.17	1		10/27/17 20:13	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/27/17 20:13	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/27/17 20:13	108-88-3	
m&p-Xylene	1.6J	ug/L	2.0	1.0	1		10/27/17 20:13	179601-23-1	
o-Xylene	0.60J	ug/L	1.0	0.50	1		10/27/17 20:13	95-47-6	
Surrogates									
Dibromofluoromethane (S)	97	%	67-130		1		10/27/17 20:13	1868-53-7	
Toluene-d8 (S)	106	%	70-130		1		10/27/17 20:13	2037-26-5	
4-Bromofluorobenzene (S)	95	%	61-130		1		10/27/17 20:13	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-4/T70 **Lab ID: 40159507015** Collected: 10/25/17 14:00 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	1700	ug/L	200	100	200		10/30/17 12:38	95-63-6	
1,3,5-Trimethylbenzene	448	ug/L	200	100	200		10/30/17 12:38	108-67-8	
Benzene	11100	ug/L	200	100	200		10/30/17 12:38	71-43-2	
Ethylbenzene	954	ug/L	200	100	200		10/30/17 12:38	100-41-4	
Methyl-tert-butyl ether	<34.8	ug/L	200	34.8	200		10/30/17 12:38	1634-04-4	
Naphthalene	<500	ug/L	1000	500	200		10/30/17 12:38	91-20-3	
Toluene	13600	ug/L	200	100	200		10/30/17 12:38	108-88-3	
m&p-Xylene	8020	ug/L	400	200	200		10/30/17 12:38	179601-23-1	
o-Xylene	3700	ug/L	200	100	200		10/30/17 12:38	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	67-130		200		10/30/17 12:38	1868-53-7	
Toluene-d8 (S)	102	%	70-130		200		10/30/17 12:38	2037-26-5	
4-Bromofluorobenzene (S)	96	%	61-130		200		10/30/17 12:38	460-00-4	

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-5/T70 **Lab ID: 40159507016** Collected: 10/25/17 14:10 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	46.5	ug/L	1.0	0.50	1		10/27/17 19:51	95-63-6	
1,3,5-Trimethylbenzene	10.3	ug/L	1.0	0.50	1		10/27/17 19:51	108-67-8	
Benzene	179	ug/L	1.0	0.50	1		10/27/17 19:51	71-43-2	
Ethylbenzene	9.9	ug/L	1.0	0.50	1		10/27/17 19:51	100-41-4	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/27/17 19:51	1634-04-4	
Naphthalene	17.9	ug/L	5.0	2.5	1		10/27/17 19:51	91-20-3	
Toluene	1.6	ug/L	1.0	0.50	1		10/27/17 19:51	108-88-3	
m&p-Xylene	96.7	ug/L	2.0	1.0	1		10/27/17 19:51	179601-23-1	
o-Xylene	40.1	ug/L	1.0	0.50	1		10/27/17 19:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	98	%	67-130		1		10/27/17 19:51	1868-53-7	
Toluene-d8 (S)	105	%	70-130		1		10/27/17 19:51	2037-26-5	
4-Bromofluorobenzene (S)	104	%	61-130		1		10/27/17 19:51	460-00-4	

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: MW-6/T70 **Lab ID: 40159507017** Collected: 10/25/17 14:20 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
1,2,4-Trimethylbenzene	69.1	ug/L	4.0	2.0	4		10/30/17 12:16	95-63-6	
1,3,5-Trimethylbenzene	19.5	ug/L	4.0	2.0	4		10/30/17 12:16	108-67-8	
Benzene	350	ug/L	4.0	2.0	4		10/30/17 12:16	71-43-2	
Ethylbenzene	4.0J	ug/L	4.0	2.0	4		10/30/17 12:16	100-41-4	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		10/30/17 12:16	1634-04-4	
Naphthalene	12.5J	ug/L	20.0	10.0	4		10/30/17 12:16	91-20-3	
Toluene	12.0	ug/L	4.0	2.0	4		10/30/17 12:16	108-88-3	
m&p-Xylene	196	ug/L	8.0	4.0	4		10/30/17 12:16	179601-23-1	
o-Xylene	80.4	ug/L	4.0	2.0	4		10/30/17 12:16	95-47-6	
Surrogates									
Dibromofluoromethane (S)	96	%	67-130		4		10/30/17 12:16	1868-53-7	
Toluene-d8 (S)	103	%	70-130		4		10/30/17 12:16	2037-26-5	
4-Bromofluorobenzene (S)	96	%	61-130		4		10/30/17 12:16	460-00-4	

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ANALYTICAL RESULTS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Sample: TRIP BLANK **Lab ID: 40159507032** Collected: 10/25/17 00:00 Received: 10/26/17 10:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV Short List		Analytical Method: EPA 8021							
Benzene	<0.40	ug/L	1.0	0.40	1		10/31/17 16:42	71-43-2	
Ethylbenzene	<0.39	ug/L	1.0	0.39	1		10/31/17 16:42	100-41-4	
Methyl-tert-butyl ether	<0.48	ug/L	1.0	0.48	1		10/31/17 16:42	1634-04-4	
Toluene	<0.39	ug/L	1.0	0.39	1		10/31/17 16:42	108-88-3	
1,2,4-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		10/31/17 16:42	95-63-6	
1,3,5-Trimethylbenzene	<0.42	ug/L	1.0	0.42	1		10/31/17 16:42	108-67-8	
m&p-Xylene	<0.80	ug/L	2.0	0.80	1		10/31/17 16:42	179601-23-1	
o-Xylene	<0.45	ug/L	1.0	0.45	1		10/31/17 16:42	95-47-6	
Surrogates									
a,a,a-Trifluorotoluene (S)	100	%	85-115		1		10/31/17 16:42	98-08-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

QC Batch: 272425 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: 8021 GCV BTEX
Associated Lab Samples: 40159507018, 40159507019, 40159507020, 40159507021, 40159507022, 40159507023, 40159507024, 40159507025, 40159507026, 40159507027, 40159507028, 40159507029, 40159507030, 40159507031, 40159507032

METHOD BLANK: 1602276 Matrix: Water
Associated Lab Samples: 40159507018, 40159507019, 40159507020, 40159507021, 40159507022, 40159507023, 40159507024, 40159507025, 40159507026, 40159507027, 40159507028, 40159507029, 40159507030, 40159507031, 40159507032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.42	1.0	10/31/17 09:53	
1,3,5-Trimethylbenzene	ug/L	<0.42	1.0	10/31/17 09:53	
Benzene	ug/L	<0.40	1.0	10/31/17 09:53	
Ethylbenzene	ug/L	<0.39	1.0	10/31/17 09:53	
m&p-Xylene	ug/L	<0.80	2.0	10/31/17 09:53	
Methyl-tert-butyl ether	ug/L	<0.48	1.0	10/31/17 09:53	
o-Xylene	ug/L	<0.45	1.0	10/31/17 09:53	
Toluene	ug/L	<0.39	1.0	10/31/17 09:53	
a,a,a-Trifluorotoluene (S)	%	100	85-115	10/31/17 09:53	

LABORATORY CONTROL SAMPLE & LCSD: 1602277 1602278

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.6	20.2	103	101	85-115	2	20	
1,3,5-Trimethylbenzene	ug/L	20	19.9	19.6	100	98	85-115	2	20	
Benzene	ug/L	20	20.3	20.2	101	101	85-115	0	20	
Ethylbenzene	ug/L	20	20.2	19.9	101	99	85-115	2	20	
m&p-Xylene	ug/L	40	40.1	39.1	100	98	85-115	2	20	
Methyl-tert-butyl ether	ug/L	20	19.8	19.7	99	98	85-115	1	20	
o-Xylene	ug/L	20	20.4	19.9	102	100	85-115	3	20	
Toluene	ug/L	20	20.2	20.0	101	100	85-115	1	20	
a,a,a-Trifluorotoluene (S)	%				100	99	85-115			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1603152 1603153

Parameter	Units	40159507023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	<0.42	20	20	20.9	21.8	104	109	11-200	4	20	
1,3,5-Trimethylbenzene	ug/L	<0.42	20	20	20.3	21.1	101	105	54-142	4	20	
Benzene	ug/L	0.49J	20	20	21.9	22.0	107	108	66-140	1	20	
Ethylbenzene	ug/L	<0.39	20	20	21.0	21.5	105	108	66-143	3	20	
m&p-Xylene	ug/L	<0.80	40	40	41.9	43.2	105	108	60-141	3	20	
Methyl-tert-butyl ether	ug/L	<0.48	20	20	20.6	21.2	103	106	70-129	3	20	
o-Xylene	ug/L	<0.45	20	20	21.0	21.7	105	108	68-132	3	20	
Toluene	ug/L	<0.39	20	20	21.6	21.8	108	109	76-130	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1603152		1603153									
Parameter	Units	40159507023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
a,a,a-Trifluorotoluene (S)	%						99	100	85-115				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

QC Batch: 272177 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40159507007, 40159507008, 40159507009, 40159507010

METHOD BLANK: 1600592 Matrix: Water
Associated Lab Samples: 40159507007, 40159507008, 40159507009, 40159507010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/27/17 12:17	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/27/17 12:17	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/27/17 12:17	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/27/17 12:17	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/27/17 12:17	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/27/17 12:17	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/27/17 12:17	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/27/17 12:17	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/27/17 12:17	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/27/17 12:17	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 12:17	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/27/17 12:17	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/27/17 12:17	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/27/17 12:17	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/27/17 12:17	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/27/17 12:17	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 12:17	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/27/17 12:17	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/27/17 12:17	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/27/17 12:17	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/27/17 12:17	
2-Chlorotoluene	ug/L	<0.50	1.0	10/27/17 12:17	
4-Chlorotoluene	ug/L	<0.21	1.0	10/27/17 12:17	
Benzene	ug/L	<0.50	1.0	10/27/17 12:17	
Bromobenzene	ug/L	<0.23	1.0	10/27/17 12:17	
Bromochloromethane	ug/L	<0.34	1.0	10/27/17 12:17	
Bromodichloromethane	ug/L	<0.50	1.0	10/27/17 12:17	
Bromoform	ug/L	<0.50	1.0	10/27/17 12:17	
Bromomethane	ug/L	<2.4	5.0	10/27/17 12:17	
Carbon tetrachloride	ug/L	<0.50	1.0	10/27/17 12:17	
Chlorobenzene	ug/L	<0.50	1.0	10/27/17 12:17	
Chloroethane	ug/L	<0.37	1.0	10/27/17 12:17	
Chloroform	ug/L	<2.5	5.0	10/27/17 12:17	
Chloromethane	ug/L	<0.50	1.0	10/27/17 12:17	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/27/17 12:17	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/27/17 12:17	
Dibromochloromethane	ug/L	<0.50	1.0	10/27/17 12:17	
Dibromomethane	ug/L	<0.43	1.0	10/27/17 12:17	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/27/17 12:17	
Ethylbenzene	ug/L	<0.50	1.0	10/27/17 12:17	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/27/17 12:17	

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

METHOD BLANK: 1600592 Matrix: Water
Associated Lab Samples: 40159507007, 40159507008, 40159507009, 40159507010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/27/17 12:17	
m&p-Xylene	ug/L	<1.0	2.0	10/27/17 12:17	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/27/17 12:17	
Methylene Chloride	ug/L	<0.23	1.0	10/27/17 12:17	
n-Butylbenzene	ug/L	<0.50	1.0	10/27/17 12:17	
n-Propylbenzene	ug/L	<0.50	1.0	10/27/17 12:17	
Naphthalene	ug/L	<2.5	5.0	10/27/17 12:17	
o-Xylene	ug/L	<0.50	1.0	10/27/17 12:17	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/27/17 12:17	
sec-Butylbenzene	ug/L	<2.2	5.0	10/27/17 12:17	
Styrene	ug/L	<0.50	1.0	10/27/17 12:17	
tert-Butylbenzene	ug/L	<0.18	1.0	10/27/17 12:17	
Tetrachloroethene	ug/L	<0.50	1.0	10/27/17 12:17	
Toluene	ug/L	<0.50	1.0	10/27/17 12:17	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/27/17 12:17	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/27/17 12:17	
Trichloroethene	ug/L	<0.33	1.0	10/27/17 12:17	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/27/17 12:17	
Vinyl chloride	ug/L	<0.18	1.0	10/27/17 12:17	
4-Bromofluorobenzene (S)	%	83	61-130	10/27/17 12:17	
Dibromofluoromethane (S)	%	122	67-130	10/27/17 12:17	
Toluene-d8 (S)	%	89	70-130	10/27/17 12:17	

LABORATORY CONTROL SAMPLE: 1600593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	49.6	47.2	95	70-130	
1,1,2,2-Tetrachloroethane	ug/L	49.6	45.1	91	70-130	
1,1,2-Trichloroethane	ug/L	49.6	49.5	100	70-130	
1,1-Dichloroethane	ug/L	49.6	50.9	103	71-132	
1,1-Dichloroethene	ug/L	49.6	46.3	93	75-130	
1,2,4-Trichlorobenzene	ug/L	49.6	41.1	83	70-130	
1,2-Dibromo-3-chloropropane	ug/L	49.6	41.4	83	63-123	
1,2-Dibromoethane (EDB)	ug/L	49.6	48.7	98	70-130	
1,2-Dichlorobenzene	ug/L	49.6	46.1	93	70-130	
1,2-Dichloroethane	ug/L	49.6	40.1	81	70-131	
1,2-Dichloropropane	ug/L	49.6	52.1	105	80-120	
1,3-Dichlorobenzene	ug/L	49.6	46.8	94	70-130	
1,4-Dichlorobenzene	ug/L	49.6	46.7	94	70-130	
Benzene	ug/L	49.6	49.0	99	73-145	
Bromodichloromethane	ug/L	49.6	53.6	108	70-130	
Bromoform	ug/L	49.6	47.5	96	67-130	
Bromomethane	ug/L	50	33.2	66	26-128	
Carbon tetrachloride	ug/L	49.6	51.9	105	70-133	

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

LABORATORY CONTROL SAMPLE: 1600593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	49.6	49.4	100	70-130	
Chloroethane	ug/L	50	46.2	92	58-120	
Chloroform	ug/L	49.6	50.6	102	80-121	
Chloromethane	ug/L	50	22.4	45	40-127	
cis-1,2-Dichloroethene	ug/L	49.6	54.0	109	70-130	
cis-1,3-Dichloropropene	ug/L	49.6	46.9	95	70-130	
Dibromochloromethane	ug/L	49.6	46.1	93	70-130	
Dichlorodifluoromethane	ug/L	50	36.2	72	20-135	
Ethylbenzene	ug/L	49.6	49.6	100	87-129	
Isopropylbenzene (Cumene)	ug/L	49.6	51.1	103	70-130	
m&p-Xylene	ug/L	99.2	106	107	70-130	
Methyl-tert-butyl ether	ug/L	49.6	47.4	96	66-143	
Methylene Chloride	ug/L	49.6	49.1	99	70-130	
o-Xylene	ug/L	49.6	50.8	102	70-130	
Styrene	ug/L	49.6	50.0	101	70-130	
Tetrachloroethene	ug/L	49.6	45.4	92	70-130	
Toluene	ug/L	49.6	50.4	102	82-130	
trans-1,2-Dichloroethene	ug/L	49.6	52.1	105	75-132	
trans-1,3-Dichloropropene	ug/L	49.6	42.8	86	70-130	
Trichloroethene	ug/L	49.6	53.4	108	70-130	
Trichlorofluoromethane	ug/L	50	43.5	87	76-133	
Vinyl chloride	ug/L	50	40.6	81	57-136	
4-Bromofluorobenzene (S)	%			110	61-130	
Dibromofluoromethane (S)	%			100	67-130	
Toluene-d8 (S)	%			94	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1600919 1600920

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40159567004	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	<10.0	992	992	1030	1060	103	107	70-134	3	20		
1,1,2,2-Tetrachloroethane	ug/L	<5.0	992	992	937	989	94	100	70-130	5	20		
1,1,2-Trichloroethane	ug/L	<3.9	992	992	991	1020	100	103	70-130	3	20		
1,1-Dichloroethane	ug/L	<4.8	992	992	1070	1010	108	102	71-133	5	20		
1,1-Dichloroethene	ug/L	<8.2	992	992	972	988	98	100	75-136	2	20		
1,2,4-Trichlorobenzene	ug/L	<44.2	992	992	794	868	80	88	70-130	9	20		
1,2-Dibromo-3-chloropropane	ug/L	<43.3	992	992	808	839	81	85	63-123	4	20		
1,2-Dibromoethane (EDB)	ug/L	<3.6	992	992	994	1060	100	106	70-130	6	20		
1,2-Dichlorobenzene	ug/L	<10.0	992	992	864	966	87	97	70-130	11	20		
1,2-Dichloroethane	ug/L	<3.4	992	992	950	962	96	97	70-131	1	20		
1,2-Dichloropropane	ug/L	<4.7	992	992	1070	1100	107	111	80-120	3	20		
1,3-Dichlorobenzene	ug/L	<10.0	992	992	933	959	94	97	70-130	3	20		
1,4-Dichlorobenzene	ug/L	<10.0	992	992	939	992	95	100	70-130	5	20		
Benzene	ug/L	<10.0	992	992	1110	1100	112	111	73-145	1	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

Parameter	Units	40159567004		1600919		1600920		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromodichloromethane	ug/L	<10.0	992	992	1060	1130	107	114	70-130	7	20		
Bromoform	ug/L	<10.0	992	992	979	995	99	100	67-130	2	20		
Bromomethane	ug/L	<48.7	1000	1000	793	1000	79	99	26-129	23	20	R1	
Carbon tetrachloride	ug/L	<10.0	992	992	1110	1130	112	114	70-134	2	20		
Chlorobenzene	ug/L	<10.0	992	992	1020	1040	102	105	70-130	2	20		
Chloroethane	ug/L	<7.5	1000	1000	1040	1250	104	125	58-120	18	20	M1	
Chloroform	ug/L	<50.0	992	992	1070	1140	107	115	80-121	7	20		
Chloromethane	ug/L	<10.0	1000	1000	581	636	58	64	40-128	9	20		
cis-1,2-Dichloroethene	ug/L	<5.1	992	992	1020	1100	103	110	70-130	7	20		
cis-1,3-Dichloropropene	ug/L	<10.0	992	992	986	1030	99	104	70-130	4	20		
Dibromochloromethane	ug/L	<10.0	992	992	938	977	95	99	70-130	4	20		
Dichlorodifluoromethane	ug/L	<4.5	1000	1000	928	937	93	94	20-146	1	20		
Ethylbenzene	ug/L	<10.0	992	992	1020	1030	103	104	87-129	1	20		
Isopropylbenzene (Cumene)	ug/L	<2.9	992	992	1020	1060	103	107	70-130	3	20		
m&p-Xylene	ug/L	<20.0	1980	1980	2140	2250	108	113	70-130	5	20		
Methyl-tert-butyl ether	ug/L	<3.5	992	992	1020	997	103	101	66-143	2	20		
Methylene Chloride	ug/L	<4.7	992	992	1020	1030	102	103	70-130	1	20		
o-Xylene	ug/L	<10.0	992	992	1040	1070	105	108	70-130	3	20		
Styrene	ug/L	<10.0	992	992	1020	1070	103	108	70-130	5	20		
Tetrachloroethene	ug/L	<10.0	992	992	924	965	93	97	70-130	4	20		
Toluene	ug/L	10.1J	992	992	1020	1060	102	106	82-131	4	20		
trans-1,2-Dichloroethene	ug/L	<5.1	992	992	1050	988	106	100	75-135	6	20		
trans-1,3-Dichloropropene	ug/L	<4.6	992	992	873	920	88	93	70-130	5	20		
Trichloroethene	ug/L	4610	992	992	5600	5910	99	131	70-130	5	20	M1	
Trichlorofluoromethane	ug/L	<3.7	1000	1000	978	1080	98	108	76-150	10	20		
Vinyl chloride	ug/L	<3.5	1000	1000	1010	1070	101	107	56-143	5	20		
4-Bromofluorobenzene (S)	%						108	103	61-130				
Dibromofluoromethane (S)	%						107	103	67-130				
Toluene-d8 (S)	%						97	95	70-130				

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

QC Batch: 272258

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV

Associated Lab Samples: 40159507011

METHOD BLANK: 1601679

Matrix: Water

Associated Lab Samples: 40159507011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/30/17 08:47	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/30/17 08:47	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/30/17 08:47	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/30/17 08:47	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/30/17 08:47	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/30/17 08:47	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/30/17 08:47	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/30/17 08:47	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/30/17 08:47	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/30/17 08:47	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/30/17 08:47	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/30/17 08:47	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/30/17 08:47	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/30/17 08:47	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/30/17 08:47	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/30/17 08:47	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/30/17 08:47	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/30/17 08:47	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/30/17 08:47	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/30/17 08:47	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/30/17 08:47	
2-Chlorotoluene	ug/L	<0.50	1.0	10/30/17 08:47	
4-Chlorotoluene	ug/L	<0.21	1.0	10/30/17 08:47	
Benzene	ug/L	<0.50	1.0	10/30/17 08:47	
Bromobenzene	ug/L	<0.23	1.0	10/30/17 08:47	
Bromochloromethane	ug/L	<0.34	1.0	10/30/17 08:47	
Bromodichloromethane	ug/L	<0.50	1.0	10/30/17 08:47	
Bromoform	ug/L	<0.50	1.0	10/30/17 08:47	
Bromomethane	ug/L	<2.4	5.0	10/30/17 08:47	
Carbon tetrachloride	ug/L	<0.50	1.0	10/30/17 08:47	
Chlorobenzene	ug/L	<0.50	1.0	10/30/17 08:47	
Chloroethane	ug/L	<0.37	1.0	10/30/17 08:47	
Chloroform	ug/L	<2.5	5.0	10/30/17 08:47	
Chloromethane	ug/L	<0.50	1.0	10/30/17 08:47	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/30/17 08:47	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/30/17 08:47	
Dibromochloromethane	ug/L	<0.50	1.0	10/30/17 08:47	
Dibromomethane	ug/L	<0.43	1.0	10/30/17 08:47	
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/30/17 08:47	
Ethylbenzene	ug/L	<0.50	1.0	10/30/17 08:47	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/30/17 08:47	

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

METHOD BLANK: 1601679

Matrix: Water

Associated Lab Samples: 40159507011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/30/17 08:47	
m&p-Xylene	ug/L	<1.0	2.0	10/30/17 08:47	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/30/17 08:47	
Methylene Chloride	ug/L	<0.23	1.0	10/30/17 08:47	
n-Butylbenzene	ug/L	<0.50	1.0	10/30/17 08:47	
n-Propylbenzene	ug/L	<0.50	1.0	10/30/17 08:47	
Naphthalene	ug/L	<2.5	5.0	10/30/17 08:47	
o-Xylene	ug/L	<0.50	1.0	10/30/17 08:47	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/30/17 08:47	
sec-Butylbenzene	ug/L	<2.2	5.0	10/30/17 08:47	
Styrene	ug/L	<0.50	1.0	10/30/17 08:47	
tert-Butylbenzene	ug/L	<0.18	1.0	10/30/17 08:47	
Tetrachloroethene	ug/L	<0.50	1.0	10/30/17 08:47	
Toluene	ug/L	<0.50	1.0	10/30/17 08:47	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/30/17 08:47	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/30/17 08:47	
Trichloroethene	ug/L	<0.33	1.0	10/30/17 08:47	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/30/17 08:47	
Vinyl chloride	ug/L	<0.18	1.0	10/30/17 08:47	
4-Bromofluorobenzene (S)	%	89	61-130	10/30/17 08:47	
Dibromofluoromethane (S)	%	122	67-130	10/30/17 08:47	
Toluene-d8 (S)	%	100	70-130	10/30/17 08:47	

LABORATORY CONTROL SAMPLE: 1601680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	49.6	53.5	108	70-130	
1,1,2,2-Tetrachloroethane	ug/L	49.6	51.1	103	70-130	
1,1,2-Trichloroethane	ug/L	49.6	52.3	105	70-130	
1,1-Dichloroethane	ug/L	49.6	62.7	126	71-132	
1,1-Dichloroethene	ug/L	49.6	51.9	105	75-130	
1,2,4-Trichlorobenzene	ug/L	49.6	37.5	76	70-130	
1,2-Dibromo-3-chloropropane	ug/L	49.6	46.4	94	63-123	
1,2-Dibromoethane (EDB)	ug/L	49.6	48.5	98	70-130	
1,2-Dichlorobenzene	ug/L	49.6	46.1	93	70-130	
1,2-Dichloroethane	ug/L	49.6	61.0	123	70-131	
1,2-Dichloropropane	ug/L	49.6	55.0	111	80-120	
1,3-Dichlorobenzene	ug/L	49.6	44.4	89	70-130	
1,4-Dichlorobenzene	ug/L	49.6	48.9	98	70-130	
Benzene	ug/L	49.6	52.7	106	73-145	
Bromodichloromethane	ug/L	49.6	52.1	105	70-130	
Bromoform	ug/L	49.6	47.4	96	67-130	
Bromomethane	ug/L	50	47.4	95	26-128	
Carbon tetrachloride	ug/L	49.6	54.9	111	70-133	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

LABORATORY CONTROL SAMPLE: 1601680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/L	49.6	50.0	101	70-130	
Chloroethane	ug/L	50	58.6	117	58-120	
Chloroform	ug/L	49.6	55.3	112	80-121	
Chloromethane	ug/L	50	41.4	83	40-127	
cis-1,2-Dichloroethene	ug/L	49.6	50.0	101	70-130	
cis-1,3-Dichloropropene	ug/L	49.6	43.9	88	70-130	
Dibromochloromethane	ug/L	49.6	48.2	97	70-130	
Dichlorodifluoromethane	ug/L	50	32.3	65	20-135	
Ethylbenzene	ug/L	49.6	49.7	100	87-129	
Isopropylbenzene (Cumene)	ug/L	49.6	48.0	97	70-130	
m&p-Xylene	ug/L	99.2	99.1	100	70-130	
Methyl-tert-butyl ether	ug/L	49.6	53.7	108	66-143	
Methylene Chloride	ug/L	49.6	55.0	111	70-130	
o-Xylene	ug/L	49.6	47.3	95	70-130	
Styrene	ug/L	49.6	48.6	98	70-130	
Tetrachloroethene	ug/L	49.6	47.7	96	70-130	
Toluene	ug/L	49.6	49.2	99	82-130	
trans-1,2-Dichloroethene	ug/L	49.6	55.2	111	75-132	
trans-1,3-Dichloropropene	ug/L	49.6	42.3	85	70-130	
Trichloroethene	ug/L	49.6	50.0	101	70-130	
Trichlorofluoromethane	ug/L	50	66.7	133	76-133	
Vinyl chloride	ug/L	50	49.3	99	57-136	
4-Bromofluorobenzene (S)	%			105	61-130	
Dibromofluoromethane (S)	%			115	67-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1601755 1601756

Parameter	Units	MS 40159632008		MSD		MS 1601756		MSD 1601756		% Rec Limits	RPD	Max RPD	Qual
		Spike Conc.	Result	Spike Conc.	Result	MS Result	MSD Result	MS % Rec	MSD % Rec				
1,1,1-Trichloroethane	ug/L	<2.0	198	198	198	216	224	109	113	70-134	4	20	
1,1,2,2-Tetrachloroethane	ug/L	<1.0	198	198	198	201	213	101	108	70-130	6	20	
1,1,2-Trichloroethane	ug/L	<0.79	198	198	198	214	217	108	109	70-130	1	20	
1,1-Dichloroethane	ug/L	<0.97	198	198	198	256	267	129	135	71-133	5	20	M1
1,1-Dichloroethene	ug/L	<1.6	198	198	198	212	223	107	112	75-136	5	20	
1,2,4-Trichlorobenzene	ug/L	<8.8	198	198	198	189	192	95	97	70-130	2	20	
1,2-Dibromo-3-chloropropane	ug/L	<8.7	198	198	198	203	219	103	110	63-123	7	20	
1,2-Dibromoethane (EDB)	ug/L	<0.71	198	198	198	197	205	99	103	70-130	4	20	
1,2-Dichlorobenzene	ug/L	<2.0	198	198	198	191	197	96	99	70-130	3	20	
1,2-Dichloroethane	ug/L	<0.67	198	198	198	248	257	125	129	70-131	3	20	
1,2-Dichloropropane	ug/L	<0.93	198	198	198	222	227	112	115	80-120	2	20	
1,3-Dichlorobenzene	ug/L	<2.0	198	198	198	190	195	96	98	70-130	3	20	
1,4-Dichlorobenzene	ug/L	<2.0	198	198	198	194	198	98	100	70-130	2	20	
Benzene	ug/L	165	198	198	198	370	381	103	109	73-145	3	20	

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1601755		1601756		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40159632008 Result	MS Spike Conc.	MSD Spike Conc.									
Bromodichloromethane	ug/L	<2.0	198	198	208	212	105	107	70-130	2	20		
Bromoform	ug/L	<2.0	198	198	192	189	97	95	67-130	2	20		
Bromomethane	ug/L	<9.7	200	200	210	229	105	114	26-129	8	20		
Carbon tetrachloride	ug/L	<2.0	198	198	222	228	112	115	70-134	3	20		
Chlorobenzene	ug/L	<2.0	198	198	202	202	102	102	70-130	0	20		
Chloroethane	ug/L	<1.5	200	200	255	254	128	127	58-120	1	20	M1	
Chloroform	ug/L	<10.0	198	198	224	232	113	117	80-121	3	20		
Chloromethane	ug/L	<2.0	200	200	175	195	88	98	40-128	11	20		
cis-1,2-Dichloroethene	ug/L	<1.0	198	198	200	210	101	106	70-130	5	20		
cis-1,3-Dichloropropene	ug/L	<2.0	198	198	179	191	90	96	70-130	7	20		
Dibromochloromethane	ug/L	<2.0	198	198	195	192	98	97	70-130	2	20		
Dichlorodifluoromethane	ug/L	<0.90	200	200	122	133	61	67	20-146	9	20		
Ethylbenzene	ug/L	377	198	198	594	579	110	102	87-129	3	20		
Isopropylbenzene (Cumene)	ug/L	34.7	198	198	241	242	104	105	70-130	0	20		
m&p-Xylene	ug/L	7.7J	397	397	406	412	100	102	70-130	1	20		
Methyl-tert-butyl ether	ug/L	<0.70	198	198	219	236	110	119	66-143	7	20		
Methylene Chloride	ug/L	<0.93	198	198	224	237	113	119	70-130	6	20		
o-Xylene	ug/L	66.9	198	198	270	269	102	102	70-130	0	20		
Styrene	ug/L	<2.0	198	198	199	199	100	100	70-130	0	20		
Tetrachloroethene	ug/L	<2.0	198	198	192	193	97	97	70-130	0	20		
Toluene	ug/L	<2.0	198	198	201	202	100	101	82-131	1	20		
trans-1,2-Dichloroethene	ug/L	<1.0	198	198	224	235	113	119	75-135	5	20		
trans-1,3-Dichloropropene	ug/L	<0.92	198	198	175	183	88	92	70-130	4	20		
Trichloroethene	ug/L	<1.3	198	198	202	208	102	105	70-130	3	20		
Trichlorofluoromethane	ug/L	<0.74	200	200	266	277	133	139	76-150	4	20		
Vinyl chloride	ug/L	<0.70	200	200	202	223	101	112	56-143	10	20		
4-Bromofluorobenzene (S)	%						103	102	61-130				
Dibromofluoromethane (S)	%						114	114	67-130				
Toluene-d8 (S)	%						103	102	70-130				

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

QC Batch: 272086	Analysis Method: EPA 8260
QC Batch Method: EPA 8260	Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159507001, 40159507002	

METHOD BLANK: 1600210 Matrix: Water

Associated Lab Samples: 40159507001, 40159507002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 08:36	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 08:36	
Benzene	ug/L	<0.50	1.0	10/27/17 08:36	
Ethylbenzene	ug/L	<0.50	1.0	10/27/17 08:36	
m&p-Xylene	ug/L	<1.0	2.0	10/27/17 08:36	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/27/17 08:36	
o-Xylene	ug/L	<0.50	1.0	10/27/17 08:36	
Toluene	ug/L	<0.50	1.0	10/27/17 08:36	
4-Bromofluorobenzene (S)	%	91	61-130	10/27/17 08:36	
Dibromofluoromethane (S)	%	98	67-130	10/27/17 08:36	
Toluene-d8 (S)	%	101	70-130	10/27/17 08:36	

LABORATORY CONTROL SAMPLE: 1600211

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	46.5	94	73-145	
Ethylbenzene	ug/L	49.6	53.2	107	87-129	
m&p-Xylene	ug/L	99.2	107	108	70-130	
Methyl-tert-butyl ether	ug/L	49.6	50.5	102	66-143	
o-Xylene	ug/L	49.6	52.9	107	70-130	
Toluene	ug/L	49.6	49.7	100	82-130	
4-Bromofluorobenzene (S)	%			98	61-130	
Dibromofluoromethane (S)	%			103	67-130	
Toluene-d8 (S)	%			97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

QC Batch: 272089 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40159507014, 40159507015, 40159507016, 40159507017

METHOD BLANK: 1600220 Matrix: Water
 Associated Lab Samples: 40159507014, 40159507015, 40159507016, 40159507017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 09:09	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 09:09	
Benzene	ug/L	<0.50	1.0	10/27/17 09:09	
Ethylbenzene	ug/L	<0.50	1.0	10/27/17 09:09	
m&p-Xylene	ug/L	<1.0	2.0	10/27/17 09:09	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/27/17 09:09	
Naphthalene	ug/L	<2.5	5.0	10/27/17 09:09	
o-Xylene	ug/L	<0.50	1.0	10/27/17 09:09	
Toluene	ug/L	<0.50	1.0	10/27/17 09:09	
4-Bromofluorobenzene (S)	%	93	61-130	10/27/17 09:09	
Dibromofluoromethane (S)	%	109	67-130	10/27/17 09:09	
Toluene-d8 (S)	%	102	70-130	10/27/17 09:09	

LABORATORY CONTROL SAMPLE: 1600221

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	53.4	108	73-145	
Ethylbenzene	ug/L	49.6	50.3	101	87-129	
m&p-Xylene	ug/L	99.2	99.4	100	70-130	
Methyl-tert-butyl ether	ug/L	49.6	44.7	90	66-143	
o-Xylene	ug/L	49.6	50.0	101	70-130	
Toluene	ug/L	49.6	50.3	101	82-130	
4-Bromofluorobenzene (S)	%			102	61-130	
Dibromofluoromethane (S)	%			100	67-130	
Toluene-d8 (S)	%			108	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1600424 1600425

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40159544001 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	0.46 mg/L	496	496	947	991	99	107	73-145	5	20
Ethylbenzene	ug/L	0.46 mg/L	496	496	971	980	103	105	87-129	1	20
m&p-Xylene	ug/L	2470	992	992	3270	3410	80	94	70-130	4	20
Methyl-tert-butyl ether	ug/L	<0.0017 mg/L	496	496	476	456	96	92	66-143	4	20
o-Xylene	ug/L	1020	496	496	1500	1530	96	103	70-130	2	20
Toluene	ug/L	2.3 mg/L	496	496	2640	2610	78	72	82-131	1	20 M1
4-Bromofluorobenzene (S)	%						109	107	61-130		

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1600424		1600425		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40159544001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Dibromofluoromethane (S)	%					96	97	67-130			
Toluene-d8 (S)	%					109	106	70-130			

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

QC Batch: 272105 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159507005, 40159507006, 40159507012

METHOD BLANK: 1600270 Matrix: Water
Associated Lab Samples: 40159507005, 40159507006, 40159507012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 08:18	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/27/17 08:18	
Benzene	ug/L	<0.50	1.0	10/27/17 08:18	
Ethylbenzene	ug/L	<0.50	1.0	10/27/17 08:18	
m&p-Xylene	ug/L	<1.0	2.0	10/27/17 08:18	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/27/17 08:18	
Naphthalene	ug/L	<2.5	5.0	10/27/17 08:18	
o-Xylene	ug/L	<0.50	1.0	10/27/17 08:18	
Toluene	ug/L	<0.50	1.0	10/27/17 08:18	
4-Bromofluorobenzene (S)	%	90	61-130	10/27/17 08:18	
Dibromofluoromethane (S)	%	102	67-130	10/27/17 08:18	
Toluene-d8 (S)	%	97	70-130	10/27/17 08:18	

LABORATORY CONTROL SAMPLE: 1600271

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	51.9	105	73-145	
Ethylbenzene	ug/L	49.6	54.0	109	87-129	
m&p-Xylene	ug/L	99.2	111	112	70-130	
Methyl-tert-butyl ether	ug/L	49.6	51.4	104	66-143	
o-Xylene	ug/L	49.6	54.5	110	70-130	
Toluene	ug/L	49.6	52.9	107	82-130	
4-Bromofluorobenzene (S)	%			98	61-130	
Dibromofluoromethane (S)	%			102	67-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1600272 1600273

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40159524001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.50	49.6	49.6	54.1	56.7	109	114	73-145	5	20	
Ethylbenzene	ug/L	<0.50	49.6	49.6	55.0	58.2	111	117	87-129	6	20	
m&p-Xylene	ug/L	<1.0	99.2	99.2	113	119	114	119	70-130	5	20	
Methyl-tert-butyl ether	ug/L	<0.17	49.6	49.6	54.6	55.3	110	111	66-143	1	20	
o-Xylene	ug/L	<0.50	49.6	49.6	55.2	58.0	111	117	70-130	5	20	
Toluene	ug/L	<0.50	49.6	49.6	53.1	56.5	107	114	82-131	6	20	
4-Bromofluorobenzene (S)	%						97	100	61-130			
Dibromofluoromethane (S)	%						104	106	67-130			

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1600272		1600273									
Parameter	Units	40159524001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						94	96	70-130				

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR
Pace Project No.: 40159507

QC Batch: 272282 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159507003, 40159507004, 40159507013

METHOD BLANK: 1601757 Matrix: Water
Associated Lab Samples: 40159507003, 40159507004, 40159507013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/30/17 12:25	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/30/17 12:25	
Benzene	ug/L	<0.50	1.0	10/30/17 12:25	
Ethylbenzene	ug/L	<0.50	1.0	10/30/17 12:25	
m&p-Xylene	ug/L	<1.0	2.0	10/30/17 12:25	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/30/17 12:25	
Naphthalene	ug/L	<2.5	5.0	10/30/17 12:25	
o-Xylene	ug/L	<0.50	1.0	10/30/17 12:25	
Toluene	ug/L	<0.50	1.0	10/30/17 12:25	
4-Bromofluorobenzene (S)	%	89	61-130	10/30/17 12:25	
Dibromofluoromethane (S)	%	99	67-130	10/30/17 12:25	
Toluene-d8 (S)	%	100	70-130	10/30/17 12:25	

LABORATORY CONTROL SAMPLE: 1601758

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	46.5	94	73-145	
Ethylbenzene	ug/L	49.6	55.1	111	87-129	
m&p-Xylene	ug/L	99.2	106	107	70-130	
Methyl-tert-butyl ether	ug/L	49.6	47.6	96	66-143	
o-Xylene	ug/L	49.6	54.7	110	70-130	
Toluene	ug/L	49.6	51.5	104	82-130	
4-Bromofluorobenzene (S)	%			101	61-130	
Dibromofluoromethane (S)	%			101	67-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1601962 1601963

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40159608021 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<1.0	49.6	49.6	47.5	47.9	96	97	73-145	1	20	
Ethylbenzene	ug/L	<1.0	49.6	49.6	56.6	56.9	114	115	87-129	1	20	
m&p-Xylene	ug/L	<2.0	99.2	99.2	118	115	119	116	70-130	3	20	
Methyl-tert-butyl ether	ug/L	<1.0	49.6	49.6	51.8	51.8	104	104	66-143	0	20	
o-Xylene	ug/L	<1.0	49.6	49.6	57.8	55.9	116	113	70-130	3	20	
Toluene	ug/L	<1.0	49.6	49.6	51.8	50.6	104	102	82-131	2	20	
4-Bromofluorobenzene (S)	%						99	104	61-130			
Dibromofluoromethane (S)	%						102	101	67-130			

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QUALITY CONTROL DATA

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1601962		1601963									
Parameter	Units	40159608021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Toluene-d8 (S)	%						97	97	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

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

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 34625.003 CALUMET SUPERIOR

Pace Project No.: 40159507

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40159507018	LRS-1	EPA 8021	272425		
40159507019	LRS-2	EPA 8021	272425		
40159507020	LRS-3	EPA 8021	272425		
40159507021	LRS-4	EPA 8021	272425		
40159507022	LRS-6	EPA 8021	272425		
40159507023	LRS-7	EPA 8021	272425		
40159507024	MW-1/FL	EPA 8021	272425		
40159507025	MW-2/FL	EPA 8021	272425		
40159507026	MW-3/FL	EPA 8021	272425		
40159507027	MW-9/FL	EPA 8021	272425		
40159507028	MW-10/FL	EPA 8021	272425		
40159507029	MW-11/FL	EPA 8021	272425		
40159507030	MW-13/FL	EPA 8021	272425		
40159507031	MW-14/FL	EPA 8021	272425		
40159507032	TRIP BLANK	EPA 8021	272425		
40159507007	MW-1/T68	EPA 8260	272177		
40159507008	MW-2/T68	EPA 8260	272177		
40159507009	MW-4/T68	EPA 8260	272177		
40159507010	MW-5/T66	EPA 8260	272177		
40159507011	MW-6/T68	EPA 8260	272258		
40159507001	MW-1/T40	EPA 8260	272086		
40159507002	MW-4/T40	EPA 8260	272086		
40159507003	MW-5/T40	EPA 8260	272282		
40159507004	MW-6/T40	EPA 8260	272282		
40159507005	MW-7/T40	EPA 8260	272105		
40159507006	TS-1/T40	EPA 8260	272105		
40159507012	MW-1R/T70	EPA 8260	272105		
40159507013	MW-2R/T70	EPA 8260	272282		
40159507014	MW-3/T70	EPA 8260	272089		
40159507015	MW-4/T70	EPA 8260	272089		
40159507016	MW-5/T70	EPA 8260	272089		
40159507017	MW-6/T70	EPA 8260	272089		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: Gannett Fleming
 Branch/Location: Madison, WI
 Project Contact: Cliff Wright
 Phone: 608 836 1500
 Project Number: 34625.003
 Project Name: Calumet Superior
 Project State: WI
 Sampled By (Print): Marcus Mussey
 Sampled By (Sign): [Signature]
 PO #:

Regulatory Program:



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

40159507

CHAIN OF CUSTODY

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

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

Y/N	N	N	N									
Pick Letter	B	B	B									
Analyses Requested	PYOCs	VOCs	PVOC/Naph									
	8260	8260	8260									
	X											

Quote #:
 Mail To Contact:
 Mail To Company:
 Mail To Address: 8025 Excelsior Dr Madison, WI 53717
 Invoice To Contact:
 Invoice To Company:
 Invoice To Address:
 Invoice To Phone:
 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
 SI = Sludge WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
001	MW-1/T40	10/25	1320	GW
002	MW-4/T40		1310	
003	MW-5/T40		1250	
004	MW-6/T40		1300	
005	MW-7/T40		1305	
006	TS-1/T40		1315	
007	MW-1/T68		1340	
008	MW-2/T68		1345	
009	MW-4/T68		1330	
010	MW-5/T66		1350	
011	MW-6/T68		1355	
012	MW-1R/T70		1425	
013	MW-2R/T70		1415	

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

Relinquished By: [Signature] Date/Time: 1630
 Received By: Fedex Date/Time:

Transmit Prelim Rush Results by (complete what you want): Fedex
 Relinquished By: [Signature] Date/Time: 10/26/17 1040
 Received By: [Signature] Date/Time: 10/26/17 1040

Relinquished By: Date/Time: Received By: Date/Time:

Relinquished By: Date/Time: Received By: Date/Time:

Relinquished By: Date/Time: Received By: Date/Time:

Relinquished By: Date/Time: Received By: Date/Time:

Relinquished By: Date/Time: Received By: Date/Time:

PACE Project No. 40159507
 Receipt Temp = 20 °C
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present
 Intact / Not Intact

(Please Print Clearly)

Company Name: _____

Branch/Location: _____

Project Contact: *See page 1*

Phone: _____

Project Number: _____

Project Name: _____

Project State: *I*

Sampled By (Print): _____

Sampled By (Sign): _____

PO #: _____

Regulatory Program: _____



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

Page 2 of 3

40159507

Page 71 of 73

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

Y/N	Pick Letter	Analyses Requested
<i>N</i>	<i>B</i>	<i>PVOC/Nuph. 8260</i>
		<i>PVOC 8021</i>

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX	Filter	Y/N	Pick Letter	Analyses Requested	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
		DATE	TIME								
<i>014</i>	<i>MW-3/T70</i>	<i>10/25</i>	<i>1405</i>	<i>GW</i>				<i>X</i>		<i>3-40mlvB</i>	
<i>015</i>	<i>MW-4/T70</i>		<i>1400</i>								
<i>016</i>	<i>MW-5/T70</i>		<i>1410</i>								
<i>017</i>	<i>MW-6/T70</i>		<i>1420</i>								
<i>018</i>	<i>LRS-1</i>		<i>1100</i>					<i>X</i>			
<i>019</i>	<i>LRS-2</i>		<i>1045</i>								
<i>020</i>	<i>LRS-3</i>		<i>1120</i>								
<i>021</i>	<i>LRS-4</i>		<i>1125</i>								
<i>022</i>	<i>LRS-6</i>		<i>1110</i>								
<i>023</i>	<i>LRS-7</i>		<i>1035</i>								
<i>024</i>	<i>MW-1/FL</i>		<i>1010</i>								
<i>025</i>	<i>MW-2/FL</i>		<i>1005</i>								
<i>026</i>	<i>MW-3/FL</i>		<i>1000</i>								

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By: <i>[Signature]</i>	Date/Time: <i>10/30</i>	Received By: _____	Date/Time: _____	PACE Project No. <i>40159507</i> Receipt Temp = <i>20</i> °C Sample Receipt pH OK / Adjusted Cooler Custody Seal Present / Not Present Intact / Not Intact	
	Transmit Prelim Rush Results by (complete what you want): <i>Fedex 10/26/17 1040</i>	Relinquished By: _____	Date/Time: _____	Received By: <i>[Signature]</i>		Date/Time: <i>10/26/17 1040</i>
	Email #1:	Relinquished By: _____	Date/Time: _____	Received By: _____		Date/Time: _____
	Email #2:	Relinquished By: _____	Date/Time: _____	Received By: _____		Date/Time: _____
Telephone:	Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____		
Fax:	Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____		
Samples on HOLD are subject to special pricing and release of liability		Relinquished By: _____	Date/Time: _____	Received By: _____	Date/Time: _____	

C019a(27Jun2006)

Version 6.0 06/14/06

(Please Print Clearly)



40159507

Company Name: _____
 Branch/Location: _____
 Project Contact: *See*
 Phone: _____
 Project Number: *page 1*
 Project Name: *I*
 Project State: _____
 Sampled By (Print): _____
 Sampled By (Sign): _____
 PO #: _____
 Regulatory Program: _____

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	Pick Letter	Analyses Requested	COLLECTION		MATRIX
			DATE	TIME	
N	B	PVOGS 8021	10/25	1130	GW
				1135	
				1015	
				1020	
				1025	

Quote #: _____
 Mail To Contact: _____
 Mail To Company: _____
 Mail To Address: _____
 Invoice To Contact: _____
 Invoice To Company: _____
 Invoice To Address: _____
 Invoice To Phone: _____

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	3-40ml v B	
	2-40ml v B	

PACE LAB #	CLIENT FIELD ID	COLLECTION		MATRIX
		DATE	TIME	
027	MW-9/ET FL	10/25	1130	GW
028	MW-10/ET FL		1135	
029	MW-11/FL		1015	
030	MW-13/FL		1020	
031	MW-14/FL		1025	
032	Trip Blank			

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: <i>[Signature]</i>	Date/Time: 10/26/17 1630
Relinquished By: <i>Edex</i>	Date/Time: 10/26/17 1040
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____
Relinquished By: _____	Date/Time: _____

Received By: <i>[Signature]</i>	Date/Time: 10/24/17 1040
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____
Received By: _____	Date/Time: _____

PACE Project No. 40159507

Receipt Temp = *RD* °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present Intact / Not Intact



Sample Condition Upon Receipt

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

Project #: WO#: 40159507

Client Name: Garnett Fleming

Courier: Fed Ex UPS Client Pace Other:

Tracking #: 812058142914



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

Cooler Temperature Uncorr: /Corr: RDI Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

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

Person examining contents:
Date: 10/26/17
Initials: [Signature]

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like Chain of Custody Present, Short Hold Time Analysis, Rush Turn Around Time Requested, Sufficient Volume, Containers Intact, Sample Labels match COC, and Trip Blank Present.

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

Project Manager Review: [Signature] Date: 10/26/17