

**From:** [Heinze, Cody W - DNR](#)  
**To:** [Honea, William](#)  
**Subject:** RE: Ludington Street Project 02-38591174 & 15-38-591306  
**Date:** Friday, April 12, 2024 12:56:00 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

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Hi Bill,

Per our discussion today, the department has reviewed the topsoil data and determined the material suitable for used in the cap.

Please note, the table provided to the department does not have the current cumulative cPAH risk number. This number has been updated from  $5 \times 10^{-6}$  to  $1 \times 10^{-5}$ . Below are a few links that discuss the change:

[PowerPoint Presentation \(wisconsin.gov\)](#)

[Slide 1 \(wisconsin.gov\)](#)

Let me know if you hare not able to open the link, I can send them via attachment.

Thanks!

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Cody W. Heinze** (he, him, his)

Phone: (920) 883-9383

[codyw.heinze@wisconsin.gov](mailto:codyw.heinze@wisconsin.gov)

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**From:** Honea, William <HoneaW@AyresAssociates.com>  
**Sent:** Thursday, April 4, 2024 4:21 PM  
**To:** Heinze, Cody W - DNR <codyw.heinze@wisconsin.gov>  
**Subject:** RE: Ludington Street Project 02-38591174 & 15-38-591306

**CAUTION: This email originated from outside the organization.  
Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Hi Cody,

Attached are the topsoil test results for the receiving site. All three samples were analyzed for RCRA metals, PAHs, and VOCs. There were no metal or VOC exceedances, but PAHs did exceed non-industrial RCLs. I also evaluated the results using the cPAH calculator, but one sample, TS-2, was still above the  $5.0E-6$  risk level. The plan is to keep as much of this material onsite as possible but some may

need to be landfilled to make room for the Ludington Street spoils. As an alternative, would the DNR allow the reuse of topsoil that passes the cPAH calculator risk level in the cap?

Thanks  
Bill

**Bill Honea, PG | Geologist**

Office: 920.498.1200 | Direct: 920.327.7815

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**From:** Honea, William

**Sent:** Tuesday, March 19, 2024 4:07 PM

**To:** Heinze, Cody W - DNR <[codyw.heinze@wisconsin.gov](mailto:codyw.heinze@wisconsin.gov)>

**Subject:** Ludington Street Project 02-38591174 & 15-38-591306

Good afternoon Cody,

As we discussed during our phone conversation last week, work has commenced at the Ludington Street material management site. The contractor is making good progress and is expected to complete the clearing and grubbing of the site by the end of this week.

If possible the contractor would like to reuse topsoil as part of the site cap. We hadn't previously tested the topsoil, so I visited the site last week to assess the situation. These are the key findings from my visit:

1. **Topsoil Quantity:** Approximately 150 yards of topsoil (the top 4 inches) have been stripped from half of the site. The contractor has stockpiled this topsoil on the property.
2. **Topsoil Condition:** Upon inspection, the topsoil appeared to be in good condition. No staining or odors were observed.
3. **Soil Sampling:** I collected three soil samples from the topsoil stockpile and submitted them to the lab for analysis of volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and RCRA metals. We will share the results with you as soon as they become available.

Additionally, the City is moving forward with the site investigation. We have attached the proposed scope of work for your reference. The proposed testing plan aims to delineate the extent of the fill layer. Based on the information we have, it appears to be an "area-wide" issue that likely extends beyond the property boundaries. Our objective at each proposed boring location is to drill through the fill and reach the underlying native sediments. Near Ludington Street, these native sediments are likely 12 feet below ground surface (bgs) or less, while along the south side of the site, they may extend up to 20 feet bgs. For your reference, we have included a site map that highlights the test pit sampling results and indicates the locations of the proposed borings. Yellow markers represent the proposed boring locations, while red markers indicate former test pit locations.

Please feel free to reach out if you have any questions.

Thanks



**Bill Honea, PG | Geologist**

Office: 920.498.1200 | Direct: [920.327.7815](tel:920.327.7815)

3376 Packerland Drive | Ashwaubenon, WI 54115

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**Soil Analyte Detection Summary**

Ludington Street  
Receiving Site

					<i>Receiving Site Topsoil Testing</i>				
					TS-1	TS-2	TS-3		
					3/13/2024	3/13/2024	3/13/2024		
					Stockpile	Stockpile	Stockpile		
					Topsoil	Topsoil	Topsoil		
					<b>NR 720 Soil Cleanup Standards</b>				
					<b>Industrial Direct Contact</b>	<b>Non-Industrial Direct Contact</b>	<b>Protection of Groundwater</b>	<b>Background Threshold Value</b>	
<b>Metals (mg/Kg)</b>	Arsenic	3.0	0.677	0.584	8	2.5 J	2.7 J	2.9	
	Barium	100,000	15,300	164.8	364	36.7	39.5	43.9	
	Cadmium	985	71.1	0.752	1	<0.16	<0.16	0.17 J	
	Chromium	100,000	100,000	360,000	44	11.9	11.2	10.2	
	Lead	800	400	27	52	33	25.8	38.7	
	Mercury	3.13	3.13	0.208		0.062	0.075	0.12	
<b>PAHs (mg/kg)</b>	1-Methylnaphthalene	72.7	17.6	NS	NS	<0.0119	<0.0148	0.0249 J	
	2-Methylnaphthalene	3,010	239	NS	NS	0.0120 J	<0.0148	0.0346 J	
	Acenaphthene	45,200	3,590	NS	NS	<0.0106	<0.0131	<0.0124	
	Acenaphthylene	NS	NS	NS	NS	0.0459 J	0.0442 J	0.0286 J	
	Anthracene	100,000	17,900	197	NS	0.0445 J	0.0477 J	0.0373 J	
	Benzo(a)anthracene	20.8	1.14	NS	NS	0.199	0.27	0.252	
	Benzo(a)pyrene	2.11	0.115	0.47	NS	<b>0.312</b>	<b>0.447</b>	<b>0.357</b>	
	Benzo(b)fluoranthene	21.1	1.15	0.4781	NS	0.411	<u>0.557</u>	<u>0.544</u>	
	Benzo(g,h,i)perylene	NS	NS	NS	NS	0.299	0.443	0.371	
	Benzo(k)fluoranthene	211	11.5	NS	NS	0.156	0.194	0.201	
	Chrysene	2,110	115	0.1442	NS	<u>0.241</u>	<u>0.317</u>	<u>0.315</u>	
	Dibenz(a,h)anthracene	2.11	0.115	NS	NS	0.0497 J	0.0815 J	0.0787 J	
	Fluoranthene	30,100	2,390	88.9	NS	0.449	0.488	0.621	
	Fluorene	30,100	2,390	14.8	NS	0.0144 J	<0.0121	<0.0114	
	Indeno(1,2,3-cd)pyrene	21.1	1.15	NS	NS	0.204	0.285	0.26	
	Naphthalene	24.1	5.52	0.6582	NS	0.0237 J	0.0309 J	0.0376 J	
	Phenanthrene	NS	NS	NS	NS	0.166	0.162	0.21	
	Pyrene	22,600	1,790	55	NS	0.364	0.434	0.466	
	Number of Protection of Groundwater Exceedances		NA	0	NA	NA	0	0	0
	Number of Non-Industrial Direct Contact Exceedances		NA	0	NA	NA	1	1	1
Non-Industrial Cumulative Hazard Quotient		NA	1.0	NA	NA	0.063	0.078	0.067	
Non-Industrial Cumulative Cancer Risk		NA	1.0E-05	NA	NA	5.0E-06	6.9E-06	5.7E-06	
NR 722 Cumulative cPAH Risk		NA	5.0E-06	NA	NA	3.9E-06	<b>5.6E-06</b>	4.7E-06	

Notes: < Value less than laboratory limit of detection. J - Value between laboratory limit of detection and limit of quantitation. NR 720 Soil Standards updated December 2018. NA - not analyzed. NS - no standard. ND - none detected. Underlined italic values are greater than protection of groundwater standards. **Bold** values are greater than non-industrial direct contact standards. **Bold underlined** values are greater than industrial direct contact standards. Background threshold values from USGS Report at <http://pubs.usgs.gov/sir/2011/5202>. 1,2-dibromo-3-chloropropane was not detected at the site but the laboratory limit of detection are greater than cleanup standards, as a result these compounds were excluded from cumulative exceedance calculations.



March 27, 2024

Bill Honea  
AYRES & ASSOCIATES, INC.  
3376 Packerland Avenue  
De Pere, WI 54115

RE: Project: MARINETTE; LUDINGTON ST.  
Pace Project No.: 40275474

Dear Bill Honea:

Enclosed are the analytical results for sample(s) received by the laboratory on March 14, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

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

- Pace Analytical Services - Green Bay

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

Sincerely,

A handwritten signature in black ink that reads "Dan Milewsky".

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

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

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### **Pace Analytical Services Green Bay**

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-21-8

Virginia VELAP Certification ID: 11873

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-21-00008

Federal Fish & Wildlife Permit #: 51774A

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: MARINETTE; LUDINGTON ST.  
Pace Project No.: 40275474

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40275474001	TS-1	Solid	03/13/24 13:45	03/14/24 09:00
40275474002	TS-2	Solid	03/13/24 13:55	03/14/24 09:00
40275474003	TS-3	Solid	03/13/24 14:05	03/14/24 09:00

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### SAMPLE ANALYTE COUNT

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40275474001	TS-1	EPA 6010D	SIS	7	PASI-G
		EPA 7471	RZA	1	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	SRG	1	PASI-G
40275474002	TS-2	EPA 6010D	SIS	7	PASI-G
		EPA 7471	RZA	1	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	SRG	1	PASI-G
40275474003	TS-3	EPA 6010D	SIS	7	PASI-G
		EPA 7471	RZA	1	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	SRG	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-1 Lab ID: 40275474001 Collected: 03/13/24 13:45 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010D MET ICP</b>									
Analytical Method: EPA 6010D Preparation Method: EPA 3050B									
Pace Analytical Services - Green Bay									
Arsenic	2.5J	mg/kg	3.1	1.8	1	03/19/24 05:38	03/19/24 15:06	7440-38-2	
Barium	36.7	mg/kg	0.61	0.18	1	03/19/24 05:38	03/19/24 15:06	7440-39-3	M0
Cadmium	<0.16	mg/kg	0.61	0.16	1	03/19/24 05:38	03/19/24 15:06	7440-43-9	
Chromium	11.9	mg/kg	1.2	0.34	1	03/19/24 05:38	03/19/24 15:06	7440-47-3	
Lead	33.0	mg/kg	2.4	0.73	1	03/19/24 05:38	03/19/24 15:06	7439-92-1	
Selenium	<1.6	mg/kg	4.9	1.6	1	03/19/24 05:38	03/19/24 15:06	7782-49-2	
Silver	<0.38	mg/kg	1.2	0.38	1	03/19/24 05:38	03/19/24 15:06	7440-22-4	
<b>7471 Mercury</b>									
Analytical Method: EPA 7471 Preparation Method: EPA 7471									
Pace Analytical Services - Green Bay									
Mercury	0.062	mg/kg	0.039	0.011	1	03/26/24 08:30	03/26/24 12:15	7439-97-6	
<b>8270E MSSV PAH by SIM</b>									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546									
Pace Analytical Services - Green Bay									
Acenaphthene	<10.6	ug/kg	81.8	10.6	4	03/25/24 08:27	03/25/24 21:28	83-32-9	
Acenaphthylene	45.9J	ug/kg	81.8	10.3	4	03/25/24 08:27	03/25/24 21:28	208-96-8	
Anthracene	44.5J	ug/kg	81.8	10.1	4	03/25/24 08:27	03/25/24 21:28	120-12-7	
Benzo(a)anthracene	199	ug/kg	81.8	10.6	4	03/25/24 08:27	03/25/24 21:28	56-55-3	
Benzo(a)pyrene	312	ug/kg	81.8	9.3	4	03/25/24 08:27	03/25/24 21:28	50-32-8	
Benzo(b)fluoranthene	411	ug/kg	81.8	11.4	4	03/25/24 08:27	03/25/24 21:28	205-99-2	
Benzo(g,h,i)perylene	299	ug/kg	81.8	14.4	4	03/25/24 08:27	03/25/24 21:28	191-24-2	
Benzo(k)fluoranthene	156	ug/kg	81.8	10.5	4	03/25/24 08:27	03/25/24 21:28	207-08-9	
Chrysene	241	ug/kg	81.8	15.4	4	03/25/24 08:27	03/25/24 21:28	218-01-9	
Dibenz(a,h)anthracene	49.7J	ug/kg	81.8	11.3	4	03/25/24 08:27	03/25/24 21:28	53-70-3	
Fluoranthene	449	ug/kg	81.8	9.7	4	03/25/24 08:27	03/25/24 21:28	206-44-0	
Fluorene	14.4J	ug/kg	81.8	9.8	4	03/25/24 08:27	03/25/24 21:28	86-73-7	
Indeno(1,2,3-cd)pyrene	204	ug/kg	81.8	17.0	4	03/25/24 08:27	03/25/24 21:28	193-39-5	
1-Methylnaphthalene	<11.9	ug/kg	81.8	11.9	4	03/25/24 08:27	03/25/24 21:28	90-12-0	
2-Methylnaphthalene	12.0J	ug/kg	81.8	12.0	4	03/25/24 08:27	03/25/24 21:28	91-57-6	
Naphthalene	23.7J	ug/kg	81.8	8.0	4	03/25/24 08:27	03/25/24 21:28	91-20-3	
Phenanthrene	166	ug/kg	81.8	9.4	4	03/25/24 08:27	03/25/24 21:28	85-01-8	
Pyrene	364	ug/kg	81.8	12.0	4	03/25/24 08:27	03/25/24 21:28	129-00-0	
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	51	%	39-120		4	03/25/24 08:27	03/25/24 21:28	321-60-8	
Terphenyl-d14 (S)	53	%	36-120		4	03/25/24 08:27	03/25/24 21:28	1718-51-0	
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
Benzene	<17.3	ug/kg	29.0	17.3	1	03/20/24 09:00	03/22/24 17:50	71-43-2	
Bromobenzene	<28.3	ug/kg	72.5	28.3	1	03/20/24 09:00	03/22/24 17:50	108-86-1	
Bromochloromethane	<19.9	ug/kg	72.5	19.9	1	03/20/24 09:00	03/22/24 17:50	74-97-5	
Bromodichloromethane	<17.3	ug/kg	72.5	17.3	1	03/20/24 09:00	03/22/24 17:50	75-27-4	
Bromoform	<319	ug/kg	362	319	1	03/20/24 09:00	03/22/24 17:50	75-25-2	
Bromomethane	<102	ug/kg	362	102	1	03/20/24 09:00	03/22/24 17:50	74-83-9	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-1 Lab ID: 40275474001 Collected: 03/13/24 13:45 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Med Level Normal List</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay							
n-Butylbenzene	<33.2	ug/kg	72.5	33.2	1	03/20/24 09:00	03/22/24 17:50	104-51-8	
sec-Butylbenzene	<24.9	ug/kg	72.5	24.9	1	03/20/24 09:00	03/22/24 17:50	135-98-8	
tert-Butylbenzene	<22.8	ug/kg	72.5	22.8	1	03/20/24 09:00	03/22/24 17:50	98-06-6	
Carbon tetrachloride	<15.9	ug/kg	72.5	15.9	1	03/20/24 09:00	03/22/24 17:50	56-23-5	
Chlorobenzene	<8.7	ug/kg	72.5	8.7	1	03/20/24 09:00	03/22/24 17:50	108-90-7	
Chloroethane	<30.6	ug/kg	362	30.6	1	03/20/24 09:00	03/22/24 17:50	75-00-3	
Chloroform	<51.9	ug/kg	362	51.9	1	03/20/24 09:00	03/22/24 17:50	67-66-3	
Chloromethane	<27.5	ug/kg	72.5	27.5	1	03/20/24 09:00	03/22/24 17:50	74-87-3	
2-Chlorotoluene	<23.5	ug/kg	72.5	23.5	1	03/20/24 09:00	03/22/24 17:50	95-49-8	
4-Chlorotoluene	<27.5	ug/kg	72.5	27.5	1	03/20/24 09:00	03/22/24 17:50	106-43-4	
1,2-Dibromo-3-chloropropane	<56.3	ug/kg	362	56.3	1	03/20/24 09:00	03/22/24 17:50	96-12-8	
Dibromochloromethane	<248	ug/kg	362	248	1	03/20/24 09:00	03/22/24 17:50	124-48-1	
1,2-Dibromoethane (EDB)	<19.9	ug/kg	72.5	19.9	1	03/20/24 09:00	03/22/24 17:50	106-93-4	
Dibromomethane	<21.5	ug/kg	72.5	21.5	1	03/20/24 09:00	03/22/24 17:50	74-95-3	
1,2-Dichlorobenzene	<22.5	ug/kg	72.5	22.5	1	03/20/24 09:00	03/22/24 17:50	95-50-1	
1,3-Dichlorobenzene	<19.9	ug/kg	72.5	19.9	1	03/20/24 09:00	03/22/24 17:50	541-73-1	
1,4-Dichlorobenzene	<19.9	ug/kg	72.5	19.9	1	03/20/24 09:00	03/22/24 17:50	106-46-7	
Dichlorodifluoromethane	<31.2	ug/kg	72.5	31.2	1	03/20/24 09:00	03/22/24 17:50	75-71-8	
1,1-Dichloroethane	<18.6	ug/kg	72.5	18.6	1	03/20/24 09:00	03/22/24 17:50	75-34-3	
1,2-Dichloroethane	<16.7	ug/kg	72.5	16.7	1	03/20/24 09:00	03/22/24 17:50	107-06-2	
1,1-Dichloroethene	<24.1	ug/kg	72.5	24.1	1	03/20/24 09:00	03/22/24 17:50	75-35-4	
cis-1,2-Dichloroethene	<15.5	ug/kg	72.5	15.5	1	03/20/24 09:00	03/22/24 17:50	156-59-2	
trans-1,2-Dichloroethene	<15.8	ug/kg	72.5	15.8	1	03/20/24 09:00	03/22/24 17:50	156-60-5	
1,2-Dichloropropane	<17.3	ug/kg	72.5	17.3	1	03/20/24 09:00	03/22/24 17:50	78-87-5	
1,3-Dichloropropane	<15.8	ug/kg	72.5	15.8	1	03/20/24 09:00	03/22/24 17:50	142-28-9	
2,2-Dichloropropane	<19.6	ug/kg	72.5	19.6	1	03/20/24 09:00	03/22/24 17:50	594-20-7	
1,1-Dichloropropene	<23.5	ug/kg	72.5	23.5	1	03/20/24 09:00	03/22/24 17:50	563-58-6	
cis-1,3-Dichloropropene	<47.8	ug/kg	362	47.8	1	03/20/24 09:00	03/22/24 17:50	10061-01-5	
trans-1,3-Dichloropropene	<207	ug/kg	362	207	1	03/20/24 09:00	03/22/24 17:50	10061-02-6	
Diisopropyl ether	<18.0	ug/kg	72.5	18.0	1	03/20/24 09:00	03/22/24 17:50	108-20-3	
Ethylbenzene	<17.3	ug/kg	72.5	17.3	1	03/20/24 09:00	03/22/24 17:50	100-41-4	
Hexachloro-1,3-butadiene	<144	ug/kg	362	144	1	03/20/24 09:00	03/22/24 17:50	87-68-3	
Isopropylbenzene (Cumene)	<19.6	ug/kg	72.5	19.6	1	03/20/24 09:00	03/22/24 17:50	98-82-8	
p-Isopropyltoluene	<24.6	ug/kg	72.5	24.6	1	03/20/24 09:00	03/22/24 17:50	99-87-6	
Methylene Chloride	<20.2	ug/kg	72.5	20.2	1	03/20/24 09:00	03/22/24 17:50	75-09-2	
Methyl-tert-butyl ether	<21.3	ug/kg	72.5	21.3	1	03/20/24 09:00	03/22/24 17:50	1634-04-4	
Naphthalene	<30.5	ug/kg	362	30.5	1	03/20/24 09:00	03/22/24 17:50	91-20-3	
n-Propylbenzene	<17.4	ug/kg	72.5	17.4	1	03/20/24 09:00	03/22/24 17:50	103-65-1	
Styrene	<18.6	ug/kg	72.5	18.6	1	03/20/24 09:00	03/22/24 17:50	100-42-5	
1,1,1,2-Tetrachloroethane	<17.4	ug/kg	72.5	17.4	1	03/20/24 09:00	03/22/24 17:50	630-20-6	
1,1,1,2,2-Tetrachloroethane	<26.2	ug/kg	72.5	26.2	1	03/20/24 09:00	03/22/24 17:50	79-34-5	
Tetrachloroethene	<28.1	ug/kg	72.5	28.1	1	03/20/24 09:00	03/22/24 17:50	127-18-4	
Toluene	<18.3	ug/kg	72.5	18.3	1	03/20/24 09:00	03/22/24 17:50	108-88-3	
1,2,3-Trichlorobenzene	<80.8	ug/kg	362	80.8	1	03/20/24 09:00	03/22/24 17:50	87-61-6	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-1 Lab ID: 40275474001 Collected: 03/13/24 13:45 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
1,2,4-Trichlorobenzene	<59.7	ug/kg	362	59.7	1	03/20/24 09:00	03/22/24 17:50	120-82-1	
1,1,1-Trichloroethane	<18.6	ug/kg	72.5	18.6	1	03/20/24 09:00	03/22/24 17:50	71-55-6	
1,1,2-Trichloroethane	<26.4	ug/kg	72.5	26.4	1	03/20/24 09:00	03/22/24 17:50	79-00-5	
Trichloroethene	<27.1	ug/kg	72.5	27.1	1	03/20/24 09:00	03/22/24 17:50	79-01-6	
Trichlorofluoromethane	<21.0	ug/kg	72.5	21.0	1	03/20/24 09:00	03/22/24 17:50	75-69-4	
1,2,3-Trichloropropane	<35.2	ug/kg	72.5	35.2	1	03/20/24 09:00	03/22/24 17:50	96-18-4	
1,2,4-Trimethylbenzene	<21.6	ug/kg	72.5	21.6	1	03/20/24 09:00	03/22/24 17:50	95-63-6	
1,3,5-Trimethylbenzene	<23.3	ug/kg	72.5	23.3	1	03/20/24 09:00	03/22/24 17:50	108-67-8	
Vinyl chloride	<14.6	ug/kg	72.5	14.6	1	03/20/24 09:00	03/22/24 17:50	75-01-4	
m&p-Xylene	<30.6	ug/kg	145	30.6	1	03/20/24 09:00	03/22/24 17:50	179601-23-1	
o-Xylene	<21.7	ug/kg	72.5	21.7	1	03/20/24 09:00	03/22/24 17:50	95-47-6	
<b>Surrogates</b>									
Toluene-d8 (S)	104	%	70-139		1	03/20/24 09:00	03/22/24 17:50	2037-26-5	
4-Bromofluorobenzene (S)	104	%	72-142		1	03/20/24 09:00	03/22/24 17:50	460-00-4	
1,2-Dichlorobenzene-d4 (S)	105	%	67-144		1	03/20/24 09:00	03/22/24 17:50	2199-69-1	

**Percent Moisture**

Analytical Method: ASTM D2974-87

Pace Analytical Services - Green Bay

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	18.4	%	0.10	0.10	1		03/15/24 15:07		

Sample: TS-2

Lab ID: 40275474002 Collected: 03/13/24 13:55 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010D MET ICP</b>									
Analytical Method: EPA 6010D Preparation Method: EPA 3050B									
Pace Analytical Services - Green Bay									
Arsenic	2.7J	mg/kg	3.0	1.7	1	03/19/24 05:38	03/19/24 15:13	7440-38-2	
Barium	39.5	mg/kg	0.59	0.18	1	03/19/24 05:38	03/19/24 15:13	7440-39-3	
Cadmium	<0.16	mg/kg	0.59	0.16	1	03/19/24 05:38	03/19/24 15:13	7440-43-9	
Chromium	11.2	mg/kg	1.2	0.33	1	03/19/24 05:38	03/19/24 15:13	7440-47-3	
Lead	25.8	mg/kg	2.4	0.71	1	03/19/24 05:38	03/19/24 15:13	7439-92-1	
Selenium	<1.5	mg/kg	4.7	1.5	1	03/19/24 05:38	03/19/24 15:13	7782-49-2	
Silver	<0.36	mg/kg	1.2	0.36	1	03/19/24 05:38	03/19/24 15:13	7440-22-4	
<b>7471 Mercury</b>									
Analytical Method: EPA 7471 Preparation Method: EPA 7471									
Pace Analytical Services - Green Bay									
Mercury	0.075	mg/kg	0.038	0.011	1	03/26/24 08:30	03/26/24 12:17	7439-97-6	
<b>8270E MSSV PAH by SIM</b>									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546									
Pace Analytical Services - Green Bay									
Acenaphthene	<13.1	ug/kg	101	13.1	5	03/25/24 08:27	03/26/24 13:43	83-32-9	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-2 Lab ID: 40275474002 Collected: 03/13/24 13:55 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV PAH by SIM</b>									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546									
Pace Analytical Services - Green Bay									
Acenaphthylene	44.2J	ug/kg	101	12.8	5	03/25/24 08:27	03/26/24 13:43	208-96-8	
Anthracene	47.7J	ug/kg	101	12.6	5	03/25/24 08:27	03/26/24 13:43	120-12-7	
Benzo(a)anthracene	270	ug/kg	101	13.1	5	03/25/24 08:27	03/26/24 13:43	56-55-3	
Benzo(a)pyrene	447	ug/kg	101	11.5	5	03/25/24 08:27	03/26/24 13:43	50-32-8	
Benzo(b)fluoranthene	557	ug/kg	101	14.0	5	03/25/24 08:27	03/26/24 13:43	205-99-2	
Benzo(g,h,i)perylene	443	ug/kg	101	17.7	5	03/25/24 08:27	03/26/24 13:43	191-24-2	
Benzo(k)fluoranthene	194	ug/kg	101	12.9	5	03/25/24 08:27	03/26/24 13:43	207-08-9	
Chrysene	317	ug/kg	101	19.1	5	03/25/24 08:27	03/26/24 13:43	218-01-9	
Dibenz(a,h)anthracene	81.5J	ug/kg	101	14.0	5	03/25/24 08:27	03/26/24 13:43	53-70-3	
Fluoranthene	488	ug/kg	101	12.0	5	03/25/24 08:27	03/26/24 13:43	206-44-0	
Fluorene	<12.1	ug/kg	101	12.1	5	03/25/24 08:27	03/26/24 13:43	86-73-7	
Indeno(1,2,3-cd)pyrene	285	ug/kg	101	21.1	5	03/25/24 08:27	03/26/24 13:43	193-39-5	
1-Methylnaphthalene	<14.8	ug/kg	101	14.8	5	03/25/24 08:27	03/26/24 13:43	90-12-0	
2-Methylnaphthalene	<14.8	ug/kg	101	14.8	5	03/25/24 08:27	03/26/24 13:43	91-57-6	
Naphthalene	30.9J	ug/kg	101	9.9	5	03/25/24 08:27	03/26/24 13:43	91-20-3	
Phenanthrene	162	ug/kg	101	11.6	5	03/25/24 08:27	03/26/24 13:43	85-01-8	
Pyrene	434	ug/kg	101	14.9	5	03/25/24 08:27	03/26/24 13:43	129-00-0	
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	59	%	39-120		5	03/25/24 08:27	03/26/24 13:43	321-60-8	
Terphenyl-d14 (S)	61	%	36-120		5	03/25/24 08:27	03/26/24 13:43	1718-51-0	
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
Benzene	<20.3	ug/kg	34.1	20.3	1	03/20/24 09:00	03/22/24 18:10	71-43-2	
Bromobenzene	<33.3	ug/kg	85.3	33.3	1	03/20/24 09:00	03/22/24 18:10	108-86-1	
Bromochloromethane	<23.4	ug/kg	85.3	23.4	1	03/20/24 09:00	03/22/24 18:10	74-97-5	
Bromodichloromethane	<20.3	ug/kg	85.3	20.3	1	03/20/24 09:00	03/22/24 18:10	75-27-4	
Bromoform	<375	ug/kg	427	375	1	03/20/24 09:00	03/22/24 18:10	75-25-2	
Bromomethane	<120	ug/kg	427	120	1	03/20/24 09:00	03/22/24 18:10	74-83-9	
n-Butylbenzene	<39.1	ug/kg	85.3	39.1	1	03/20/24 09:00	03/22/24 18:10	104-51-8	
sec-Butylbenzene	<29.3	ug/kg	85.3	29.3	1	03/20/24 09:00	03/22/24 18:10	135-98-8	
tert-Butylbenzene	<26.8	ug/kg	85.3	26.8	1	03/20/24 09:00	03/22/24 18:10	98-06-6	
Carbon tetrachloride	<18.8	ug/kg	85.3	18.8	1	03/20/24 09:00	03/22/24 18:10	56-23-5	
Chlorobenzene	<10.2	ug/kg	85.3	10.2	1	03/20/24 09:00	03/22/24 18:10	108-90-7	
Chloroethane	<36.0	ug/kg	427	36.0	1	03/20/24 09:00	03/22/24 18:10	75-00-3	
Chloroform	<61.1	ug/kg	427	61.1	1	03/20/24 09:00	03/22/24 18:10	67-66-3	
Chloromethane	<32.4	ug/kg	85.3	32.4	1	03/20/24 09:00	03/22/24 18:10	74-87-3	
2-Chlorotoluene	<27.6	ug/kg	85.3	27.6	1	03/20/24 09:00	03/22/24 18:10	95-49-8	
4-Chlorotoluene	<32.4	ug/kg	85.3	32.4	1	03/20/24 09:00	03/22/24 18:10	106-43-4	
1,2-Dibromo-3-chloropropane	<66.2	ug/kg	427	66.2	1	03/20/24 09:00	03/22/24 18:10	96-12-8	
Dibromochloromethane	<292	ug/kg	427	292	1	03/20/24 09:00	03/22/24 18:10	124-48-1	
1,2-Dibromoethane (EDB)	<23.4	ug/kg	85.3	23.4	1	03/20/24 09:00	03/22/24 18:10	106-93-4	
Dibromomethane	<25.3	ug/kg	85.3	25.3	1	03/20/24 09:00	03/22/24 18:10	74-95-3	
1,2-Dichlorobenzene	<26.4	ug/kg	85.3	26.4	1	03/20/24 09:00	03/22/24 18:10	95-50-1	

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-2 Lab ID: 40275474002 Collected: 03/13/24 13:55 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
1,3-Dichlorobenzene	<23.4	ug/kg	85.3	23.4	1	03/20/24 09:00	03/22/24 18:10	541-73-1	
1,4-Dichlorobenzene	<23.4	ug/kg	85.3	23.4	1	03/20/24 09:00	03/22/24 18:10	106-46-7	
Dichlorodifluoromethane	<36.7	ug/kg	85.3	36.7	1	03/20/24 09:00	03/22/24 18:10	75-71-8	
1,1-Dichloroethane	<21.8	ug/kg	85.3	21.8	1	03/20/24 09:00	03/22/24 18:10	75-34-3	
1,2-Dichloroethane	<19.6	ug/kg	85.3	19.6	1	03/20/24 09:00	03/22/24 18:10	107-06-2	
1,1-Dichloroethene	<28.3	ug/kg	85.3	28.3	1	03/20/24 09:00	03/22/24 18:10	75-35-4	
cis-1,2-Dichloroethene	<18.3	ug/kg	85.3	18.3	1	03/20/24 09:00	03/22/24 18:10	156-59-2	
trans-1,2-Dichloroethene	<18.6	ug/kg	85.3	18.6	1	03/20/24 09:00	03/22/24 18:10	156-60-5	
1,2-Dichloropropane	<20.3	ug/kg	85.3	20.3	1	03/20/24 09:00	03/22/24 18:10	78-87-5	
1,3-Dichloropropane	<18.6	ug/kg	85.3	18.6	1	03/20/24 09:00	03/22/24 18:10	142-28-9	
2,2-Dichloropropane	<23.0	ug/kg	85.3	23.0	1	03/20/24 09:00	03/22/24 18:10	594-20-7	
1,1-Dichloropropene	<27.6	ug/kg	85.3	27.6	1	03/20/24 09:00	03/22/24 18:10	563-58-6	
cis-1,3-Dichloropropene	<56.3	ug/kg	427	56.3	1	03/20/24 09:00	03/22/24 18:10	10061-01-5	
trans-1,3-Dichloropropene	<244	ug/kg	427	244	1	03/20/24 09:00	03/22/24 18:10	10061-02-6	
Diisopropyl ether	<21.2	ug/kg	85.3	21.2	1	03/20/24 09:00	03/22/24 18:10	108-20-3	
Ethylbenzene	<20.3	ug/kg	85.3	20.3	1	03/20/24 09:00	03/22/24 18:10	100-41-4	
Hexachloro-1,3-butadiene	<170	ug/kg	427	170	1	03/20/24 09:00	03/22/24 18:10	87-68-3	
Isopropylbenzene (Cumene)	<23.0	ug/kg	85.3	23.0	1	03/20/24 09:00	03/22/24 18:10	98-82-8	
p-Isopropyltoluene	<29.0	ug/kg	85.3	29.0	1	03/20/24 09:00	03/22/24 18:10	99-87-6	
Methylene Chloride	<23.7	ug/kg	85.3	23.7	1	03/20/24 09:00	03/22/24 18:10	75-09-2	
Methyl-tert-butyl ether	<25.1	ug/kg	85.3	25.1	1	03/20/24 09:00	03/22/24 18:10	1634-04-4	
Naphthalene	<35.9	ug/kg	427	35.9	1	03/20/24 09:00	03/22/24 18:10	91-20-3	
n-Propylbenzene	<20.5	ug/kg	85.3	20.5	1	03/20/24 09:00	03/22/24 18:10	103-65-1	
Styrene	<21.8	ug/kg	85.3	21.8	1	03/20/24 09:00	03/22/24 18:10	100-42-5	
1,1,1,2-Tetrachloroethane	<20.5	ug/kg	85.3	20.5	1	03/20/24 09:00	03/22/24 18:10	630-20-6	
1,1,2,2-Tetrachloroethane	<30.9	ug/kg	85.3	30.9	1	03/20/24 09:00	03/22/24 18:10	79-34-5	
Tetrachloroethene	<33.1	ug/kg	85.3	33.1	1	03/20/24 09:00	03/22/24 18:10	127-18-4	
Toluene	<21.5	ug/kg	85.3	21.5	1	03/20/24 09:00	03/22/24 18:10	108-88-3	
1,2,3-Trichlorobenzene	<95.0	ug/kg	427	95.0	1	03/20/24 09:00	03/22/24 18:10	87-61-6	
1,2,4-Trichlorobenzene	<70.3	ug/kg	427	70.3	1	03/20/24 09:00	03/22/24 18:10	120-82-1	
1,1,1-Trichloroethane	<21.8	ug/kg	85.3	21.8	1	03/20/24 09:00	03/22/24 18:10	71-55-6	
1,1,2-Trichloroethane	<31.1	ug/kg	85.3	31.1	1	03/20/24 09:00	03/22/24 18:10	79-00-5	
Trichloroethene	<31.9	ug/kg	85.3	31.9	1	03/20/24 09:00	03/22/24 18:10	79-01-6	
Trichlorofluoromethane	<24.7	ug/kg	85.3	24.7	1	03/20/24 09:00	03/22/24 18:10	75-69-4	
1,2,3-Trichloropropane	<41.5	ug/kg	85.3	41.5	1	03/20/24 09:00	03/22/24 18:10	96-18-4	
1,2,4-Trimethylbenzene	<25.4	ug/kg	85.3	25.4	1	03/20/24 09:00	03/22/24 18:10	95-63-6	
1,3,5-Trimethylbenzene	<27.5	ug/kg	85.3	27.5	1	03/20/24 09:00	03/22/24 18:10	108-67-8	
Vinyl chloride	<17.2	ug/kg	85.3	17.2	1	03/20/24 09:00	03/22/24 18:10	75-01-4	
m&p-Xylene	<36.0	ug/kg	171	36.0	1	03/20/24 09:00	03/22/24 18:10	179601-23-1	
o-Xylene	<25.6	ug/kg	85.3	25.6	1	03/20/24 09:00	03/22/24 18:10	95-47-6	
<b>Surrogates</b>									
Toluene-d8 (S)	112	%	70-139		1	03/20/24 09:00	03/22/24 18:10	2037-26-5	
4-Bromofluorobenzene (S)	108	%	72-142		1	03/20/24 09:00	03/22/24 18:10	460-00-4	
1,2-Dichlorobenzene-d4 (S)	106	%	67-144		1	03/20/24 09:00	03/22/24 18:10	2199-69-1	

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

**Sample: TS-2** Lab ID: 40275474002 Collected: 03/13/24 13:55 Received: 03/14/24 09:00 Matrix: Solid*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Green Bay									
Percent Moisture	17.4	%	0.10	0.10	1		03/15/24 15:07		

**Sample: TS-3** Lab ID: 40275474003 Collected: 03/13/24 14:05 Received: 03/14/24 09:00 Matrix: Solid*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010D MET ICP</b>									
Analytical Method: EPA 6010D Preparation Method: EPA 3050B									
Pace Analytical Services - Green Bay									
Arsenic	2.9	mg/kg	2.8	1.7	1	03/19/24 05:38	03/19/24 15:17	7440-38-2	
Barium	43.9	mg/kg	0.57	0.17	1	03/19/24 05:38	03/19/24 15:17	7440-39-3	
Cadmium	0.17J	mg/kg	0.57	0.15	1	03/19/24 05:38	03/19/24 15:17	7440-43-9	
Chromium	10.2	mg/kg	1.1	0.32	1	03/19/24 05:38	03/19/24 15:17	7440-47-3	
Lead	38.7	mg/kg	2.3	0.68	1	03/19/24 05:38	03/19/24 15:17	7439-92-1	
Selenium	<1.5	mg/kg	4.6	1.5	1	03/19/24 05:38	03/19/24 15:17	7782-49-2	
Silver	<0.35	mg/kg	1.1	0.35	1	03/19/24 05:38	03/19/24 15:17	7440-22-4	

**7471 Mercury** Analytical Method: EPA 7471 Preparation Method: EPA 7471

Pace Analytical Services - Green Bay

Mercury	0.12	mg/kg	0.037	0.011	1	03/26/24 08:30	03/26/24 12:19	7439-97-6	
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**8270E MSSV PAH by SIM** Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546

Pace Analytical Services - Green Bay

Acenaphthene	<12.4	ug/kg	95.3	12.4	5	03/25/24 08:27	03/26/24 13:58	83-32-9	
Acenaphthylene	28.6J	ug/kg	95.3	12.0	5	03/25/24 08:27	03/26/24 13:58	208-96-8	
Anthracene	37.3J	ug/kg	95.3	11.8	5	03/25/24 08:27	03/26/24 13:58	120-12-7	
Benzo(a)anthracene	252	ug/kg	95.3	12.3	5	03/25/24 08:27	03/26/24 13:58	56-55-3	
Benzo(a)pyrene	357	ug/kg	95.3	10.8	5	03/25/24 08:27	03/26/24 13:58	50-32-8	
Benzo(b)fluoranthene	544	ug/kg	95.3	13.2	5	03/25/24 08:27	03/26/24 13:58	205-99-2	
Benzo(g,h,i)perylene	371	ug/kg	95.3	16.7	5	03/25/24 08:27	03/26/24 13:58	191-24-2	
Benzo(k)fluoranthene	201	ug/kg	95.3	12.2	5	03/25/24 08:27	03/26/24 13:58	207-08-9	
Chrysene	315	ug/kg	95.3	18.0	5	03/25/24 08:27	03/26/24 13:58	218-01-9	
Dibenz(a,h)anthracene	78.7J	ug/kg	95.3	13.2	5	03/25/24 08:27	03/26/24 13:58	53-70-3	
Fluoranthene	621	ug/kg	95.3	11.3	5	03/25/24 08:27	03/26/24 13:58	206-44-0	
Fluorene	<11.4	ug/kg	95.3	11.4	5	03/25/24 08:27	03/26/24 13:58	86-73-7	
Indeno(1,2,3-cd)pyrene	260	ug/kg	95.3	19.9	5	03/25/24 08:27	03/26/24 13:58	193-39-5	
1-Methylnaphthalene	24.9J	ug/kg	95.3	13.9	5	03/25/24 08:27	03/26/24 13:58	90-12-0	
2-Methylnaphthalene	34.6J	ug/kg	95.3	13.9	5	03/25/24 08:27	03/26/24 13:58	91-57-6	
Naphthalene	37.6J	ug/kg	95.3	9.3	5	03/25/24 08:27	03/26/24 13:58	91-20-3	
Phenanthrene	210	ug/kg	95.3	10.9	5	03/25/24 08:27	03/26/24 13:58	85-01-8	
Pyrene	466	ug/kg	95.3	14.0	5	03/25/24 08:27	03/26/24 13:58	129-00-0	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-3 Lab ID: 40275474003 Collected: 03/13/24 14:05 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270E MSSV PAH by SIM</b>									
Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546									
Pace Analytical Services - Green Bay									
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	47	%	39-120		5	03/25/24 08:27	03/26/24 13:58	321-60-8	
Terphenyl-d14 (S)	47	%	36-120		5	03/25/24 08:27	03/26/24 13:58	1718-51-0	
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
Benzene	<16.0	ug/kg	26.9	16.0	1	03/20/24 09:00	03/22/24 18:31	71-43-2	
Bromobenzene	<26.2	ug/kg	67.3	26.2	1	03/20/24 09:00	03/22/24 18:31	108-86-1	
Bromochloromethane	<18.4	ug/kg	67.3	18.4	1	03/20/24 09:00	03/22/24 18:31	74-97-5	
Bromodichloromethane	<16.0	ug/kg	67.3	16.0	1	03/20/24 09:00	03/22/24 18:31	75-27-4	
Bromoform	<296	ug/kg	336	296	1	03/20/24 09:00	03/22/24 18:31	75-25-2	
Bromomethane	<94.3	ug/kg	336	94.3	1	03/20/24 09:00	03/22/24 18:31	74-83-9	
n-Butylbenzene	<30.8	ug/kg	67.3	30.8	1	03/20/24 09:00	03/22/24 18:31	104-51-8	
sec-Butylbenzene	<23.1	ug/kg	67.3	23.1	1	03/20/24 09:00	03/22/24 18:31	135-98-8	
tert-Butylbenzene	<21.1	ug/kg	67.3	21.1	1	03/20/24 09:00	03/22/24 18:31	98-06-6	
Carbon tetrachloride	<14.8	ug/kg	67.3	14.8	1	03/20/24 09:00	03/22/24 18:31	56-23-5	
Chlorobenzene	<8.1	ug/kg	67.3	8.1	1	03/20/24 09:00	03/22/24 18:31	108-90-7	
Chloroethane	<28.4	ug/kg	336	28.4	1	03/20/24 09:00	03/22/24 18:31	75-00-3	
Chloroform	<48.2	ug/kg	336	48.2	1	03/20/24 09:00	03/22/24 18:31	67-66-3	
Chloromethane	<25.6	ug/kg	67.3	25.6	1	03/20/24 09:00	03/22/24 18:31	74-87-3	
2-Chlorotoluene	<21.8	ug/kg	67.3	21.8	1	03/20/24 09:00	03/22/24 18:31	95-49-8	
4-Chlorotoluene	<25.6	ug/kg	67.3	25.6	1	03/20/24 09:00	03/22/24 18:31	106-43-4	
1,2-Dibromo-3-chloropropane	<52.2	ug/kg	336	52.2	1	03/20/24 09:00	03/22/24 18:31	96-12-8	
Dibromochloromethane	<230	ug/kg	336	230	1	03/20/24 09:00	03/22/24 18:31	124-48-1	
1,2-Dibromoethane (EDB)	<18.4	ug/kg	67.3	18.4	1	03/20/24 09:00	03/22/24 18:31	106-93-4	
Dibromomethane	<19.9	ug/kg	67.3	19.9	1	03/20/24 09:00	03/22/24 18:31	74-95-3	
1,2-Dichlorobenzene	<20.9	ug/kg	67.3	20.9	1	03/20/24 09:00	03/22/24 18:31	95-50-1	
1,3-Dichlorobenzene	<18.4	ug/kg	67.3	18.4	1	03/20/24 09:00	03/22/24 18:31	541-73-1	
1,4-Dichlorobenzene	<18.4	ug/kg	67.3	18.4	1	03/20/24 09:00	03/22/24 18:31	106-46-7	
Dichlorodifluoromethane	<28.9	ug/kg	67.3	28.9	1	03/20/24 09:00	03/22/24 18:31	75-71-8	
1,1-Dichloroethane	<17.2	ug/kg	67.3	17.2	1	03/20/24 09:00	03/22/24 18:31	75-34-3	
1,2-Dichloroethane	<15.5	ug/kg	67.3	15.5	1	03/20/24 09:00	03/22/24 18:31	107-06-2	
1,1-Dichloroethene	<22.3	ug/kg	67.3	22.3	1	03/20/24 09:00	03/22/24 18:31	75-35-4	
cis-1,2-Dichloroethene	<14.4	ug/kg	67.3	14.4	1	03/20/24 09:00	03/22/24 18:31	156-59-2	
trans-1,2-Dichloroethene	<14.7	ug/kg	67.3	14.7	1	03/20/24 09:00	03/22/24 18:31	156-60-5	
1,2-Dichloropropane	<16.0	ug/kg	67.3	16.0	1	03/20/24 09:00	03/22/24 18:31	78-87-5	
1,3-Dichloropropane	<14.7	ug/kg	67.3	14.7	1	03/20/24 09:00	03/22/24 18:31	142-28-9	
2,2-Dichloropropane	<18.2	ug/kg	67.3	18.2	1	03/20/24 09:00	03/22/24 18:31	594-20-7	
1,1-Dichloropropene	<21.8	ug/kg	67.3	21.8	1	03/20/24 09:00	03/22/24 18:31	563-58-6	
cis-1,3-Dichloropropene	<44.4	ug/kg	336	44.4	1	03/20/24 09:00	03/22/24 18:31	10061-01-5	
trans-1,3-Dichloropropene	<192	ug/kg	336	192	1	03/20/24 09:00	03/22/24 18:31	10061-02-6	
Diisopropyl ether	<16.7	ug/kg	67.3	16.7	1	03/20/24 09:00	03/22/24 18:31	108-20-3	
Ethylbenzene	<16.0	ug/kg	67.3	16.0	1	03/20/24 09:00	03/22/24 18:31	100-41-4	
Hexachloro-1,3-butadiene	<134	ug/kg	336	134	1	03/20/24 09:00	03/22/24 18:31	87-68-3	

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## ANALYTICAL RESULTS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Sample: TS-3 Lab ID: 40275474003 Collected: 03/13/24 14:05 Received: 03/14/24 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Med Level Normal List</b>									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Pace Analytical Services - Green Bay									
Isopropylbenzene (Cumene)	<18.2	ug/kg	67.3	18.2	1	03/20/24 09:00	03/22/24 18:31	98-82-8	
p-Isopropyltoluene	<22.9	ug/kg	67.3	22.9	1	03/20/24 09:00	03/22/24 18:31	99-87-6	
Methylene Chloride	<18.7	ug/kg	67.3	18.7	1	03/20/24 09:00	03/22/24 18:31	75-09-2	
Methyl-tert-butyl ether	<19.8	ug/kg	67.3	19.8	1	03/20/24 09:00	03/22/24 18:31	1634-04-4	
Naphthalene	<28.3	ug/kg	336	28.3	1	03/20/24 09:00	03/22/24 18:31	91-20-3	
n-Propylbenzene	<16.1	ug/kg	67.3	16.1	1	03/20/24 09:00	03/22/24 18:31	103-65-1	
Styrene	<17.2	ug/kg	67.3	17.2	1	03/20/24 09:00	03/22/24 18:31	100-42-5	
1,1,1,2-Tetrachloroethane	<16.1	ug/kg	67.3	16.1	1	03/20/24 09:00	03/22/24 18:31	630-20-6	
1,1,2,2-Tetrachloroethane	<24.4	ug/kg	67.3	24.4	1	03/20/24 09:00	03/22/24 18:31	79-34-5	
Tetrachloroethene	<26.1	ug/kg	67.3	26.1	1	03/20/24 09:00	03/22/24 18:31	127-18-4	
Toluene	<17.0	ug/kg	67.3	17.0	1	03/20/24 09:00	03/22/24 18:31	108-88-3	
1,2,3-Trichlorobenzene	<74.9	ug/kg	336	74.9	1	03/20/24 09:00	03/22/24 18:31	87-61-6	
1,2,4-Trichlorobenzene	<55.4	ug/kg	336	55.4	1	03/20/24 09:00	03/22/24 18:31	120-82-1	
1,1,1-Trichloroethane	<17.2	ug/kg	67.3	17.2	1	03/20/24 09:00	03/22/24 18:31	71-55-6	
1,1,2-Trichloroethane	<24.5	ug/kg	67.3	24.5	1	03/20/24 09:00	03/22/24 18:31	79-00-5	
Trichloroethene	<25.2	ug/kg	67.3	25.2	1	03/20/24 09:00	03/22/24 18:31	79-01-6	
Trichlorofluoromethane	<19.5	ug/kg	67.3	19.5	1	03/20/24 09:00	03/22/24 18:31	75-69-4	
1,2,3-Trichloropropane	<32.7	ug/kg	67.3	32.7	1	03/20/24 09:00	03/22/24 18:31	96-18-4	
1,2,4-Trimethylbenzene	<20.0	ug/kg	67.3	20.0	1	03/20/24 09:00	03/22/24 18:31	95-63-6	
1,3,5-Trimethylbenzene	<21.7	ug/kg	67.3	21.7	1	03/20/24 09:00	03/22/24 18:31	108-67-8	
Vinyl chloride	<13.6	ug/kg	67.3	13.6	1	03/20/24 09:00	03/22/24 18:31	75-01-4	
m&p-Xylene	<28.4	ug/kg	135	28.4	1	03/20/24 09:00	03/22/24 18:31	179601-23-1	
o-Xylene	<20.2	ug/kg	67.3	20.2	1	03/20/24 09:00	03/22/24 18:31	95-47-6	
<b>Surrogates</b>									
Toluene-d8 (S)	113	%	70-139		1	03/20/24 09:00	03/22/24 18:31	2037-26-5	
4-Bromofluorobenzene (S)	116	%	72-142		1	03/20/24 09:00	03/22/24 18:31	460-00-4	
1,2-Dichlorobenzene-d4 (S)	115	%	67-144		1	03/20/24 09:00	03/22/24 18:31	2199-69-1	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Pace Analytical Services - Green Bay									
Percent Moisture	12.5	%	0.10	0.10	1		03/15/24 15:07		

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**QUALITY CONTROL DATA**

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

QC Batch:	470003	Analysis Method:	EPA 7471
QC Batch Method:	EPA 7471	Analysis Description:	7471 Mercury
		Laboratory:	Pace Analytical Services - Green Bay
Associated Lab Samples:	40275474001, 40275474002, 40275474003		

METHOD BLANK: 2692749 Matrix: Solid

Associated Lab Samples: 40275474001, 40275474002, 40275474003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.010	0.035	03/26/24 11:35	

LABORATORY CONTROL SAMPLE: 2692750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.83	0.83	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2692751 2692752

Parameter	Units	2692751		2692752		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Mercury	mg/kg	<0.010	0.85	0.87	0.85	0.89	100	102	85-115	4	20

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**QUALITY CONTROL DATA**

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

QC Batch:	469274	Analysis Method:	EPA 6010D
QC Batch Method:	EPA 3050B	Analysis Description:	6010D MET
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40275474001, 40275474002, 40275474003

METHOD BLANK: 2688667 Matrix: Solid

Associated Lab Samples: 40275474001, 40275474002, 40275474003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	<1.5	2.5	03/19/24 15:02	
Barium	mg/kg	<0.15	0.50	03/19/24 15:02	
Cadmium	mg/kg	<0.13	0.50	03/19/24 15:02	
Chromium	mg/kg	<0.28	1.0	03/19/24 15:02	
Lead	mg/kg	<0.60	2.0	03/19/24 15:02	
Selenium	mg/kg	<1.3	4.0	03/19/24 15:02	
Silver	mg/kg	<0.31	1.0	03/19/24 15:02	

LABORATORY CONTROL SAMPLE: 2688668

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	25	23.8	95	80-120	
Barium	mg/kg	25	25.6	103	80-120	
Cadmium	mg/kg	25	25.1	101	80-120	
Chromium	mg/kg	25	24.7	99	80-120	
Lead	mg/kg	25	25.7	103	80-120	
Selenium	mg/kg	25	25.5	102	80-120	
Silver	mg/kg	12.5	12.4	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2688669 2688670

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40275474001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Arsenic	mg/kg	2.5J	30.5	30.6	31.2	31.8	94	96	75-125	2	20	
Barium	mg/kg	36.7	30.5	30.6	71.8	75.9	115	128	75-125	6	20	M0
Cadmium	mg/kg	<0.16	30.5	30.6	30.5	31.6	100	103	75-125	4	20	
Chromium	mg/kg	11.9	30.5	30.6	45.2	45.9	109	111	75-125	2	20	
Lead	mg/kg	33.0	30.5	30.6	58.8	59.9	84	88	75-125	2	20	
Selenium	mg/kg	<1.6	30.5	30.6	31.7	32.3	102	104	75-125	2	20	
Silver	mg/kg	<0.38	15.3	15.3	15.3	15.6	100	102	75-125	2	20	

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## QUALITY CONTROL DATA

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

QC Batch: 469656

Analysis Method: EPA 8260

QC Batch Method: EPA 5035/5030B

Analysis Description: 8260 MSV Med Level Normal List

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40275474001, 40275474002, 40275474003

METHOD BLANK: 2690662

Matrix: Solid

Associated Lab Samples: 40275474001, 40275474002, 40275474003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<12.0	50.0	03/22/24 15:09	
1,1,1-Trichloroethane	ug/kg	<12.8	50.0	03/22/24 15:09	
1,1,2,2-Tetrachloroethane	ug/kg	<18.1	50.0	03/22/24 15:09	
1,1,2-Trichloroethane	ug/kg	<18.2	50.0	03/22/24 15:09	
1,1-Dichloroethane	ug/kg	<12.8	50.0	03/22/24 15:09	
1,1-Dichloroethene	ug/kg	<16.6	50.0	03/22/24 15:09	
1,1-Dichloropropene	ug/kg	<16.2	50.0	03/22/24 15:09	
1,2,3-Trichlorobenzene	ug/kg	<55.7	250	03/22/24 15:09	
1,2,3-Trichloropropane	ug/kg	<24.3	50.0	03/22/24 15:09	
1,2,4-Trichlorobenzene	ug/kg	<41.2	250	03/22/24 15:09	
1,2,4-Trimethylbenzene	ug/kg	<14.9	50.0	03/22/24 15:09	
1,2-Dibromo-3-chloropropane	ug/kg	<38.8	250	03/22/24 15:09	
1,2-Dibromoethane (EDB)	ug/kg	<13.7	50.0	03/22/24 15:09	
1,2-Dichlorobenzene	ug/kg	<15.5	50.0	03/22/24 15:09	
1,2-Dichloroethane	ug/kg	<11.5	50.0	03/22/24 15:09	
1,2-Dichloropropane	ug/kg	<11.9	50.0	03/22/24 15:09	
1,3,5-Trimethylbenzene	ug/kg	<16.1	50.0	03/22/24 15:09	
1,3-Dichlorobenzene	ug/kg	<13.7	50.0	03/22/24 15:09	
1,3-Dichloropropane	ug/kg	<10.9	50.0	03/22/24 15:09	
1,4-Dichlorobenzene	ug/kg	<13.7	50.0	03/22/24 15:09	
2,2-Dichloropropane	ug/kg	<13.5	50.0	03/22/24 15:09	
2-Chlorotoluene	ug/kg	<16.2	50.0	03/22/24 15:09	
4-Chlorotoluene	ug/kg	<19.0	50.0	03/22/24 15:09	
Benzene	ug/kg	<11.9	20.0	03/22/24 15:09	
Bromobenzene	ug/kg	<19.5	50.0	03/22/24 15:09	
Bromochloromethane	ug/kg	<13.7	50.0	03/22/24 15:09	
Bromodichloromethane	ug/kg	<11.9	50.0	03/22/24 15:09	
Bromoform	ug/kg	<220	250	03/22/24 15:09	
Bromomethane	ug/kg	<70.1	250	03/22/24 15:09	
Carbon tetrachloride	ug/kg	<11.0	50.0	03/22/24 15:09	
Chlorobenzene	ug/kg	<6.0	50.0	03/22/24 15:09	
Chloroethane	ug/kg	<21.1	250	03/22/24 15:09	
Chloroform	ug/kg	<35.8	250	03/22/24 15:09	
Chloromethane	ug/kg	<19.0	50.0	03/22/24 15:09	
cis-1,2-Dichloroethene	ug/kg	<10.7	50.0	03/22/24 15:09	
cis-1,3-Dichloropropene	ug/kg	<33.0	250	03/22/24 15:09	
Dibromochloromethane	ug/kg	<171	250	03/22/24 15:09	
Dibromomethane	ug/kg	<14.8	50.0	03/22/24 15:09	
Dichlorodifluoromethane	ug/kg	<21.5	50.0	03/22/24 15:09	
Diisopropyl ether	ug/kg	<12.4	50.0	03/22/24 15:09	

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### QUALITY CONTROL DATA

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

METHOD BLANK: 2690662 Matrix: Solid

Associated Lab Samples: 40275474001, 40275474002, 40275474003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/kg	<11.9	50.0	03/22/24 15:09	
Hexachloro-1,3-butadiene	ug/kg	<99.4	250	03/22/24 15:09	
Isopropylbenzene (Cumene)	ug/kg	<13.5	50.0	03/22/24 15:09	
m&p-Xylene	ug/kg	<21.1	100	03/22/24 15:09	
Methyl-tert-butyl ether	ug/kg	<14.7	50.0	03/22/24 15:09	
Methylene Chloride	ug/kg	<13.9	50.0	03/22/24 15:09	
n-Butylbenzene	ug/kg	34.1J	50.0	03/22/24 15:09	
n-Propylbenzene	ug/kg	<12.0	50.0	03/22/24 15:09	
Naphthalene	ug/kg	<21.0	250	03/22/24 15:09	
o-Xylene	ug/kg	<15.0	50.0	03/22/24 15:09	
p-Isopropyltoluene	ug/kg	19.2J	50.0	03/22/24 15:09	
sec-Butylbenzene	ug/kg	20.6J	50.0	03/22/24 15:09	
Styrene	ug/kg	<12.8	50.0	03/22/24 15:09	
tert-Butylbenzene	ug/kg	<15.7	50.0	03/22/24 15:09	
Tetrachloroethene	ug/kg	<19.4	50.0	03/22/24 15:09	
Toluene	ug/kg	<12.6	50.0	03/22/24 15:09	
trans-1,2-Dichloroethene	ug/kg	<10.9	50.0	03/22/24 15:09	
trans-1,3-Dichloropropene	ug/kg	<143	250	03/22/24 15:09	
Trichloroethene	ug/kg	<18.7	50.0	03/22/24 15:09	
Trichlorofluoromethane	ug/kg	<14.5	50.0	03/22/24 15:09	
Vinyl chloride	ug/kg	<10.1	50.0	03/22/24 15:09	
1,2-Dichlorobenzene-d4 (S)	%	102	67-144	03/22/24 15:09	
4-Bromofluorobenzene (S)	%	102	72-142	03/22/24 15:09	
Toluene-d8 (S)	%	105	70-139	03/22/24 15:09	

LABORATORY CONTROL SAMPLE: 2690663

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	2500	2680	107	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	2500	2600	104	70-130	
1,1,2-Trichloroethane	ug/kg	2500	2340	94	70-130	
1,1-Dichloroethane	ug/kg	2500	2630	105	70-130	
1,1-Dichloroethene	ug/kg	2500	2680	107	77-122	
1,2,4-Trichlorobenzene	ug/kg	2500	2580	103	66-125	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2510	100	66-130	
1,2-Dibromoethane (EDB)	ug/kg	2500	2560	102	70-130	
1,2-Dichlorobenzene	ug/kg	2500	2670	107	70-130	
1,2-Dichloroethane	ug/kg	2500	2760	110	70-130	
1,2-Dichloropropane	ug/kg	2500	2650	106	80-121	
1,3-Dichlorobenzene	ug/kg	2500	2610	105	70-130	
1,4-Dichlorobenzene	ug/kg	2500	2590	104	70-130	
Benzene	ug/kg	2500	2630	105	70-130	
Bromodichloromethane	ug/kg	2500	2650	106	70-130	
Bromoform	ug/kg	2500	2430	97	67-130	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

LABORATORY CONTROL SAMPLE: 2690663

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromomethane	ug/kg	2500	2680	107	25-150	
Carbon tetrachloride	ug/kg	2500	2740	109	72-136	
Chlorobenzene	ug/kg	2500	2620	105	70-130	
Chloroethane	ug/kg	2500	2510	100	20-178	
Chloroform	ug/kg	2500	2720	109	80-120	
Chloromethane	ug/kg	2500	2600	104	45-123	
cis-1,2-Dichloroethene	ug/kg	2500	2480	99	70-130	
cis-1,3-Dichloropropene	ug/kg	2500	2610	104	70-130	
Dibromochloromethane	ug/kg	2500	2550	102	70-130	
Dichlorodifluoromethane	ug/kg	2500	2180	87	14-106	
Ethylbenzene	ug/kg	2500	2610	104	80-120	
Isopropylbenzene (Cumene)	ug/kg	2500	2540	102	70-130	
m&p-Xylene	ug/kg	5000	5050	101	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2510	100	70-130	
Methylene Chloride	ug/kg	2500	2590	104	70-130	
o-Xylene	ug/kg	2500	2590	104	70-130	
Styrene	ug/kg	2500	2720	109	70-130	
Tetrachloroethene	ug/kg	2500	2610	104	70-130	
Toluene	ug/kg	2500	2540	101	80-120	
trans-1,2-Dichloroethene	ug/kg	2500	2550	102	70-130	
trans-1,3-Dichloropropene	ug/kg	2500	2570	103	70-130	
Trichloroethene	ug/kg	2500	2630	105	70-130	
Trichlorofluoromethane	ug/kg	2500	2790	112	49-141	
Vinyl chloride	ug/kg	2500	2320	93	59-120	
1,2-Dichlorobenzene-d4 (S)	%			101	67-144	
4-Bromofluorobenzene (S)	%			106	72-142	
Toluene-d8 (S)	%			102	70-139	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2690664 2690665

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40275561008	Result	Spike Conc.	Spike Conc.								
1,1,1-Trichloroethane	ug/kg	<16.0	1250	1250	1080	952	87	76	56-130	13	20		
1,1,2,2-Tetrachloroethane	ug/kg	<22.6	1250	1250	1340	1260	107	101	70-133	6	20		
1,1,2-Trichloroethane	ug/kg	<22.7	1250	1250	1130	1120	91	89	70-130	1	20		
1,1-Dichloroethane	ug/kg	<16.0	1250	1250	1160	1100	93	88	70-130	5	20		
1,1-Dichloroethene	ug/kg	<20.7	1250	1250	904	774	72	62	52-122	15	20		
1,2,4-Trichlorobenzene	ug/kg	<51.5	1250	1250	1430	1350	114	108	66-136	6	20		
1,2-Dibromo-3-chloropropane	ug/kg	<48.5	1250	1250	1270	1200	102	96	59-131	6	23		
1,2-Dibromoethane (EDB)	ug/kg	<17.1	1250	1250	1260	1230	101	99	70-130	3	20		
1,2-Dichlorobenzene	ug/kg	<19.4	1250	1250	1380	1290	111	103	70-130	7	20		
1,2-Dichloroethane	ug/kg	<14.4	1250	1250	1330	1290	106	103	70-130	3	20		
1,2-Dichloropropane	ug/kg	<14.9	1250	1250	1280	1180	102	95	77-121	8	20		
1,3-Dichlorobenzene	ug/kg	<17.1	1250	1250	1360	1280	109	102	70-130	6	20		

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2690664		2690665		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40275561008 Result	MS Spike Conc.	MSD Spike Conc.									
1,4-Dichlorobenzene	ug/kg	<17.1	1250	1250	1410	1310	113	104	70-130	8	20		
Benzene	ug/kg	<14.9	1250	1250	1160	1100	93	88	70-130	5	20		
Bromodichloromethane	ug/kg	<14.9	1250	1250	1220	1180	98	94	70-130	3	20		
Bromoform	ug/kg	<275	1250	1250	1030	1010	83	81	67-130	2	20		
Bromomethane	ug/kg	<87.6	1250	1250	985	883	79	71	25-150	11	20		
Carbon tetrachloride	ug/kg	<13.7	1250	1250	1010	858	81	69	48-136	16	20		
Chlorobenzene	ug/kg	<7.5	1250	1250	1220	1170	98	94	70-130	4	20		
Chloroethane	ug/kg	<26.4	1250	1250	1010	869	81	70	20-178	15	23		
Chloroform	ug/kg	<44.7	1250	1250	1220	1200	98	96	80-120	2	20		
Chloromethane	ug/kg	<23.7	1250	1250	771	757	62	61	23-132	2	20		
cis-1,2-Dichloroethene	ug/kg	<13.4	1250	1250	1150	1080	92	87	70-130	6	20		
cis-1,3-Dichloropropene	ug/kg	<41.2	1250	1250	1180	1130	94	90	70-130	5	20		
Dibromochloromethane	ug/kg	<214	1250	1250	1210	1160	96	93	70-130	4	20		
Dichlorodifluoromethane	ug/kg	<26.9	1250	1250	370	256	30	21	10-106	36	34	R1	
Ethylbenzene	ug/kg	<14.9	1250	1250	1200	1100	96	88	80-120	9	20		
Isopropylbenzene (Cumene)	ug/kg	<16.9	1250	1250	1110	989	89	79	70-130	12	20		
m&p-Xylene	ug/kg	<26.4	2500	2500	2380	2240	95	90	70-130	6	20		
Methyl-tert-butyl ether	ug/kg	<18.4	1250	1250	1130	1130	91	91	67-130	0	20		
Methylene Chloride	ug/kg	<17.4	1250	1250	1190	1170	95	94	70-130	2	20		
o-Xylene	ug/kg	<18.7	1250	1250	1240	1170	99	94	70-130	5	20		
Styrene	ug/kg	<16.0	1250	1250	1220	1240	97	99	70-130	2	20		
Tetrachloroethene	ug/kg	67.3	1250	1250	1210	1080	91	81	70-130	11	20		
Toluene	ug/kg	<15.7	1250	1250	1150	1070	92	86	80-120	7	20		
trans-1,2-Dichloroethene	ug/kg	<13.7	1250	1250	1070	998	86	80	70-130	7	20		
trans-1,3-Dichloropropene	ug/kg	<179	1250	1250	1180	1150	94	92	70-130	2	20		
Trichloroethene	ug/kg	<23.4	1250	1250	1150	1120	92	89	70-130	3	20		
Trichlorofluoromethane	ug/kg	<18.1	1250	1250	939	661	75	53	21-141	35	28	R1	
Vinyl chloride	ug/kg	<12.6	1250	1250	739	596	59	48	29-120	21	20	R1	
1,2-Dichlorobenzene-d4 (S)	%						110	110	67-144				
4-Bromofluorobenzene (S)	%						115	108	72-142				
Toluene-d8 (S)	%						111	106	70-139				

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**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL DATA**

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

QC Batch:	469954	Analysis Method:	EPA 8270E by SIM
QC Batch Method:	EPA 3546	Analysis Description:	8270E/3546 MSSV PAH by SIM
		Laboratory:	Pace Analytical Services - Green Bay

Associated Lab Samples: 40275474001, 40275474002, 40275474003

METHOD BLANK: 2692609 Matrix: Solid

Associated Lab Samples: 40275474001, 40275474002, 40275474003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	<2.4	16.7	03/25/24 10:42	
2-Methylnaphthalene	ug/kg	<2.4	16.7	03/25/24 10:42	
Acenaphthene	ug/kg	<2.2	16.7	03/25/24 10:42	
Acenaphthylene	ug/kg	<2.1	16.7	03/25/24 10:42	
Anthracene	ug/kg	<2.1	16.7	03/25/24 10:42	
Benzo(a)anthracene	ug/kg	<2.2	16.7	03/25/24 10:42	
Benzo(a)pyrene	ug/kg	<1.9	16.7	03/25/24 10:42	
Benzo(b)fluoranthene	ug/kg	<2.3	16.7	03/25/24 10:42	
Benzo(g,h,i)perylene	ug/kg	<2.9	16.7	03/25/24 10:42	
Benzo(k)fluoranthene	ug/kg	<2.1	16.7	03/25/24 10:42	
Chrysene	ug/kg	<3.2	16.7	03/25/24 10:42	
Dibenz(a,h)anthracene	ug/kg	<2.3	16.7	03/25/24 10:42	
Fluoranthene	ug/kg	<2.0	16.7	03/25/24 10:42	
Fluorene	ug/kg	<2.0	16.7	03/25/24 10:42	
Indeno(1,2,3-cd)pyrene	ug/kg	<3.5	16.7	03/25/24 10:42	
Naphthalene	ug/kg	<1.6	16.7	03/25/24 10:42	
Phenanthrene	ug/kg	<1.9	16.7	03/25/24 10:42	
Pyrene	ug/kg	<2.5	16.7	03/25/24 10:42	
2-Fluorobiphenyl (S)	%	76	39-120	03/25/24 10:42	
Terphenyl-d14 (S)	%	87	36-120	03/25/24 10:42	

LABORATORY CONTROL SAMPLE: 2692610

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	333	240	72	62-120	
2-Methylnaphthalene	ug/kg	333	236	71	61-120	
Acenaphthene	ug/kg	333	268	81	66-120	
Acenaphthylene	ug/kg	333	265	80	63-120	
Anthracene	ug/kg	333	269	81	72-120	
Benzo(a)anthracene	ug/kg	333	280	84	64-120	
Benzo(a)pyrene	ug/kg	333	306	92	76-120	
Benzo(b)fluoranthene	ug/kg	333	310	93	62-120	
Benzo(g,h,i)perylene	ug/kg	333	305	91	73-120	
Benzo(k)fluoranthene	ug/kg	333	298	89	69-120	
Chrysene	ug/kg	333	266	80	70-120	
Dibenz(a,h)anthracene	ug/kg	333	274	82	72-120	
Fluoranthene	ug/kg	333	292	88	71-120	
Fluorene	ug/kg	333	282	85	68-120	
Indeno(1,2,3-cd)pyrene	ug/kg	333	275	83	72-120	

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### QUALITY CONTROL DATA

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

LABORATORY CONTROL SAMPLE: 2692610

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/kg	333	236	71	60-120	
Phenanthrene	ug/kg	333	283	85	66-120	
Pyrene	ug/kg	333	239	72	65-120	
2-Fluorobiphenyl (S)	%			74	39-120	
Terphenyl-d14 (S)	%			75	36-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2692611 2692612

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40275877004 Result	Spike Conc.	Spike Conc.	MS Result						
1-Methylnaphthalene	ug/kg	<2.9	391	390	257	240	66	62	50-120	7	34
2-Methylnaphthalene	ug/kg	<2.9	391	390	253	240	65	61	48-120	6	29
Acenaphthene	ug/kg	<2.5	391	390	284	265	73	68	51-120	7	26
Acenaphthylene	ug/kg	<2.5	391	390	283	266	73	68	49-120	6	22
Anthracene	ug/kg	<2.4	391	390	292	268	75	69	52-120	8	25
Benzo(a)anthracene	ug/kg	<2.5	391	390	296	275	76	70	47-120	7	37
Benzo(a)pyrene	ug/kg	<2.2	391	390	354	352	91	90	53-120	1	33
Benzo(b)fluoranthene	ug/kg	<2.7	391	390	315	317	80	81	43-120	1	43
Benzo(g,h,i)perylene	ug/kg	<3.4	391	390	321	340	82	87	38-120	6	36
Benzo(k)fluoranthene	ug/kg	<2.5	391	390	315	324	81	83	49-120	3	30
Chrysene	ug/kg	<3.7	391	390	275	258	70	66	45-120	6	28
Dibenz(a,h)anthracene	ug/kg	<2.7	391	390	302	329	77	84	41-120	9	33
Fluoranthene	ug/kg	<2.3	391	390	332	311	85	80	50-120	6	43
Fluorene	ug/kg	<2.3	391	390	296	274	76	70	47-120	8	27
Indeno(1,2,3-cd)pyrene	ug/kg	<4.1	391	390	301	330	77	85	35-120	9	33
Naphthalene	ug/kg	<1.9	391	390	255	243	65	62	42-120	5	26
Phenanthrene	ug/kg	<2.2	391	390	313	285	80	73	45-120	9	24
Pyrene	ug/kg	<2.9	391	390	274	256	70	65	42-120	7	41
2-Fluorobiphenyl (S)	%						67	62	39-120		
Terphenyl-d14 (S)	%						71	61	36-120		

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### QUALITY CONTROL DATA

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

QC Batch: 469339

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40275474001, 40275474002, 40275474003

SAMPLE DUPLICATE: 2689150

Parameter	Units	40275485003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.1	17.2	1	10	

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## QUALIFIERS

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

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### DEFINITIONS

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

ND - Not Detected at or above LOD.

J - The reported result is an estimated value.

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

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

DL - Adjusted Method Detection Limit.

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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MARINETTE; LUDINGTON ST.

Pace Project No.: 40275474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40275474001	TS-1	EPA 3050B	469274	EPA 6010D	469578
40275474002	TS-2	EPA 3050B	469274	EPA 6010D	469578
40275474003	TS-3	EPA 3050B	469274	EPA 6010D	469578
40275474001	TS-1	EPA 7471	470003	EPA 7471	470125
40275474002	TS-2	EPA 7471	470003	EPA 7471	470125
40275474003	TS-3	EPA 7471	470003	EPA 7471	470125
40275474001	TS-1	EPA 3546	469954	EPA 8270E by SIM	470033
40275474002	TS-2	EPA 3546	469954	EPA 8270E by SIM	470033
40275474003	TS-3	EPA 3546	469954	EPA 8270E by SIM	470033
40275474001	TS-1	EPA 5035/5030B	469656	EPA 8260	469657
40275474002	TS-2	EPA 5035/5030B	469656	EPA 8260	469657
40275474003	TS-3	EPA 5035/5030B	469656	EPA 8260	469657
40275474001	TS-1	ASTM D2974-87	469339		
40275474002	TS-2	ASTM D2974-87	469339		
40275474003	TS-3	ASTM D2974-87	469339		

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Pace® Location Requested (City/State):  
Pace Analytical Green Bay  
1241 Bellevue Street, Suite 9  
Green Bay, WI 54302

### CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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40275474

Scan QR Code for instructions

Company Name: **AYRES & ASSOCIATES - GREEN BAY**  
Street Address: **3376 Packerland Avenue,  
De Pere, WI 54115**  
Customer Project #:  
Project Name: **MARINETTE; LUDINGTON ST.**  
Site Collection Info/Facility ID (as applicable):

Contact/Report To: **Bill Honea**  
Phone #: **920-327-7815**  
E-Mail: **honeaw@ayresassociates.com**  
Cc E-Mail:  
Invoice To: **Account GB Subs**  
Invoice E-Mail: **subs@ayresassociates.com**  
Purchase Order # (if applicable):  
Quote #:

Specify Container Size \*\*  
Identify Container Preservative Type\*\*\*  
Analysis Requested

\*\*Container Size (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other  
\*\*\* Preservative Types (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET  
Data Deliverables: [ ] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other  
Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No  
Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other  
Date Results Requested: **Stand TAT**  
Field Filtered (if applicable): [ ] Yes [ ] No  
Analysis:

Lab Use Only	Proj. Mgr: <b>Dan Milewsky</b>	Preservation non-conformance identified for sample
	AcctNum / Client ID:	
	Table #:	
	Profile / Template: <b>7176</b>	
	Prelog / Bottle Ord. ID: <b>EZ 3086498</b>	
Sample Comment		

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start		Collected or Composite End		# Cont.	Res. Chlorine		PAH	RCRA Metals and Dry Wt.	VOC							
			Date	Time	Date	Time		Results	Units										
TS-1	SS	Grab			3/13/24	13:45	3			X	X	X							
TS-2	SS	Grab			3/13/24	13:55	3			X	X	X							
TS-3	SS	Grab			3/13/24	14:05	3			X	X	X							

Additional Instructions from Pace\*:  
Collected By: (Printed Name) **William Honea**  
Signature: *William Honea*

Customer Remarks / Special Conditions / Possible Hazards:  
# Coolers: **1** Thermometer ID: **137** Correction Factor (°C): **0** Obs. Temp. (°C): **1.0** Corrected Temp (°C): **1.0** On Ice: **X**

Relinquished by/Company (Signature): *William Honea* Date/Time: **3/14/24 - 9:00**  
Relinquished by/Company (Signature): *[Signature]* Date/Time: **3/14/24 9:00**  
Relinquished by/Company (Signature):  
Relinquished by/Company (Signature):

Received by/Company (Signature): *Susan Nyko Pace* Date/Time:  
Received by/Company (Signature):  
Received by/Company (Signature):  
Received by/Company (Signature):  
Tracking Number:  
Delivered by: [ ] In-Person [ ] Courier  
[ ] FedEx [ ] UPS [ ] Other  
Page: **1 of 1**

Client Name: AYRES

Sample Preservation Receipt Form  
Project # 40275474

All containers needing preservation have been checked and noted below  
Lab Lot# of pH paper

Yes  No  N/A  
Lab Std #ID of preservation (if pH adjusted)

Initial when completed:

Date/Time:

Pace Lab #	Glass						Plastic					Vials					Jars				General		VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)							
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU								SP5T	ZPLC	GN 1	GN 2			
001																																				2.5 / 5
002																																				2.5 / 5
003																																				2.5 / 5
004																																				2.5 / 5
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019																																				2.5 / 5
020																																				2.5 / 5

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


<b>AG1U</b>	1 liter amber glass	<b>BP1U</b>	1 liter plastic unpres	<b>VG9C</b>	40 mL clear ascorbic w/ HCl	<b>JGFU</b>	4 oz amber jar unpres
<b>BG1U</b>	1 liter clear glass	<b>BP3U</b>	250 mL plastic unpres	<b>DG9T</b>	40 mL amber Na Thio	<b>JG9U</b>	9 oz amber jar unpres
<b>AG1H</b>	1 liter amber glass HCL	<b>BP3B</b>	250 mL plastic NaOH	<b>VG9U</b>	40 mL clear vial unpres	<b>WGFU</b>	4 oz clear jar unpres
<b>AG4S</b>	125 mL amber glass H2SO4	<b>BP3N</b>	250 mL plastic HNO3	<b>VG9H</b>	40 mL clear vial HCL	<b>WPFU</b>	4 oz plastic jar unpres
<b>AG5U</b>	100 mL amber glass unpres	<b>BP3S</b>	250 mL plastic H2SO4	<b>VG9M</b>	40 mL clear vial MeOH	<b>SP5T</b>	120 mL plastic Na Thiosulfate
<b>AG2S</b>	500 mL amber glass H2SO4	<b>BP2Z</b>	500 mL plastic NaOH + Zn	<b>VG9D</b>	40 mL clear vial DI	<b>ZPLC</b>	ziploc bag
<b>BG3U</b>	250 mL clear glass unpres					<b>GN 1</b>	
						<b>GN 2</b>	

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

Project #:

Client Name: AYRES

**WO#: 40275474**



40275474

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

Tracking #: \_\_\_\_\_

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used SR - 137 Type of Ice: Wet Blue Dry None  Meltwater Only

Cooler Temperature Uncorr: 1.0 / Corr: 1.0

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

Temp should be above freezing to 6°C.

Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:  
 Date: 3/14/04 / Initials: SL  
 Labeled By Initials: JAA

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

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