NR 718 Material Management Request

WisDOT Project ID: 9995-00-65
Ludington Street, Marinette, WI
Ely Street to Stanton Street

Prepared for:

City of Marinette

December 2, 2022

Material Handling Plan

WisDOT Project ID: 9995-00-65
Ludington Street, Marinette, WI
Ely Street to Stanton Street

3376 Packerland Drive
Ashwaubenon, WI 54115
920.498.1200
www.AyresAssociates.com

Ayres Project No. 51-0712.04
File: i:\51\gb\city of marinette\51-0712.04 ludington street - material mngmt plan\nr 718 exemption request\nr 718 materal managment request submittal.docx

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PROJECT STAKEHOLDERS

On behalf of the City of Marinette, Ayres prepared this request to manage materials onsite under Wis. Admin. Code NR 718 for the reconstruction of Ludington Street between Ely and Stanton Street (project site) in the City of Marinette. Contact information for project stakeholders is listed below.

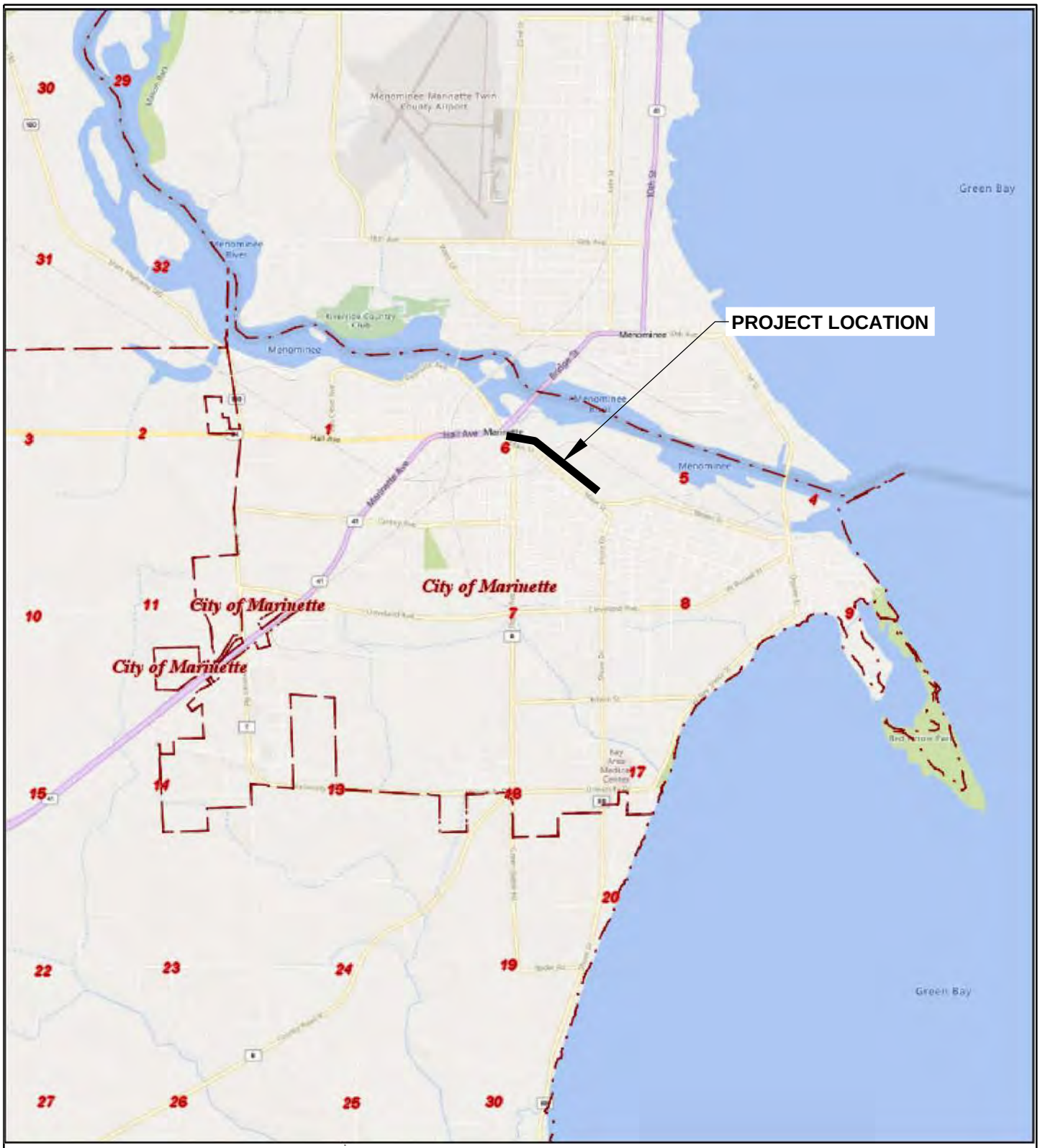
Owner
City of Marinette
Brian Miller, City Engineer
1905 Hall Avenue
Marinette, WI 54143
715.732.5180

WDNR Project Manager
Sarah Krueger, PG
2984 Shawano Avenue
Green Bay, WI 54313
Sarah.Krueger@wisconsin.gov
920.510.8277

Environmental Consultant
Ayres Associates
Bill Honea, PG
3376 Packerland Drive
Ashwaubenon, WI 54115
HoneaW@ayresassociates.com
920.327.7815

Contractor
To Be Determined

Figure 1: Location Map



https://mcgis.marinettecounty.com

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Feet

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Notice/Disclaimer: The land records site is intended to be a general guide to property and land information, and does not represent a survey of real property nor should it be used or referenced to for conveyance of real property, guaranteeing title thereto or making official determinations of building development, permitting or other activity. Contact the appropriate County Department to obtain original source documents or for official determinations. This information has been developed from various sources and although efforts have been made to ensure accuracy and reliability; errors, omissions and variable conditions originating from compilation and sources used to develop the information may be reflected herein. In addition, land information is constantly changing and the most current or accurate data might not be represented. The information accessible through this site is represented "as is" without warranty of any kind, either expressed or implied, or statutory, including, but not limited to, the implied warranties or merchantability and fitness for a particular purpose. No guarantee of accuracy, completeness or currentness is granted nor is any responsibility for reliance thereon assumed. The user assumes the entire risk as to the quality, use and reliability of the entire information. Marinette County does not accept any liability for damages or misrepresentation of any kind caused by inaccuracies in the information and in no event shall Marinette County, its elected or appointed officials or employees be liable for direct, indirect, incidental, consequential or special damages of any kind.

DR.BY T. Shupert CHK.BY B. Honea DATE DEC. 2021	SOIL AND GROUNDWATER TESTING LUDINGTON ROAD MARINETTE, WISCONSIN	AYRES Eau Claire, Wisconsin	LOCATION MAP	FIGURE NO. 1

AA-Standard.stb
12/20/2021
I:\51\CAD\Marinett w\Ludington Street\EnvirPlan.dwg, Layout: Layout1

Figure 2: Existing Conditions Site Plan with Sample Locations and Exceedances

A

A'

NORTH

0 100 FEET

RYDAHLS 76 SITE

PROPOSED WATER MAIN PIPING

FARMERS & MERCHANTS BAND & TRUST

PROPOSED STORM SEWER PIPING

LIMIT OF CONSTRUCTION DISTURBANCE

PROPOSED STORM SEWER PIPING

PROPOSED WATER MAIN PIPING

PROPOSED SANITARY SEWER PIPING

FORMER LOG RUN

MANN STREET

WELLS STREET

MAIN STREET

WPSC MARINETTE MGP

ESTIMATED EXTENT OF CONTAMINATED FILL > NR 720 SOIL RCLS WITHIN PROJECT LIMITS

ELY STREET

MARINETTE MARINE BLDG 34

GOODWILL INDUSTRIES

PROPOSED STORM SEWER PIPING

LUDINGTON STREET

TEST PIT 4

LIMIT OF CONSTRUCTION DISTURBANCE

TEST PIT 3

FORMER LOG RUN

CONTAMINATED FILL MIXED WITH REFUSE

VILLAGE PUMP II

TEST PIT 2

PROPOSED STORM SEWER PIPING

STANTON STREET

TEST PIT 1

MACBI-TYCO REVEVELOPMENT SITE

Proposed Receiving Area in Blue

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10

B-4 B-5 B-6 B-7 B-8 B-9

GP-5 (1.5-2.5')		
Analyte	mg/kg	Exceedance
Lead	84.6	PGW
Cyanide	7.0	PGW
Benzo(a)pyrene	0.996	NI-DC & PGW
Benzo(a)fluoranthene	1.53	NI-DC & PGW
Chrysene	1.03	PGW
Dibenz(a,h)anthracene	0.301 J	NI-DC
Benzene	0.0287	PGW

GP-6 (2-4')		
Analyte	mg/Kg	Exceedance
Cyanide	9.4	PGW
Benzo(a)anthracene	2.09	NI-DC
Benzo(a)pyrene	1.03	NI-DC & PGW
Benzo(a)fluoranthene	3.67	NI-DC & PGW
Chrysene	3.06	PGW
Dibenz(a,h)anthracene	0.624	NI-DC
Indeno(1,2,3-cd)pyrene	1.46	NI-DC
Naphthalene	1.62	PGW
Benzene	0.0683	PGW

GP-8 (2-4')		
Analyte	mg/Kg	Exceedance
Lead	104	PGW
Benzo(a)anthracene	1.68	NI-DC
Benzo(a)pyrene	1.79	NI-DC & PGW
Benzo(b)fluoranthene	2.42	NI-DC & PGW
Chrysene	1.77	PGW
Dibenz(a,h)anthracene	0.292 J	NI-DC

GP-8 (7-8')		
Analyte	mg/Kg	Exceedance
Arsenic	287	NI-DC & PGW
Lead	353	PGW
Benzo(a)pyrene	0.368 J	NI-DC
Benzo(b)fluoranthene	0.541	PGW
Chrysene	0.587	PGW
Naphthalene	14.4	NI-DC & PGW
Benzene	0.136	PGW

GP-10 (2-4')		
Analyte (2-4')	mg/Kg	Exceedance
Arsenic	14	I-DC & PGW
Lead	211	PGW
Benzo(a)anthracene	26.1	I-DC
Benzo(a)pyrene	19.7	I-DC & PGW
Benzo(b)fluoranthene	29.3	I-DC & PGW
Benzo(k)fluoranthene	14.3	NI-DC
Chrysene	28.6	PGW
Dibenz(a,h)anthracene	2.91 J	I-DC
Indeno(1,2,3-cd)pyrene	7.44 J	NI-DC
Naphthalene	5.31 J	PGW

GP-9 (1.5-3.5')		
Analyte	mg/Kg	Exceedance
Lead	57.5	PGW
Benzo(a)anthracene	59.3	I-DC
Benzo(a)pyrene	49.6	I-DC & PGW
Benzo(b)fluoranthene	58.5	I-DC & PGW
Benzo(k)fluoranthene	33.2	NI-DC
Chrysene	56.4	PGW
Dibenz(a,h)anthracene	6.4 J	I-DC
Fluoranthene	191	PGW
Fluorene	35.9	PGW
Indeno(1,2,3-cd)pyrene	19.1	NI-DC
Naphthalene	34.1	I-DC & PGW
Pyrene	117	PGW

GP-9 (5.5-7.5')		
Analyte	mg/Kg	Exceedance
Lead	56.5	PGW
Benzo(a)pyrene	0.773	NI-DC & PGW
Benzo(b)fluoranthene	0.977	PGW
Chrysene	0.926	PGW

LEGEND

- CITY TEST PITS (TP-1 TO TP-4) (9/16/2021)
- B-7 ECS MIDWEST GEOTECHNICAL BORINGS (B-4 TO B-9) (7/13/2021)
- GP-5 AYRES SOIL AND GROUNDWATER TESTING PROBES (GP-1 TO GP-10) (10/13/2021)
- ESTIMATED EXTENT OF CONTAMINATED FILL > NR 720 SOIL RCLS WITHIN PROJECT LIMITS
- CONTAMINATED FILL MIXED WITH REFUSE

AX-Standard.stb
12/23/2021
I:\51\CAD\Marinett wi\Ludington Street\Enviro\Plan dwg, Layout: Ludington street

DES BY	B. HONEA	BOOK NO	
DR BY	T. SHUPERT	PROJ NO	52-0712.00
CHK BY	B. HONEA	DATE	DEC. 2021

NO	DATE	REVISION

NO	DATE	REVISION

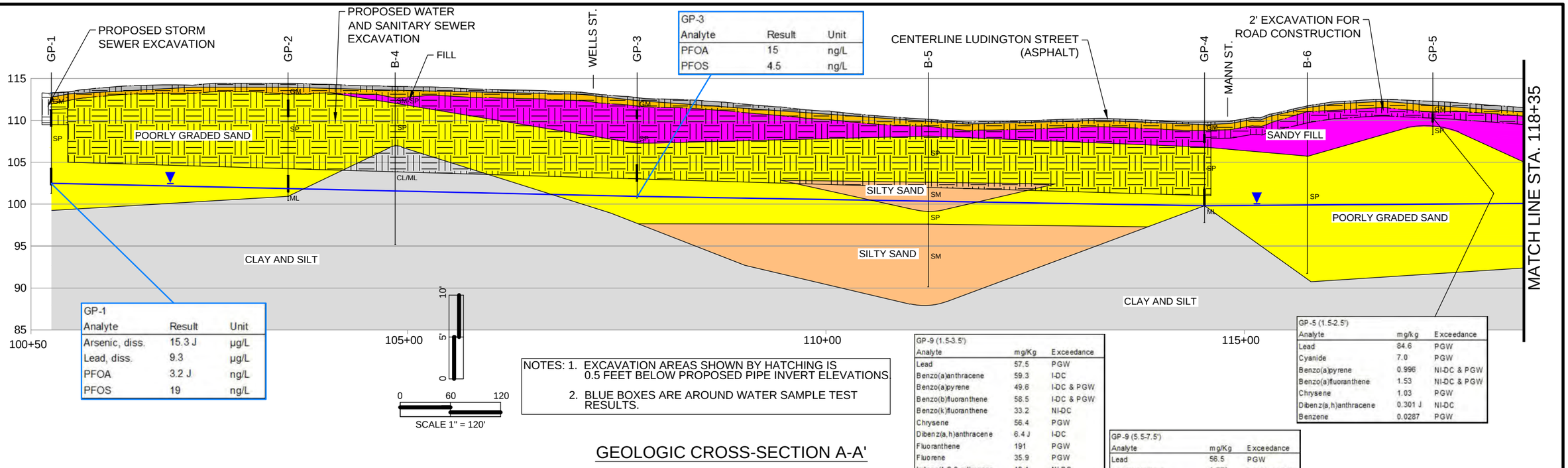
SOIL AND GROUNDWATER TESTING
LUDINGTON ROAD
MARINETTE, WISCONSIN

AYRES
Eau Claire, WI 54701

SITE PLAN

SHEET NO 2

Figure 3: Geologic Cross-section with Proposed Excavations and Exceedances



GP-3		
Analyte	Result	Unit
PFOA	15	ng/L
PFOS	4.5	ng/L

GP-1		
Analyte	Result	Unit
Arsenic, diss.	15.3 J	µg/L
Lead, diss.	9.3	µg/L
PFOA	3.2 J	ng/L
PFOS	19	ng/L

NOTES: 1. EXCAVATION AREAS SHOWN BY HATCHING IS 0.5 FEET BELOW PROPOSED PIPE INVERT ELEVATIONS.

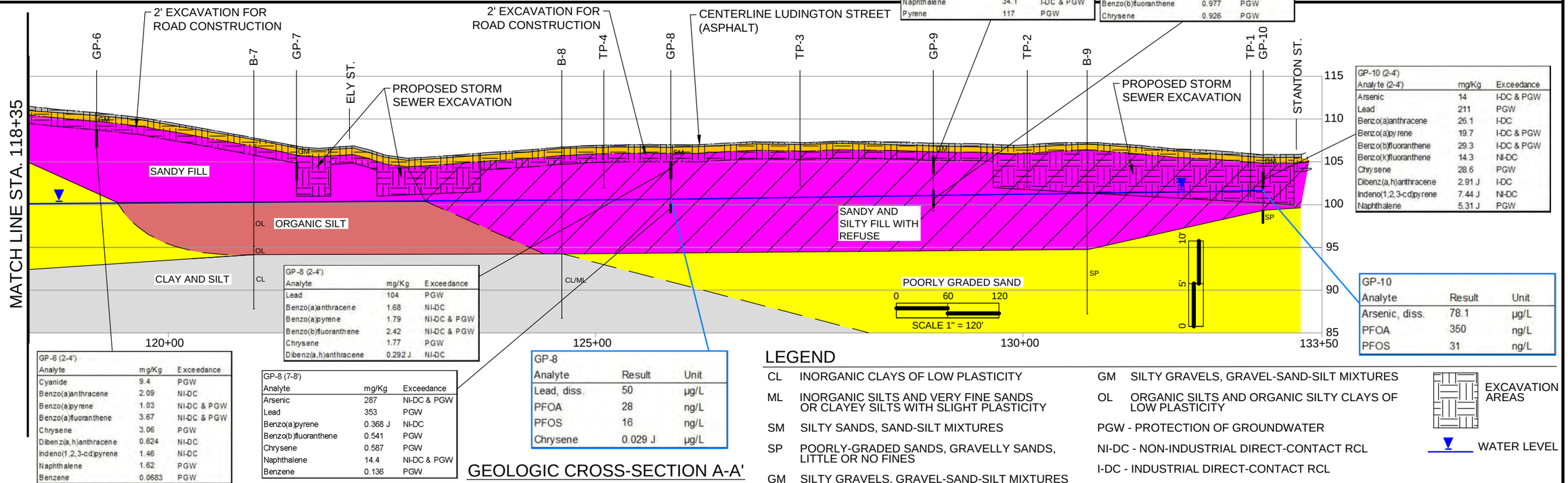
2. BLUE BOXES ARE AROUND WATER SAMPLE TEST RESULTS.

GEOLOGIC CROSS-SECTION A-A'

GP-9 (1.5-3.5')		
Analyte	mg/Kg	Exceedance
Lead	57.5	PGW
Benzo(a)anthracene	59.3	I-DC
Benzo(a)pyrene	49.6	I-DC & PGW
Benzo(b)fluoranthene	58.5	I-DC & PGW
Benzo(k)fluoranthene	33.2	NI-DC
Chrysene	56.4	PGW
Dibenz(a,h)anthracene	6.4 J	I-DC
Fluoranthene	191	PGW
Fluorene	35.9	PGW
Indeno(1,2,3-cd)pyrene	19.1	NI-DC
Naphthalene	34.1	I-DC & PGW
Pyrene	117	PGW

GP-9 (5.5-7.5')		
Analyte	mg/Kg	Exceedance
Lead	56.5	PGW
Benzo(a)pyrene	0.773	NI-DC & PGW
Benzo(b)fluoranthene	0.977	PGW
Chrysene	0.926	PGW

GP-5 (1.5-2.5')		
Analyte	mg/kg	Exceedance
Lead	84.6	PGW
Cyanide	7.0	PGW
Benzo(a)pyrene	0.996	NI-DC & PGW
Benzo(a)fluoranthene	1.53	NI-DC & PGW
Chrysene	1.03	PGW
Dibenz(a,h)anthracene	0.301 J	NI-DC
Benzene	0.0287	PGW



GP-10 (2-4')		
Analyte (2-4')	mg/Kg	Exceedance
Arsenic	14	I-DC & PGW
Lead	211	PGW
Benzo(a)anthracene	26.1	I-DC
Benzo(a)pyrene	19.7	I-DC & PGW
Benzo(b)fluoranthene	29.3	I-DC & PGW
Benzo(k)fluoranthene	14.3	NI-DC
Chrysene	28.6	PGW
Dibenz(a,h)anthracene	2.91 J	I-DC
Indeno(1,2,3-cd)pyrene	7.44 J	NI-DC
Naphthalene	5.31 J	PGW

GP-8 (2-4')		
Analyte	mg/Kg	Exceedance
Lead	104	PGW
Benzo(a)anthracene	1.68	NI-DC
Benzo(a)pyrene	1.79	NI-DC & PGW
Benzo(b)fluoranthene	2.42	NI-DC & PGW
Chrysene	1.77	PGW
Dibenz(a,h)anthracene	0.292 J	NI-DC

GP-6 (2-4')		
Analyte	mg/Kg	Exceedance
Cyanide	9.4	PGW
Benzo(a)anthracene	2.09	NI-DC
Benzo(a)pyrene	1.03	NI-DC & PGW
Benzo(a)fluoranthene	3.67	NI-DC & PGW
Chrysene	3.06	PGW
Dibenz(a,h)anthracene	0.624	NI-DC
Indeno(1,2,3-cd)pyrene	1.46	NI-DC
Naphthalene	1.62	PGW
Benzene	0.0683	PGW

GP-8 (7-8')		
Analyte	mg/Kg	Exceedance
Arsenic	287	NI-DC & PGW
Lead	353	PGW
Benzo(a)pyrene	0.368 J	NI-DC
Benzo(b)fluoranthene	0.541	PGW
Chrysene	0.587	PGW
Naphthalene	14.4	NI-DC & PGW
Benzene	0.136	PGW

GP-8		
Analyte	Result	Unit
Lead, diss.	50	µg/L
PFOA	28	ng/L
PFOS	16	ng/L
Chrysene	0.029 J	µg/L

GP-10		
Analyte	Result	Unit
Arsenic, diss.	78.1	µg/L
PFOA	350	ng/L
PFOS	31	ng/L

GEOLOGIC CROSS-SECTION A-A'

LEGEND

CL	INORGANIC CLAYS OF LOW PLASTICITY	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
ML	INORGANIC SILTS AND VERY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SM	SILTY SANDS, SAND-SILT MIXTURES		
SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES		
GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES		

PGW - PROTECTION OF GROUNDWATER

NI-DC - NON-INDUSTRIAL DIRECT-CONTACT RCL

I-DC - INDUSTRIAL DIRECT-CONTACT RCL

EXCAVATION AREAS

WATER LEVEL

AA-Standard.stb
12/20/2021
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DES BY	B. HONEA	BOOK NO								
DR BY	T. SHUPERT	PROJ NO	52-0712.00							
CHK BY	B. HONEA	DATE	DEC. 2021	NO	DATE	REVISION	NO	DATE	REVISION	

SOIL AND GROUNDWATER TESTING
LUDINGTON ROAD
MARINETTE, WISCONSIN

AYRES
Eau Claire, WI 54701

GEOLOGIC SECTION A - A' (CENTERLINE OF ROADWAY)

SHEET NO 3

Figure 4: Surface Water Data View Map

Figure 4

Surface Water Data Viewer Map

Legend

- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Floodplains
  - Flood Fringe
  - Floodway
- Flood Hazard Boundaries
  - Limit Lines
  - SFHA / Flood Zone Boundary
- Flood Hazard Zones
  - 1% Annual Chance Flood Hazard
  - Regulatory Floodway
  - Special Floodway
  - Area of Undetermined Flood Hazard
  - 0.2% Annual Chance Flood Hazard
  - Future Conditions 1% Annual Chance Flood Hazard

Notes

0.3 0 0.13 0.3 Miles

NAD_1983_HARN_Wisconsin_TM

1: 7,920

Appendix A

Request to Manage Materials Form 4400-315

State of Wisconsin
Department of Natural Resources
Madison WI 53707-7921
dnr.wi.gov

Recommended Template for Request to Manage Materials under Wis. Admin. Code § NR 718.12 or NR 718.15

Form 4400-315 (R 11/20)

Purpose

The purpose of this document is to provide an optional template format for a request to manage material under Wis. Admin. Code § NR 718.12 or NR 718.15. This document may be included as part of an interim or remedial action plan (RAP) or post-closure modification request, or can be submitted by itself depending on the activities conducted at the site. Using this recommended format will likely result in a faster Department of Natural Resources (DNR) review. At a minimum, all requests must satisfy the requirements outlined in Wis. Admin. Code § NR 718.12 (1) and (2) (b).

Introduction

Contaminated soil and other solid waste generated from a response action site as part of an interim or remedial action may be managed at a site or facility that is not an operating licensed landfill if an exemption from the Waste and Materials Management Program requirements established in Wis. Stat. ch. 289 and Wis. Admin. Code ch. NR 500 to NR 538 is obtained under Wis. Admin. Code §§ NR 718.12 or NR 718.15. An approval under Wis. Admin. Code § NR 718.12 can be granted when contaminated soil is being managed as part of an interim action under Wis. Admin. Code ch. NR 708 or a remedial action under Wis. Admin. Code ch. NR 722. An approval through Wis. Admin. Code § NR 718.15 can be granted when other solid waste material is managed as part of an interim or remedial action on the site from which it was generated. Managing material under either section requires prior written approval from the DNR. For more information see "Management of Contaminated Soil and Other Solid Wastes, Wis. Admin. Code §§ NR 718.12 and NR 718.15" (RR-060), by visiting dnr.wi.gov, search "RR-060."

If this approval request involves contaminated material impacted by a discharge of a hazardous substance that has not been reported to the DNR, a "Notification for Hazardous Substance Discharge (non-emergency)", DNR Form 4400-225, must be completed and submitted immediately as required by Wis. Admin. Code § NR 706, unless an alternate method of reporting is approved by the DNR. This form can be found by visiting dnr.wi.gov, search "4400-225."

This template is not intended to be used for immediate actions under Wis. Admin. Code § NR 708.05, as prior DNR approval is not required if: 1) the requirements of Wis. Admin. Code § NR 718.12 (1) are met, 2) contaminant concentrations do not exceed Wis. Admin. Code ch. NR 720 soil residual contaminant levels, 3) and the quantity of material managed is less than 100 cubic yards total.

Requests to manage material under Wis. Admin. Code ch. NR 718 for projects involving large-scale disposal or requiring items such as a liner system, leachate treatment and an engineered cap, or projects proposing to place the material below the groundwater table, should not be requested using this template. Consult with DNR staff before submitting such a proposal

Document Instructions

In order to expedite processing, complete all applicable sections of this document as instructed. **Fields/sections required by administrative code are marked with a red asterisk (*).** All other fields are optional and are included to assist DNR staff in gathering additional information to expedite review of the request.

Some portions of the document may be filled in directly as indicated, other responses may need to be completed separately and attached. If a field is not relevant, explaining why will further assist staff in reviewing the request.

In this document, "generating site or facility" means the site or facility where the response action is generating the contaminated material subject to this approval request. "Receiving site or facility" means the site or facility where the contaminated material is proposed to be managed. The "receiving site or facility" may be the same site or facility as the generating site or facility, or it may be a different site or facility.

Submittal Instructions

Please submit this form and related documents using the RR Program Submittal Portal at dnr.wi.gov, search "RR Submittal Portal". All accompanying attachments should be combined into a separate PDF. Please see RR-690 for up-to-date information on submitting documents.

For questions on this form, please contact Judy Fassbender at judy.fassbender@wisconsin.gov.

Section 1 – Purpose of Request

Identify the purpose of the request by checking each box that applies:

☒ Manage contaminated soil as part of an interim or remedial action or post-closure modification on the same response action site from which it was generated (Wis. Admin. Code §§ NR 718.12 (1) and (2)).

☐ Manage contaminated soil as part of an interim or remedial action or post-closure modification at a site or facility that is different from the response action site from which it was generated (Wis. Admin. Code §§ NR 718.12 (1) and (2)).

☒ Manage other solid waste other than contaminated soil, as part of a response action, at the same site from which it was generated (Wis. Admin. Code § NR 718.15).

If none of the above boxes are checked, the proposed materials management activity cannot be exempted from solid waste rules under Wis. Admin. Code ch. NR 718. Management of solid waste material generated as a result of a non-NR 700 action may be allowed after obtaining a "low hazard exemption" from the DNR Waste and Material Management Program. Please see the DNR publication "Exempting Low-Hazard Wastes from Solid Waste Regulations" (PUB-WA 1645), which can be found by visiting dnr.wi.gov, search "WA1645."

Section 2 – Applicable Fees

Fees are assessed for each type of Wis. Admin. Code § NR 718.12 or NR 718.15 request (plus database fee) **per site or facility** where contaminated material is excavated or managed. The below tables are provided to assist you in calculating the appropriate Wis. Admin. Code § NR 749 fee required for the review of your submittal.

Identify the Wis. Admin. Code § NR 749 review fees for this submittal by checking the applicable "On-Site Management Fee" in section A, column D. If material will be managed at a site(s) or facility(ies) other than the response action site, also select the appropriate "Off-Site Management Fee" in section B, and indicate the number of applicable receiving sites in column E. Please send a single check to the regional office managing your request. Specific directions will be detailed in your submittal confirmation.

A. Fee Assessed to Excavate or Manage Soil or Other Solid Waste on the Generating Site or Facility

A	B	C	D
Action	**Action Fee**	**Database Fee**	**On-Site Mgmt Fee**
MMP as part of Interim Action per NR 708.11, with residual soil CO	$700	$300	☐ $1000
MMP as part of Interim Action per NR 708.11, without residual soil CO	$700	No fee	☐ $700
MMP as part of Remedial Action Plan approval, with residual soil CO	$1050	$300	☐ $1350
MMP as part of a Remedial Action Plan approval without residual soil CO	$1050	No fee	☐ $1050
Closed Sites: MMP as part of a CO modification action, with residual soil CO	$1050	$300	☐ $1350
Closed Sites: MMP as part of a CO modification action, without residual soil CO	$1050	No fee	☐ $1050
MMP separate from RAP or CO mod, with residual soil CO	$700	$300	☒ $1000
MMP separate from RAP or CO mod, without residual soil CO	$700	No fee	☐ $700

B. Fee Assessed to Manage Soil on a Site or Facility other than the Generating Site or Facility

A	B	C	D	E	F
Action	**Action Fee**	**Database Fee**	**Off-Site Mgmt Fee**	**# of receiving sites subject to action**	**Total for row**
MMP as part of interim action, remedial action, modification to COs, etc., with residual soil CO	$700	$300	☐ $1000		
MMP as part of interim action, remedial action, modification to COs, etc., without residual soil CO	$700	No fee	☐ $700		
Total of Off-Site Management Fee					$0
Total of On-Site and Off-Site Management Fee					**$1,000**

1) **MMP** – A Material Management Plan submitted in accordance with Wis. Admin. Code §§ NR 718.12 (1) and (2) or NR 718.15.
2) "**With residual soil CO**" - site will have a residual soil continuing obligation (e.g. engineering control, cap, or cover) applied at the generating site or facility at the end of the applicable action; remedial action approval, or approval by an addendum to the closure letter.
3) "**Without residual soil CO**" - site that will not have a residual soil continuing obligation applied at the generating site or facility at the end of the applicable action.

Section 3 –Property and Contact Information

A. Information about the generating site or facility (from which material is proposed to be excavated)

BRRTS #(s) (include Materials Management #s and VPLE #s if assigned)	BRRTS Activity (Site) Name(s)	FID #(s)
__ __ - __ __ - __ __ __ __ __ __ __		__ __ __ __ __ __ __ __ __ __
__ __ - __ __ - __ __ __ __ __ __ __		__ __ __ __ __ __ __ __ __ __

Response Action Site Address* (physical, not mailing address)
Ludington Street between Ely and Stanton Street

City*	State*	Parcel ID #(s)
Marinette	WI	251-00930.000

County*	ZIP Code*
Marinette	54143

WTM Coordinates*
X: 7 0 7 0 8 2
Y: 5 1 6 3 9 7

Lat/Long Coordinates decimal degrees
(min. of 6 digits right of decimal, e.g., -89.123456)*
Lat: 45.0963
Long: -87.62234

Coordinates Represent:
(●) Center of Project
( ) Parcel Center

¼ * NE ¼* SE Section* 6 Township* 30 N Range* 24 (●) E ( ) W

Current Zoning:	Current Land Use:
Exempt City-owned property	right of way

B. Responsible Party (RP) of the generating site or facility

The Wis. Admin. Code §§ NR 718.12 or NR 718.15 approval will be issued to the Wis. Admin. Code NR 700 series responsible party identified below and to the owner of the receiving site or facility, if different than the generating site or facility. If there is more than one responsible party or property owner, include the information requested below for each.

Responsible Party (RP) Name*	Organization / Business Name		
Brian Miller	City of Marinette		
Mailing Address*	**City***	**State***	**ZIP Code***
1905 Hall Avenue	Marinette	WI	54143
Phone # (include area code)*	**Email***		
(715) 732-5135	bmill@marinette.wi.us		

C. Property owner(s) information for generating site or facility if different than RP

☐ *Check here if the property owner of the generating site or facility is different than the responsible party, and enter the property owner's information below.*

Property Owner Name(s)	Organization / Business Name		
Mailing Address	**City**	**State**	**ZIP Code**
Phone # (include area code)	**Email**		

D. Consultant / contractor information

Consultant / Contractor Name*	Organization / Business Name*		
Bill Honea	Ayres Associates		
Mailing Address*	**City***	**State***	**ZIP Code***
3376 Packerland Drive	Ashwaubenon	WI	54115
Phone # (include area code)*	**Email**		
(920) 327-7815	honeaw@ayresassociates.com		

E. Contact information for questions about this request

Contact Name	Organization / Business Name		
Bill Honea	Ayres Associates		
Mailing Address	**City**	**State**	**ZIP Code**
3376 Packerland Drive	Ashwaubenon	WI	54115
Phone # (include area code)	**Email**		
(920) 327-7815	honeaw@ayresassociates.com		

Relationship to the Requestor (Same, Consultant, Developer, Etc.):
Consultant

Section 4 – Results of Analyses Performed and Characteristics of Waste

The following information is necessary for the DNR to review the request for compliance with Wis. Admin. Code §§ NR 718.12 (1) (d) 1, NR 718.12 (2) (b) 2. and NR 718.12 (2) (b) 6. In this section, describe the characteristics of the contaminated soil and/or other solid waste material that will be managed under this request, describe the sampling activities conducted and demonstrate how it has been adequately characterized. Narrative boxes have a limit of 2500 characters. Please attach additional pages if necessary, clearly labeling the section of the form to which you are responding.

A. Enter the total volume of contaminated soil and/or other solid waste to be managed (cubic yards) *:
1,260

B. Describe the characteristics of the material proposed to be managed,* which may include general makeup, physical characteristics, the homogeneity of the material, the proportion of soil to other solid waste, and any other pertinent descriptors.
Ludington Street overlies 6 1/2 to 14 feet of fill between Ely and Stanton Street. The fill is primarily dark gray to brown silty sand with some black staining, and contains varying amounts of general refuse, including sytrofoam, paper, plastic, wood, brick, and cinders.

C. Describe the historic and current land use of the generating site or facility where the contaminated soil or other solid waste originates, including how this site or facility is zoned.
Ludington Street will be reconstructed with new pavement and the addition of new subsurface utilities. A section of the project site between Ely and Stanton Street overlies contaminated fill. Disturbance activities within the contaminated fill will include grading cuts up to 2 1/2 feet and 350 feet open trench excavation for new storm sewer. The sewer excavation will extend up to 7 1/2 feet below grade.

The site is currently right-of-way owned by the City of Marinette and is adjoined to the north by Marinette Marine Building 34 (BRRTS 02-38-587281), which is an open ERP site with known PAH, VOC, PFAS, arsenic, and lead contamination. The MACBI-Tyco Redevelopment Site (BRRTS 02-38-564236) adjoins the south side of the site and is contaminated with PAHs, VOCs, arsenic, and lead. The site is adjoined to the east by Stanton Street and the west by Ely Street. The closed Village Pump II site (BRRTS 03-38-177834) also adjoins the south side of Ludington Street. Other nearby non-adjoining remediation sites include the Wisconsin Public Service MGP site (BRRTS 02-38-000047) and Goodwill Industries site (BRRTS 02-38-557492). Additionally, groundwater beneath Ludington Street is impacted with PFAS from the Tyco Fire Technology Center plume.

Sanborn fire insurance maps from 1884 to 1935 show the site was occupied by an artificial waterway identified on historical maps as the “Log Run" or "Log Boom.” This waterway transported logs from the Menomonee River to sawmills and lumberyards north of the project site. The shape of the log run changed several times but generally intersected the existing right-of-way from 300 feet west of Ely Street to about 300 feet west of Stanton Street. A portion of the log run was filled in 1935, and the majority is believed to have been filled by 1938.

Marinette Ironworks adjoined the south side of the project limits between Ely and Stanton Street from at least 1884 to 1921. A rail spur serviced the ironworks from the east and was surrounded by various buildings, including an automotive repair shop, coal shed, machine shop, a lime and cement warehouse, the Malmstadt coal yard, an icehouse, a filling station with three gasoline USTs and three USTs (contents unidentified) along the rail spur. The ironworks building was demolished by 1935, but the surrounding structures and USTs remained. Scaling on the 1935 Sanborn map indicates the USTs were between 80 and 215 feet south of the existing Ludington Street right-of-way.

D. Describe identified contaminants and the source(s). Indicate whether contaminant concentrations exceed Wis. Admin. Code § NR 720 Residual Contaminant Levels.

A layer of fill between Ely and Stanton Street contains concentrations of lead and arsenic above the protection of groundwater RCLs. Levels of arsenic in the fill also exceed the direct-contact RCL and BTV of 8 mg/Kg. Samples with the highest totals concentrations of lead and arsenic were also analyzed via TCLP method. The results for both lead and arsenic were below the 5 mg/L toxicity characteristic threshold for hazardous waste.

Polycyclic aromatic hydrocarbons exceed direct-contact and protection of groundwater RCLs within the fill. The compounds found above direct-contact RCLs included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene. Compounds that exceed protection of groundwater standards include benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, fluorene, and naphthalene. Levels of naphthalene above 5 mg/Kg indicates NAPL could be present. However, NAPL was not encountered during sampling activities.

Two VOCs, benzene and naphthalene, are present in the fill above protection of groundwater RCLs, but groundwater is not impacted by VOC concentrations above NR 140 standards. The exceedances in fill occurred at GP-8 (7-8'), which is several feet beneath the proposed excavation zone at this location. Although a few other VOCs were identified in other samples, they did not exceed RCLs.

Several PFAS compounds, including PFOA and PFOS, were detected in the fill. These detections were well below direct-contact RCLs. Currently, there is no pre-determined protection of groundwater RCLs for these compounds. The compounds detected in soil are believed to be from contact with PFAS-contaminated groundwater emanating from Tyco's Fire Technology Center.

E. Describe the sampling activities conducted to characterize the material including where the samples were collected, how sample locations were chosen, the sampling methods used, and when sampling activities were conducted.

A Phase I Hazardous Materials Assessment identified adjoining and nearby sites with potential or documented residual contamination from past MGP operations, petroleum releases from storage tanks, fill of unknown origin containing refuse, and potential solvent spills. Regulatory file reviews identified potential contaminants of concern as PAHs, VOCs, arsenic, lead, asbestos, and PFAS.

Site sampling on October 13, 2021 aimed to determine the extent and degree of contamination within the proposed construction zone and evaluate potential impacts on the project. A combination of preliminary construction designs, sampling data from environmental investigations on adjoining properties, and historical sources guided the selection of sample locations.

Samples were collected from four direct-push soil probes that were placed where storm sewer excavations and road grading could intersect contamination from adjoining properties and where previous geotechnical borings encountered buried refuse within the right-of-way. The probes were advanced to the maximum planned grading and excavation depths for storm sewer, ranging from 2 ½ to 7 1/2 feet below the existing surface.

Continuous soil cores from each probe were logged using the USCS and field screened for organic vapors using a PID. One soil sample within the proposed grading zone from each probe, and where applicable, an additional soil sample from proposed storm sewer excavation zone were submitted for laboratory analysis. Grading zone samples were acquired at shallow depths beneath the aggregate road base. Samples acquired from the proposed storm sewer depths were selected for the chemical testing using the following priority: highest PID response (if above background), visual or olfactory evidence of contamination, anticipated depth of contamination, or bottom of the proposed excavation zone.

Seven soil samples and two groundwater samples collected between Ely and Stanton Street were submitted for chemical testing . All soil and groundwater samples were analyzed for VOCs, PAHs, arsenic, and lead. Six samples

were analyzed for asbestos. Four soil samples and two groundwater samples were analyzed for PFAS. The sample collected nearest the MGP site was also analyzed for PCBs and cyanide.

The samples with the highest arsenic (287 mg/Kg) and lead (353 mg/Kg) concentrations, were also analyzed via the TCLP method. Arsenic and lead results from the TCLP analysis were 0.12 mg/L and 3.3 mg/L, respectively.

F. Explain how the sampling activities adequately characterized the contaminated soil or other solid waste proposed to be managed. Indicate whether the samples were analyzed for all contaminants previously identified at the generating site or facility and analyzed for all contaminants potentially present at the site or facility considering current and historic land use. Discuss how samples were collected from areas most likely to be contaminated and from material that will actually be managed under this request.

Soil samples were collected using a judgment-based sampling plan. The plan integrated information from historical sources and previous investigations at adjacent sites to estimate the distribution and identify the type of contaminates likely present at the project site. This information included past sampling data available through BRRTS on the Web, tank records, Sanborn fire insurance maps, and historical aerial photographs. Background concentrations of substances that could be present from naturally occurring processes or non-point source contamination were also considered when selecting analyses. Potential transformations of primary contaminants to secondary contaminants were also considered.

Samples with total analyte concentrations greater than 20 times the toxicity characteristic regulatory levels in 40 CFR 261.24 were analyzed via the Toxicity Characteristic Leaching Procedure (TCLP). If the total concentration of an analyte is less than 20 times the toxicity characteristic regulatory level, then the sample cannot leach enough to exceed the allowable limit and is not considered characteristically hazardous waste. Lead and arsenic were the only analytes that required analysis via TCLP. The TCLP results for both arsenic and lead were below the toxicity characteristic regulatory levels in 40 CFR 261.24.

G. Enter the total number of samples collected from this material and analyzed for contaminants of concern.

7

H. Enter the rate of sample collection per volume. One sample per 180 yards of contaminated material.

i. Wis. Admin. Code § NR 718.12 (1) (e) requires that samples collected to characterize soil be collected at a rate of one sample per 100 cubic yards (for the first 600 cubic yards) and one sample for each additional 300 cubic yards of material, with a minimum of two samples. If the DNR pre-approved an alternative sampling plan, describe how the sampling that was conducted complied with a pre-approved plan. Please also provide the date the sampling plan was pre-approved and the name of the DNR staff person who approved the plan.

Section 5 – Project description/material management plan

The following information is necessary for the DNR to review the request for compliance with Wis. Admin. Code §§ NR 718.12 (2) (b) (5), (7) and (8). In this section, describe how the contaminated materials will be managed, the proposed schedule for managing the material, and provide sufficient information to justify that the placement of the contaminated materials will meet the requirements of Wis. Admin. Code §§ NR 726.12 (1) (b) 1. to 5. Narrative boxes have a limit of 2500 characters. Please attach additional pages if necessary, clearly labeling the section of the form to which you are responding.

A. Describe the material management activities to take place.* Provide details on how and where the material will be generated, transported and placed. Describe the depth of the proposed excavation of contaminated soil or other solid waste, and the depth that it will be placed at the receiving site or facility. Describe any response actions proposed for the receiving site or facility to address the relocated contaminated material (such as the construction of a cap). Discuss how material management activities will fit in with the overall property remediation and/or redevelopment plans.

Proposed management activities will occur within the Ludington Street right-of-way between Ely and Stanton Street. The activities include grading and the relocation of utility trench spoils that are structurally unsuitable for reuse as backfill, capping the relocated trench spoils, and dewatering excavations.

The existing asphalt pavement will be removed and milled for reuse. Similarly, the underlying aggregate road base will be salvaged and reused at the project site. Geotechnical and environmental borings indicate the asphalt is 2 to 4 inches thick and the aggregate road base is 8 to 10 inches thick. Materials encountered beneath the road base will be considered contaminated.

Material beneath the road base will be graded to prepare the surface for new road base and pavement. Cuts up 2 1/2 feet may be required to achieve the desired subgrades for the road base. Additionally, 350 feet of new storm sewer will be installed at the project site. The sewer excavation will extend up to 7 1/2 feet below grade. The salvaged aggregate road base will be reused as road base for the new pavement or as backfill in the storm sewer excavations. The road surface will be replaced with new concrete pavement, curb, gutter, and sidewalk.

Grading and the storm sewer excavations are anticipated to generate up to 1,260 cubic yards of contaminated spoils. Previous testing determined the material is geotechincally unsuitable for reuse as backfill. Instead the spoils will be relocated within the right-of-way to the south of Ludington Street as shown in the attached Site Overview drawing (C-501). Contaminated materials will be directly hauled to the designated relocation area. Temporary stockpiling of contaminated material is not anticipated.

The relocated spoils will be capped with a geosynthetic clay liner (GCL) and 18 inches of soil. The soil cap will consist of at least 12 inches of clean fill with 6 inches of top soil to support vegetation. The combination of GCL and soil will provide both a low-permeabilty cover and direct-contact barrier cap, that is equivalent or surpasses the protectiveness of the existing road surface.

The existing road will be repaved and curb and sidewalks will be added. The new pavement and addition of sidewalks is a significant improvement over the existing road surface, which broken in many areas and has no shoulder or sidewalk. The proposed road design will both reduce infiltration and provide an improved direct-contact barrier.

B. Summarize the proposed schedule for implementation of the activities including anticipated start and end dates. *

Site preparation will start in Spring 2023 and construction will be completed in Fall of 2023.

C. Confirm the proposed management activities will comply with Wis. Admin. Code § NR 726.13 (1) (b) 1. through 5.*

1. The onsite management of contaminated spoils from grading and excavation activities, will not impact human health or the environment because the contaminated material remaining beneath the road will be capped with new concrete pavement. Similarly, the site receiving the contaminated spoils will will be capped with low-permeability geosynthetic clay liner (GCL) and 18 inches of clean soil. The caps will prevent people from coming in direct-contact with contaminated materials, and will protect groundwater by inhibiting the infiltration of surface water through contaminated materials.

2. The spoils will be managed in an area overlying the same contamination as where it was generated. Groundwater in this area is already contaminated with substances above NR 140 groundwater quality standards including arsenic, lead, chrysene, and PFAS (proposed standards for PFOA and PFOS). The proposed management activities will keep contaminated materials within the area that is already impacted. Additionally, the excavation and receiving areas will be capped with low-permeabily cover (pavement or GCL) to inhibit infiltration and protect groundwater from further impact.

3. There are no surface waters located at the site. Erosion controls will be maintained during construction, and contaminated materials will be direct hauled to the receiving area. Upon completion of excavation and grading activities the contaminated spoils will be capped to prevent contact with stormwater. During construction any water that enters excavations will be considered contaminated and dewatered to sanitary sewer with permission from the City of Marinette Waste Water Treatment Plant.

4. The proposed work is not anticipated to cause a violation of air quality standards. The fill material that contained refuse was tested for asbestos using polarized light microscopy. No asbestos was found. Upon completion the site will be capped, which will prevent any contaminated sediment from becoming airborne. Similarly, standard dust control methods will be used during construction.

5. Based on the screening guidance in RR-800, the low-levels of VOCs found in soil and groundwater are unlikely to pose a vapor intrusion. Additionally there are no occupied buildings at the site and the storm sewer to be installed will not connect with buildings on adjoining properties.

D. Describe any procedures that have been established, or methods that will be used, to identify previously undocumented contamination during the completion of this project (such as instrument field screening, visual inspections, etc.). Also describe any contingency procedures that have been established to address unexpected contamination.

A PID may be used to screen soils for unknown contaminants. Visual and/or olfactory indicators may also be used in the identification of an unknown contaminant in soil, groundwater, or solid waste. If an unknown contaminate is potentially present, a sample shall be collected and sent to a laboratory for analysis.

If material is encountered in an excavation outside of the identified limits of known contamination that contains solid waste or is obviously impacted with petroleum or chemical products, or when other obvious potentially contaminated materials are encountered or material exhibits characteristics of industrial-type wastes, such as fly ash, foundry sand, and cinders, or when underground storage tanks are encountered, the contractor will immediately notify the owner and the owner will notify WDNR. The material will be temporarily stockpiled on plastic and covered for waste profiling, if needed, and disposed of at the Ridgeview Landfill in Whitelaw, WI.

Material encountered that is impacted with NAPL or soil waste (i.e. plastic, glass, demo debris) during construction will be segregated and disposed of at the Ridgeview Landfill in Whitelaw, WI. The impacted material may temporary stockpiled at the site on plastic and covered until it is hauled off site for disposal.

E. Summarize how the proposed management activities will prevent or minimize adverse environmental impacts and potential threats to human health and welfare, including worker safety, by assessing how all potential exposure and migration pathways of concern, including direct contact exposure, vapor intrusion, ground water, surface water, sediment and any other relevant pathway will be addressed by the proposed management.

The material management strategy consists of relocating and capping of contaminated spoils generated from grading and storm sewer excavations. The cap will prevent direct human contact with contamination and protect groundwater by reducing surface water infiltration. The reuse of spoils as backfill in the excavations or beneath the road is not feasible because the material's physical properties are structurally unsuitable for construction. Additionally, if the contaminated spoils were reused as backfill, it could a future threat to workers repairing utility lines. Permanently relocating the spoils to the receiving area also mitigates the need to temporarily stockpile contaminated material on site during construction. When handling contaminated materials, site workers will wear PPE to prevent direct-contact with the material, and monitor vapors with a PID to prevent exposure to VOCs. These precautionary steps should greatly reduce the risks of exposure.

Section 6 - Receiving site or facility information

The following information is necessary for the DNR to review the request for compliance with Wis. Admin. Code §§ NR 718.12 (2) (c) 3. In this section, describe the site or facility receiving the material by addressing the following items. Narrative boxes have a limit of 2500 characters. Please attach additional pages if necessary, clearly labeling the section of the form to which you are responding.

A. Briefly discuss the geology and hydrogeology of the receiving site(s) or facility(ies), including information from any previous remedial investigations, and well logs or well construction records from nearby wells. Please also provide the information requested below, indicating whether the response is based on regional or site-specific information. *

Elevations within the project limits range from 590 to 598 feet above mean sea level, with topography gently dipping northeast toward the Menominee River. Earlier geotechnical and test pit investigations in the Ludington Street right-of-way encountered four distinct stratigraphic units: fill material, glacial outwash, alluvium, and glacial till. These investigations did not intersect the underlying Ordovician dolomite bedrock, which is estimated to be less than 50 feet below the surface (ECS Midwest, LLC, 2021).

Fill materials consist of varying amounts of silt, sand, organic sediments, and refuse. The fill layer reaches a maximum of 14 feet near Ely Street, where geotechnical borings intersected a buried layer of black organic sediments mixed with wood debris. The fill composition is variable between Ely and Stanton Street and includes a mix of silt, sand, organics, and general refuse.

Glacial outwash characterized by deposits of brown poorly-graded fine sand underlie the fill throughout most of the site. These sandy deposits of glacial outwash extend more than 20 feet below the surface in some areas but were generally found atop a very stiff to hard layer of clayey glacial till. The clay is typically brown and presumably extends to bedrock.

Groundwater first occurs within the excavation and receiving areas at depths between 4.2 to 6.4 feet below the surface. The general groundwater flow direction is toward the Menominee River, which is 1,500 feet to the northeast. During previous environmental investigations on adjacent properties, the hydraulic conductivities of shallow soils and fill were measured between 1 x 10-4 and 7 x 10-4 feet per minute (ft/min). Estimated flow velocities ranged from 0.04 and 29 feet per year (Natural Resource Technology, 2015)

Depth to Bedrock (ft. below ground surface):	50	◉ Regional	○ Site Specific
Bedrock Type:	○ Sandstone	◉ Limestone / Dolomite	○ Metamorphic / Igneous
High Groundwater Level (ft. below ground surface):	4.2	○ Regional	◉ Site Specific
Groundwater Flow Direction:	northeast	◉ Regional	○ Site Specific

B. Briefly describe any previous environmental site investigations or remedial actions conducted at the receiving site(s) or facility(ies). Describe the environmental condition of the portion of the receiving site(s) or facility(ies) where material will be placed including what contaminants are present, the environmental sampling conducted in that area, and whether identified contaminant concentrations exceed applicable standards. *

A Phase I HMA completed in October 2021, identified several sites adjoining the receiving area with potential or documented contamination from MGP operations, a LUST site, buried refuse, and solvent spills. Additionally, environmental investigations on two adjoining sites documented the presence of PFAS and arsenic in groundwater

above regulatory standards.

The section of Ludington adjoining the receiving site was investigated during a Phase 2.5 HMA, which confirmed the presence of refuse, VOCs, arsenic, lead, PAHs, and PFAS in a layer of fill beneath the street. Based on a review of historical aerial photos and Sanborn fire insurance maps, it was apparent the contaminated fill was associated with a former artificial waterway (log run) that was used to transport logs from the Menominee River to saw mills north of the project site. The log run and associated fill material also underlies the receiving site, and is assumed to contain similar types and levels of contamination.

C. Describe any environmentally sensitive areas at or near the receiving site(s) or facility(s) where the contaminated material will be managed.
The receiving site is not listed on the National Wetland Inventory and the absence of wetlands was confirmed in June 2022 after a a Professionally Assured Wetland Delineator assessed the site and did not identify any wetlands. No streams, floodplains, or other environmental sensitive areas were identified at or near the receiving site.

D. Describe the historic, current and proposed land use of the receiving site(s) or facility(ies) where the contaminated soil or other solid waste will be managed. How are these site(s) or facility(ies) zoned?
The site is currently right-of-way owned by the City of Marinette and will remain right-of-way for the foreseeable future.

Sanborn fire insurance maps from 1884 to 1935 show the receiving site was occupied by an artificial waterway identified on historical maps as the "Log Run" or "Log Boom." This waterway transported logs from the Menominee River to sawmills and lumberyards north of the project site. The shape of the log run changed several times but generally intersected the existing right-of-way from 300 feet west of Ely Street to about 300 feet west of Stanton Street. A portion of the log run was filled in 1935, and the majority is believed to have been filled by 1938.

Marinette Ironworks adjoined the south side of the receiving site from at least 1884 to 1921. Several ancillary buildings associated with the iron works were located on or directly adjoined the receiving site. These included a pattern warehouse, iron storage shed, blacksmith shop, coal shed, and a rail spur.

E. Identify current uses of all properties adjacent to the receiving site or facility. Check all that apply.

Agricultural	☐ N	☐ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Industrial	☒ N	☐ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Recreational	☐ N	☐ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Residential	☐ N	☐ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Undeveloped	☐ N	☐ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Commercial	☐ N	☒ S	☐ E	☐ W	☐ NE	☐ NW	☐ SE	☐ SW
Other	☐ N	☐ S	☒ E	☒ W	☐ NE	☐ NW	☐ SE	☐ SW

Describe "other" property use below:
The site is adjoined to the east by Stanton Street and to the west by Ely Street. Both are right-of-way owned by the City of Marinette.

F. Describe any other features of this property not addressed above that influence the suitability of the receiving site(s) or facility(ies) for the management of the contaminated soil or other solid waste.
The excavation and receiving areas overlie an artifical waterway identified on historical maps as the "Log Run". The former log run has since been filled with soil and some refuse. The fill within the former log run is contaminated and is the material to be managed under this request. Thus, the contaminated spoils generated from grading and excavations will remain on site within an area impacted by same type of contamination. The receiving site will be capped with a low-permeabilty cover that will also serve as a direct contact barrier.

Additionally, the proposed relocation area has sufficient capacity to accommodate up to 1,260 cubic yards of contaminated material, and an 18-thick cap while maintaining 4:1 slopes and positive drainage within the right-of-way.

Section 7 – Locational criteria

The following information is necessary for the DNR to review the request for compliance with Wis. Admin. Code §§ NR 718.12 (1) (c). Indicate if excavated material will be placed in any of the following locations*:

- ☐ Within a floodplain.
- ☐ Within 100 feet of any wetland or critical habitat area.
- ☐ Within 300 feet of any navigable river, stream, lake, pond, or flowage.
- ☐ Within 100 feet of any on-site water supply well or 300 feet of any off-site water supply well.
- ☐ Within three (3) feet of the high groundwater level.
- ☐ At a depth greater than the depth of the original excavation from which the contaminated soil was removed.

If any of the above boxes are checked, an exemption from the indicated criteria must be requested as described below. If none of the above boxes are checked, and the proposed placement of material will not otherwise pose a threat to the public health, safety, or welfare or the environment, the proposed management activities will comply with the locational criteria of Wis. Admin. Code § NR 718.12 (1) (c) and you may skip the following question.

Include an explanation of why granting an exemption to the Wis. Admin. Code § NR 718.12 (1) (c) locational criteria will not cause a threat to public health, safety, or welfare or the environment by assessing how all potential exposure and migration pathways of concern, including direct contact exposure, vapor intrusion, ground water, surface water, sediment and any other relevant pathway will be addressed by the proposed management. Consider the quantity and characteristics of the material being managed, the geologic and hydrogeological characteristics of the receiving site or facility, the unavailability of other environmentally suitable alternatives, and whether the activities will comply with other state and federal regulations including other portions of Wis. Admin. Code chs. NR 700 to NR 754.

Section 8 – Additional information for non-metallic mine receiving sites or facilities

If the material to be managed is proposed for use in reclaiming a non-metallic mine, the disposal of such a material must be specifically allowed in the mine's reclamation plan. If not, the reclamation plan needs to be modified prior to DNR approving the management of the contaminated soil at the mine. Complete this section if the proposed receiving site or facility is a non-metallic mine.

A. Current depth to groundwater at facility (feet below ground surface): _____

B. Has the facility been dewatered to allow mining? ◯ Yes ◯ No

If yes, indicate the expected natural groundwater level when dewatering is terminated (feet below ground surface):

C. Is material proposed to be placed within 10 feet of the natural water table? ◯ Yes* ◯ No

If yes, provide information to justify a variance approval under Wis. Admin. Code ch. NR 503.

D. Include a copy of the reclamation plan indicating the placement of low level contaminated material is acceptable.

E. Describe any design criteria established for the disposal site, include restrictions on material placement, engineered barrier requirements, etc.

Section 9 – Continuing obligations at receiving site or facility

The following information is necessary for the DNR to review the request for compliance with Wis. Admin. Code §§ NR 718.12 (2) (d) and (e).Check the applicable boxes to indicate which continuing obligations will be specifically required to address the material being managed on the receiving site or facility. The associated language will appear in the Wis. Admin. Code ch. NR 718 Approval Letter.

☐ No Continuing Obligations

☒ Residual Soil Contamination:

If contaminated soil that was managed as proposed in the material management plan is excavated in the future, the property owner at the time of excavation will have the following responsibilities per Wis. Admin. Code § NR 725.05 (l) (d):

- determine if contamination is present,
- determine whether the soil is considered solid or hazardous waste; and
- ensure that any storage, is in compliance with applicable statutes and rules.

Excavated contaminated soil may be managed in accordance with Wis. Admin. Code ch. NR 718, with prior DNR approval. In addition, all current and future property owners and occupants of the property and right-of-way holders need to be aware that excavation of the contaminated soil may pose a hazard and special precautions may be necessary to prevent a health threat to humans. A historic fill exemption is required prior to construction of any structures over fill materials.

Depending on site-specific conditions, construction over contaminated soil or groundwater may also result in vapor migration of contaminants into enclosed structures or migration along underground utility lines. The potential for vapor intrusion and means of mitigation should be evaluated when planning any future redevelopment, and measures may need to be taken to ensure the continued protection of public health, safety, welfare and the environment at the site.

☒ Maintenance of a cover:

A soil cover/engineered cover/other is proposed to be installed and maintained over contaminated soil. Inspections will be required per Wis. Admin. Code § NR 724.13, and submittal of inspection reports may be required per Wis. Admin. Code § NR 727.05 (1) (b) 3. Certain activities which would disturb the cover or barrier will be prohibited. If the cover is approved for industrial land use, notification of the DNR is required before changing to a non-industrial use, to determine if the cover will be protective for that use per Wis. Admin. Code § NR 727.07 (3). A maintenance plan is attached, which describes the maintenance activities to be required. An updated maintenance plan must be provided to the DNR once the barrier has been constructed if changes are required and must address actual site conditions (Wis. Admin. Code § NR 724.15 (3) (h)). A map is attached which shows the location of the extent of contaminated materials and the extent of the cover.

☐ Use of Industrial Land Use Soil Standards:

Direct contact risk posed by contaminated material managed under this approval was assessed using residual contaminant levels for industrial land use. The DNR must be notified if the property land use will change from industrial use to a non-industrial land use per Wis. Admin. Code § NR 727.07 (3). Additional investigation and remediation may be required prior to the change in land use to ensure the site conditions are protective for the planned land use.

☒ Vapor: Future Actions to Address Vapor Intrusion:

While vapor intrusion does not currently exist, if a building is constructed or reconstructed on this property, or if use of an existing building is changed to a non-industrial use, vapor intrusion may become a concern. The DNR must be notified before construction of a building or changing the use of an existing building to non-industrial use per Wis. Admin. Code § NR 727.07. The use of vapor control technologies or an assessment of the potential for vapor intrusion will be required at that time per Wis. Admin. Code §§ NR 722.15 (2) (e) 4 and 5.

☐ Site specific condition:

Describe the site specific condition:

Section 10 – Figures

Providing figures as part of the material management plan will allow DNR staff to more quickly evaluate the compliance of the request with the requirements of Wis. Admin. Code §§ NR 718.12 (1) and (2) and NR 718.15. The following are recommended figures to be submitted with this request.

The DNR recommends that all maps are drawn to scale not larger than 1 inch equal to 100 feet and labeled with the site or facility name and address. The location of the property and the specific management area should be provided in sufficient detail to allow DNR personnel to inspect these areas in the future. Providing a "cut/fill" map that clearly depicts how much material will be removed or added to different areas of the involved property(ies) and depicting how material will be moved across the site is also highly recommended. Providing cross sections that depict site conditions before and after material management activities is also recommended.

Attach appropriate figures to this form. Use the following checklist to ensure recommended items are included in the attached figures.

- ☒ The boundaries of each property involved in the project as well as named and unnamed roads or access points, buildings and other surface features, underground utilities, land uses on adjacent properties, and known and potential sources of hazardous substances.
- ☒ The location of wetlands, critical habitat areas, floodplains, surface water bodies, water supply wells, or other possible receptors located near or within the area where material will be managed.
- ☒ The lateral extent and depth of planned excavation, grading, or otherwise disturbed areas.
- ☒ The lateral extent and thickness of excavated material placement locations.
- ☒ Soil sample locations at the response action site and receiving site(s) or facility(ies). Depict applicable soil contaminant concentration data and sample depths. Indicate the extent of contamination exceeding a RCL.
- ☒ Depth to groundwater.
- ☒ The extent of any performance standards (such as a barrier or cap) that will be required at the completion of management activities.

Section 11 - Additional Attachments

The following documents are recommended for inclusion with a Wis. Admin. Code § NR 718.12 or a Wis. Admin. Code § 718.15 request. Indicate which of these documents are included in this request by checking the boxes below.

- ☒ A table summarizing the analytical results of all soil/waste samples collected at the generating site or facility that meets the requirements of Wis. Admin. Code § 716.15 (4) (e). Clearly indicate which of these samples were collected from material that is proposed to be managed.
- ☒ The analytical package for all samples listed on the above table. The package should include the sample results, chain of custody, sampling methods, and QA/QC data.
- ☒ A maintenance plan for any performance standard needed to address the material proposed to be managed. The plan should follow the format found in DNR Form 4400-202, Attachment D.
- ☐ A copy of the reclamation plan for the receiving site or facility if it is a nonmetallic mine. Confirm the plan allows for acceptance of contaminated soil by marking relevant plan sections.
- ☐ Power of Attorney (if applicable, see Section 12).
- ☒ Deed for the property receiving the contaminated material. If a certified survey map or plat map is referenced by this deed then also include those documents.
- ☒ Provide a copy of a parcel map depicting the property(ies) boundaries.

Section 12 - Certification Statements

Wis. Admin. Code ch. NR 712, entitled "Personnel Qualifications for Conducting Environmental Response Actions," establishes minimum standards for experience and professional qualifications for persons who perform certain environmental services. All requests submitted to manage contaminated soil or other solid waste as an interim action or remedial action under Wis. Admin. Code chs. NR 708 or NR 722 must be prepared by, or prepared under, the supervision of a professional engineer per Wis. Admin. Code ch. NR 712. The professional engineer who prepared or supervised this request should complete the following section. This law applies to work conducted under Wis. Admin. Code ch. NR 718, unless specifically exempted.

Per Wis. Admin. Code § NR 712.09 (3) (a), the following certification shall be attached to any submittal that is required to be prepared by, or under the supervision of, a professional engineer under s. NR 712.07 (2), (3) or (5):

"I, Trace Hubbard, 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."

Trace Hubbard, Civil Engineer 47270-6
Signature, title and P.E. number

P.E. Stamp 12/6/2022

In addition, if the work certified included investigation or evaluation of groundwater conditions, or groundwater related conclusions or recommendations, Wis. Admin. Code § NR 712.09 (3) (b) requires the following certification shall be attached to any submittal that is required to be prepared or to have its preparation supervised by a certified hydrogeologist under s. NR 712.07 (2), (4) or (5):

"I, Thomas Gaieck, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the 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."

Thomas P Gaieck Hydrogeologist 12/6/2022
Signature and title Date

Section 13 - Signatures

Owner(s) of receiving site(s) or facility(ies) if different than generating site

Each property owner of receiving site(s) or facility(ies) involved in the management project must provide their signature as part of this request. If one of the owners of the receiving site(s) or facility(ies) is acting on behalf of other owners, a power of attorney form or statement must be signed and attached to this agreement clearly granting the agent the authority to accept the contaminated materials on behalf of all other owners of the receiving site(s) or facility(ies) whose signatures are not included on this agreement.

I understand that by signing this application I certify that I will follow the conditions and limitations required by law and specified in the approval issued to me as owner of the site or facility that will receive the contaminated soil. Further, I certify that the contaminated soil proposed to be managed under this approval will be at a property that meets the definition of "site" or "facility" under Wis. Stats. ch.292 and Wis. Admin. Code chs. NR 700 – 799, and I understand that the material must be managed any time in the future as a solid waste with the department's approval. I understand that this approval will be tracked in the Wisconsin Remediation and Redevelopment Database, and if required, will include maintenance and inspection by me of any continuing obligations, such as maintaining an engineering control or barrier over the contaminated soil, and will also be subject to inspection by the department. I understand that the conditions on my site or facility may be subject to Wis. Stats. ch. 709, Disclosures by Owners of Real Estate. I believe that the legal description for all properties where material will be managed is included with this submittal.

Receiving site or facility address as listed in Section 3F: _____

Print Name	Signature	Date
Print Name	Signature	Date

Appendix B

Receiving Site Deed and Certified Survey Map

DOC. #: **870452**
RENEE MILLER, REGISTER OF DEEDS
MARINETTE COUNTY
November 30, 2022 at 9:00 AM
Fee Amount: $30.00 Pages: 1
Transfer Fee: $75.00

***The above recording information verifies this document has been electronically recorded**
Returned to Bay Title and Abstract, inc. - Green

State Bar of Wisconsin Form 3-2003
QUIT CLAIM DEED

Document Number | Document Name

THIS DEED, made between Andy's Auto Repair and Fab LLC, a Wisconsin limited liability company ("Grantor," whether one or more), and * of Marinette, a Wisconsin municipal corporation * City ("Grantee," whether one or more).

Grantor quit claims to Grantee the following described real estate, together with the rents, profits, fixtures and other appurtenant interests, in Marinette County, State of Wisconsin ("Property") (if more space is needed, please attach addendum):

Part of Government Lot 4, in Section 6, T30N-R24E, in the City of Marinette, County of Marinette, State of Wisconsin, described as follows:

Commencing at the Southeast Corner of Section 6, T30N-R24E;
Thence S86°50'58"W, a distance of 729.49 feet;
Thence N03°09'02"W, 1221.67 feet to the Point of Beginning;
Thence N40°02'09"E, along the West line of Document Number 868114, a distance of 99.94 feet to the Southwest right of way line of Ludington Street;
Thence S50°14'55"E, along said Southwest right of way line, a distance of 125.02 feet to the East line of said Document;
Thence S39°37'17"W, along said East line, a distance of 100.55 feet;
Thence N49°58'12"W, 125.75 feet to the Point of Beginning.

This parcel to be added to and combined with Tax Parcel No. 251-00930.001.

Recording Area

Name and Return Address
Attorney Robert R. Gagan
Law Firm of Conway, Olejniczak & Jerry, S.C.
231 S. Adams Street/PO Box 23200
Green Bay, WI 54305
15147-T1

Part of 251-00930.000
Parcel Identification Number (PIN)

This not homestead property.
(is) (is not)

Dated Nov 22nd 2022.

Andy's Auto Repair and Fab LLC

Andrew W. Hass (SEAL)
*Andrew W. Hass, Member

(SEAL) (SEAL)
(SEAL) (SEAL)

AUTHENTICATION

Signature(s)

authenticated on

*

TITLE: MEMBER STATE BAR OF WISCONSIN
(If not, authorized by Wis. Stat. § 706.06)

THIS INSTRUMENT DRAFTED BY:
Jill Tackmier
Avres Associates

ACKNOWLEDGMENT

STATE OF WISCONSIN)
) ss.
Marinette COUNTY)

Personally came before me on 11-22-2022,
the above-named Andrew W. Hass

to me known to be the person(s) who executed the foregoing instrument and acknowledged the same.

Terry L. Jandt
*
Notary Public, State of Wisconsin
My Commission (is permanent) (expires: 6-27-2026)

TERRY L. JANDT NOTARY PUBLIC WISCONSIN

(Signatures may be authenticated or acknowledged. Both are not necessary.)
NOTE: THIS IS A STANDARD FORM. ANY MODIFICATIONS TO THIS FORM SHOULD BE CLEARLY IDENTIFIED.
QUIT CLAIM DEED **© 2003 STATE BAR OF WISCONSIN** **FORM NO. 3-2003**
* Type name below signatures.

PLAT OF SURVEY

Part of Lot 2 of Certified Survey Map No. 3208, Volume 21, on Page 298, being in part of the Subdivision of Section 6, and part of Government Lot 4, in Section 6, T30N-R24E, in the City of Marinette, County of Marinette, State of Wisconsin.

SURVEYOR CERTIFICATE

I, Jacob S. Jensen, Professional Land Surveyor, S-2961, hereby certify that I have made a survey of the property as shown and described hereon. I futher certify that this map is a correct representation of the property surveyed to the best of my knowledge and belief and that I have made this survey by the order of the City of Marinette.

WISCONSIN
JACOB S. JENSEN
S-2961
ASHWAUBENON, WI
LAND SURVEYOR

Jacob S. Jensen, S-2961 Date 11/30/2022

SCALE
0 20 40
1" = 40'

LEGEND

- PLSS CORNER AS NOTED
- IP FOUND 1" O.D. IRON PIPE
- SET 1" O.D. X 24" IRON PIPE WEIGHING 1.13 LBS. / LIN. FT.
- FOUND 5/8" IRON REBAR (UNLESS NOTED)
- R/W LINE
- PROPERTY LINE
- SECTION LINE
- (100.00') RECORDED AS

IP
N50° 14' 55"W 67.12'
LOT 2 CSM #1380 VOL 9, PAGE 77
N46° 47' 41"E 99.67'
(N30°02'44"E, 100.02')
(S30°07'17"W)
POINT OF BEGINNING
S46° 47' 41"W 160.89'
FOUND P.K. NAIL
N03° 09' 02"W 1365.48'
LOT 2 CSM #3208 VOL 21, PAGE 298
(N50°05'49"W, S67°00'00"E)
S50° 14' 55"E 323.46'
178.43'
IP
20.00'
LUDINGTON STREET (50' wide)
LOT 1 CSM #4302 VOL 30, PAGE 260
PARCEL 1
32,886 SQ.FT.
0.75 ACRES
LOT 1 CSM #3208 VOL 21, PAGE 298
190.16'
N49° 58' 12"W 335.91'
(S66°48'11"E)
20.00'
UNPLATTED LANDS DOC #850998
125.02'
LANDS RECORDED IN DOC #870452 ATTACHED TO ABUTTING PROPERTY TO THE WEST RECORDED IN DOC# 850998
UNPLATTED LANDS DOC #868114
SOUTH 1/4 CORNER SECTION 6 T30N-R24E (FOUND BRASS CAP MONUMENT)
1763.79'
882.74'
S86° 50' 58"W 2646.53' CORNER TO CORNER SOUTH LINE OF THE SOUTHEAST 1/4
SE CORNER SECTION 6 T30N-R24E (FOUND COUNTY MONUMENT)
UNPLATTED LANDS DOC #850998
MAIN STREET (66' wide)
UNPLATTED LANDS DOC #868114
125.75'
(S39° 49' 00"W)
S39° 37' 17"W 100.55'
S50° 14' 55"E 142.18'
LOT 1 CSM #1295 VOL 8, PAGE 241
S39° 37' 17"W 157.52'
N

Bearings are referenced to the South line of the Southeast Quarter of Section 6, T30N-R24E, which bears S86°50'58"W on the Wisconsin County Coordinate System, Marinette County.

Parcel 1
Part of Lot 2 of Certified Survey Map No. 3208, Volume 21, on Page 298, being in part of the Subdivision of Section 6, and part of Government Lot 4, in Section 6, T30N-R24E, in the City of Marinette, County of Marinette, State of Wisconsin, described as follows:

Commencing at the Southeast Corner of Section 6, T30N-R24E;
Thence S86°50'58"W, a distance of 882.74 feet;
Thence N03°09'02"W, 1365.48 feet to the Northwest Corner of Lot 2 of Certified Survey Map No. 3208, Volume 21, on Page 298, to a found iron rebar and the Point of Beginning;
Thence N46°47'41"E, along the West line of said Lot 2, to a found iron rebar, a distance of 99.67 feet and the Southwest right of way line of Ludington Street;
Thence S50°14'55"E, along said Southwest right of way line to a found iron rebar, a distance of 323.46 feet;
Thence S39°37'17"W, along the West line of Lot 1 of Certified Survey Map No. 1295, Volume 8, on Page 241, a distance of 100.55 feet;
Thence N49°58'12"W, along the South line of said Lot 2 and its extension, a distance of 335.91 feet to the Point of Beginning.

Parcel contains 32,886 square feet / 0.75 acres, more or less.
Parcel subject to any easements and restrictions of record.

PREPARED FOR:
City of Marinette
1905 Hall Avenue
Marinette, WI 54143-1716

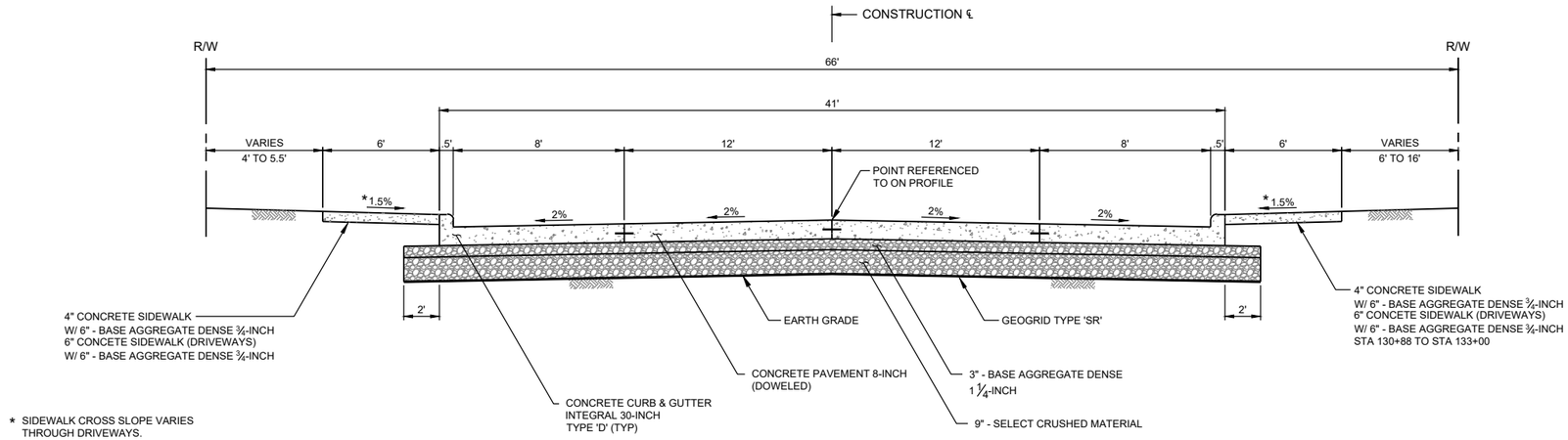
AYRES GEOSPATIAL
3376 Packerland Drive
Ashwaubenon, Wisconsin 54115

FILE NAME : I:\25\MARINETTE CITY OF\25-0269.00 MARINETTE DOWNTOWN AREA IMPROVEMENTS\CADD\SURVEY\CADD\C3D\BASEDATA\PLAT OF SURVEY FOR CITY OF MARINETTE.DWG 12/23/2015 1:46 PM PLOT BY : TACKMIER, JILL PLOT NAME : _____

Appendix C

Proposed Roadway and Storm Sewer Plans

WisDOT PROJECT ID: 9995-00-65



* SIDEWALK CROSS SLOPE VARIES THROUGH DRIVEWAYS.

PROPOSED TYPICAL CROSS SECTION FOR

LUDINGTON STREET
STA 122+53 TO STA 133+01

DES BY TAH								
DR BY JWS	PROJ NO 25-0269.00							
CHK BY CRS	DATE DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION	

DOWNTOWN AREA IMPROVEMENTS
LUDINGTON, WELLS AND MAIN STREETS
CITY OF MARINETTE

AYRES
Green Bay, WI 54115
920.498.1200

PROPOSED TYPICAL SECTIONS
LUDINGTON STREET

SHEET NO.
TS-15

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\SheetPlan\Ludington Street\7-Prop Typ Sections Ludington.dwg, Layout: TS-15

WisDOT PROJECT ID: 9995-00-65

NORTH

0 20 40

1603
CITY OF MARINETTE

MARINETTE MARINE
CORPORATION

CHANGE IN DIRECTION
STA 121+87, 31'LT

7' TO 5' CONCRETE SIDEWALK TAPER 4-INCH

CHANGE IN DIRECTION
STA 121+55, 27'LT

START RETAINING WALL
STA 123+01, 22.25'LT

CHANGE IN DIRECTION
STA 123+06, 22.25'LT

CHANGE IN DIRECTION
STA 123+36, 27.25'LT

18.5' R
STA 122+54.20
34.03' LT

PI: 122+66.48EB

PI: 121+74.22EB

SEE SHEET NO C-203

LUDINGTON STREET

118EB 119EB 120EB 121EB 122EB 123EB

CP 9

BM 1006

BM 100

LIMITS OF CONSTRUCTION
(TYP)

SLOPE INTERCEPT
(TYP)

32' B/O/C - B/O/C

ELY STREET

CHANGE IN DIRECTION
STA 123+36, 20.5'RT

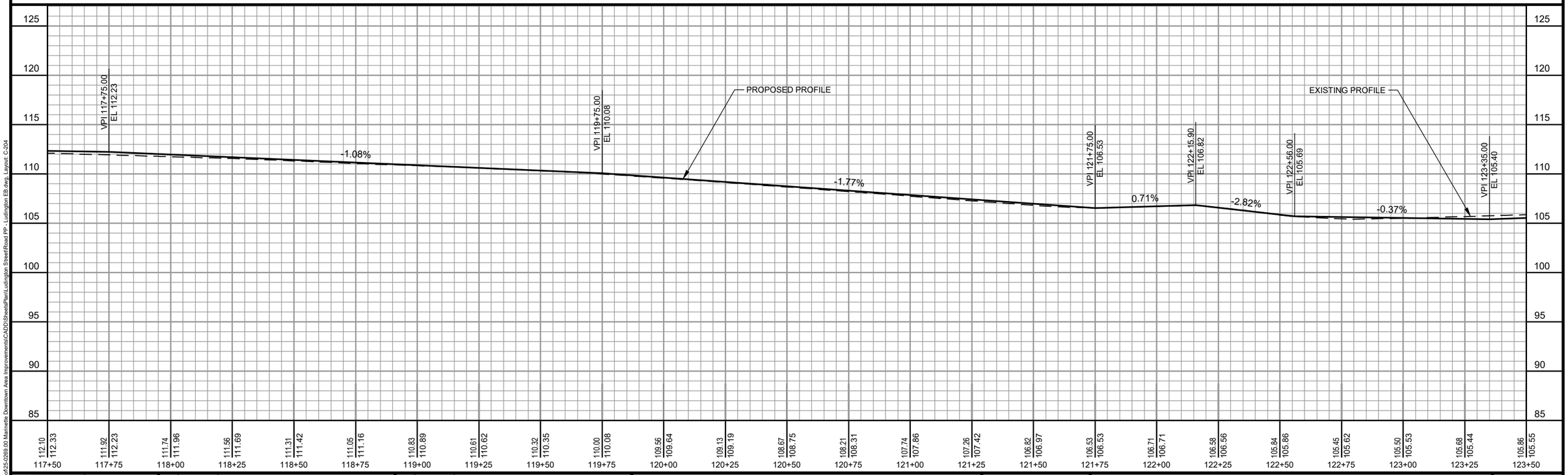
CHANGE IN DIRECTION
STA 123+06, 15.5'RT

SEE SHEET NO C-205

1428
NORTHEAST WISCONSIN
TECH COLLEGE

1402
ST JAMES EVANGELICAL
LUTHERAN CHURCH

1386
WAYNE & DEBRA L
SLOWINSKI



DES BY	TAH						
DR BY	JWS	PROJ NO 25-0269.00					
CHK BY	CRS	DATE DECEMBER 2022	NO	DATE	REVISION	NO	DATE REVISION

DOWNTOWN AREA IMPROVEMENTS
LUDINGTON, WELLS AND MAIN STREETS
CITY OF MARINETTE

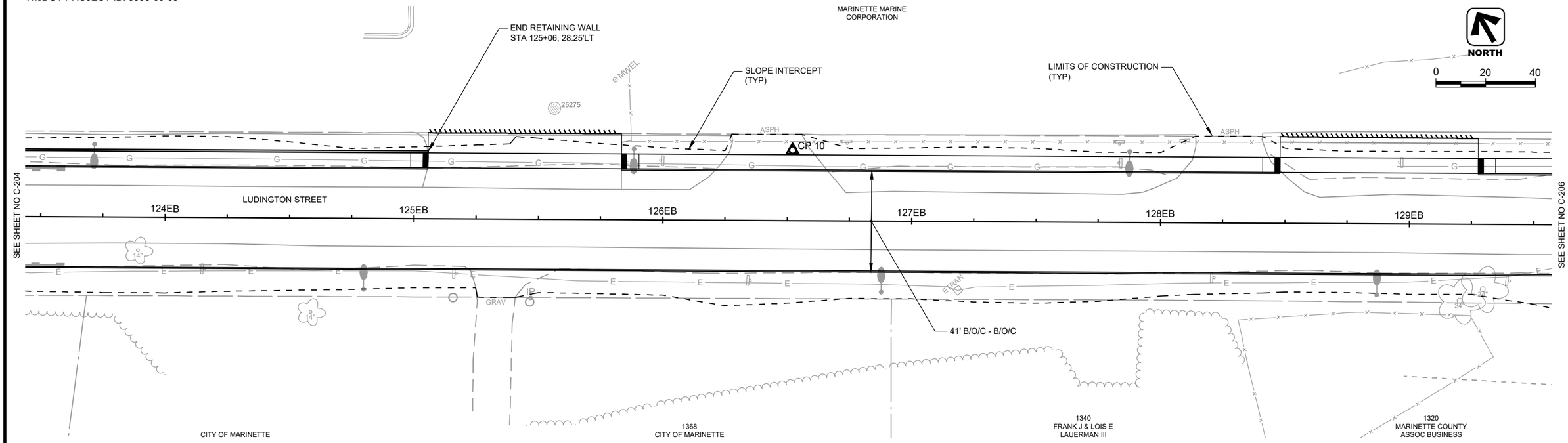
AYRES
Green Bay, WI 54115
920.498.1200

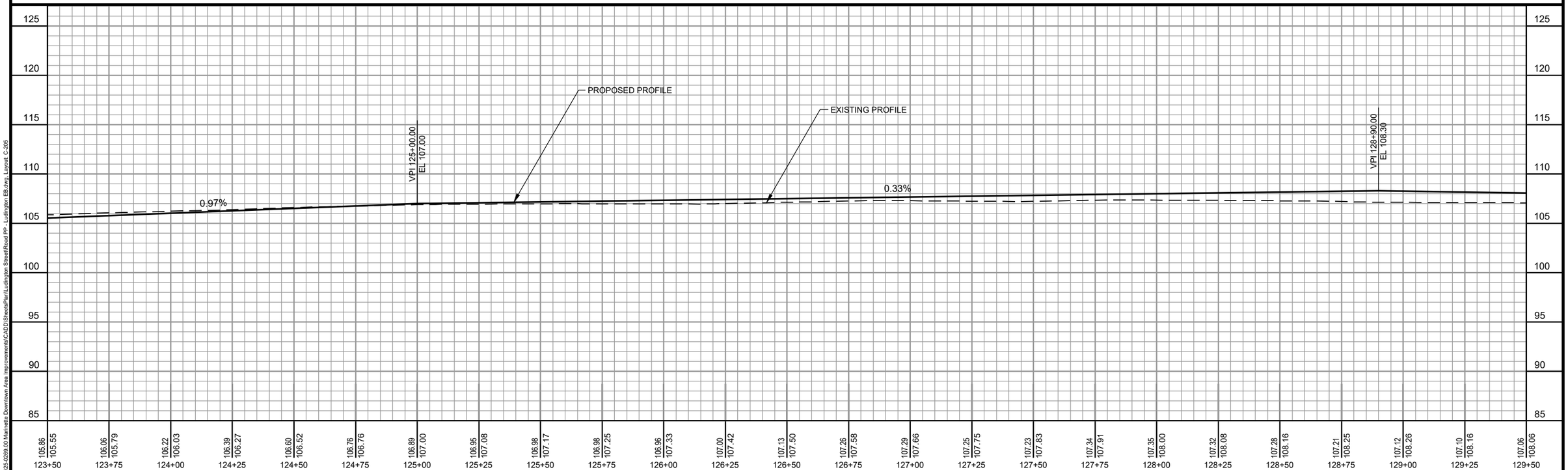
ROADWAY - LUDINGTON STREET EB

SHEET NO.
C-204

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Road PP - Ludington EB.dwg, Layout: C-204

WisDOT PROJECT ID: 9995-00-65

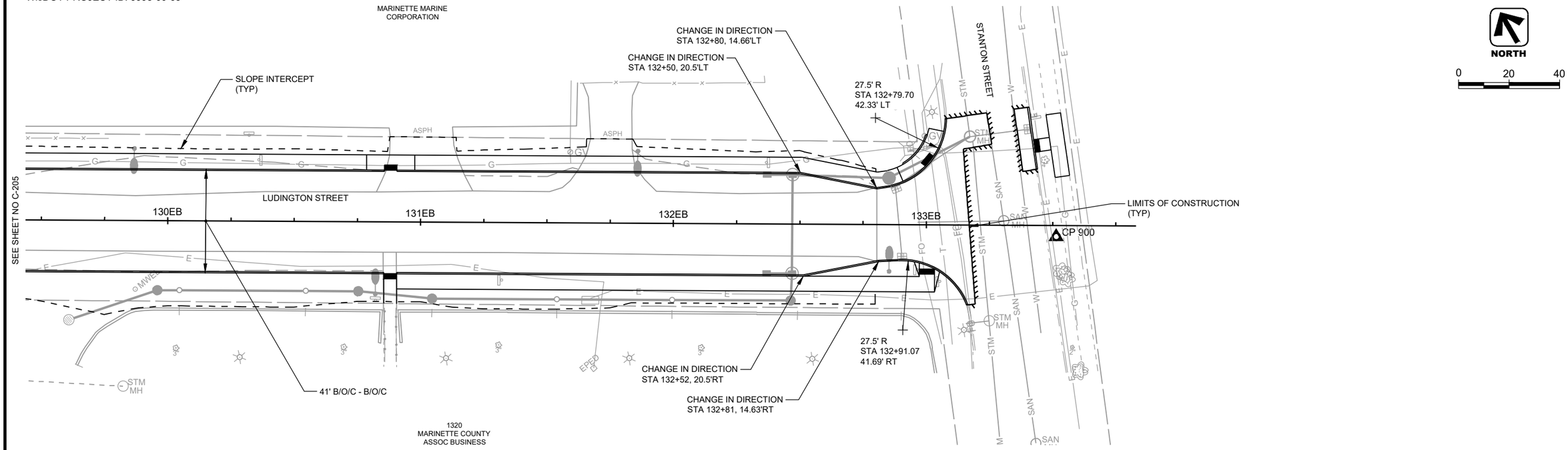


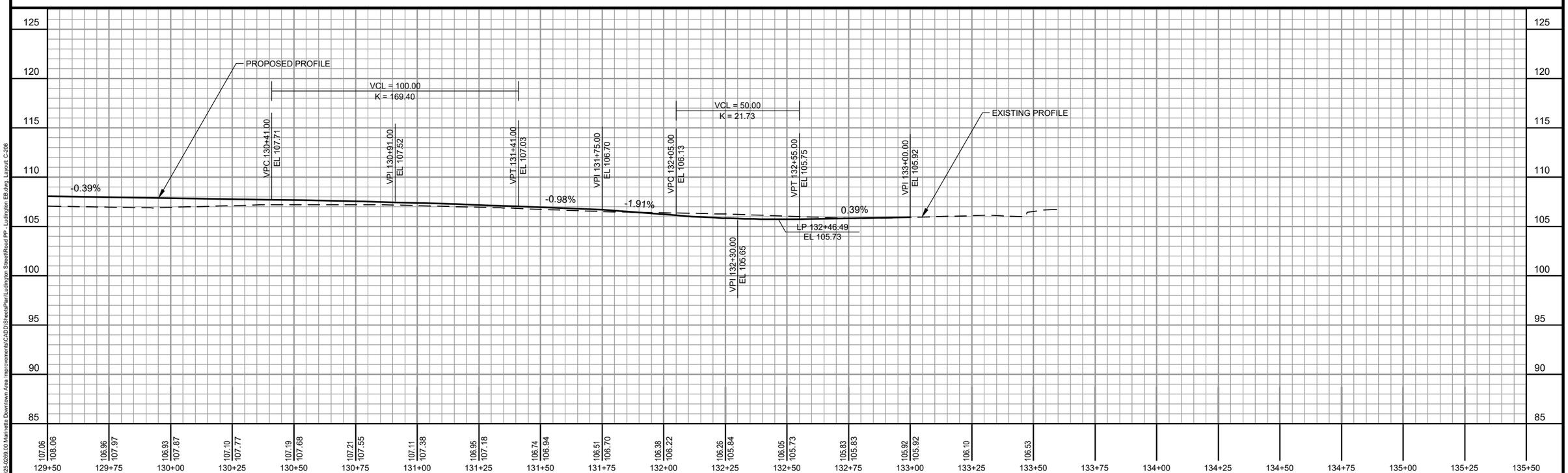


DES BY	TAH						DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	ROADWAY - LUDINGTON STREET EB	SHEET NO. C-205
DR BY	JWS	PROJ NO 25-0269.00								
CHK BY	CRS	DATE DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION		

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Road PP - Ludington EB.dwg, Layout: C-205

WisDOT PROJECT ID: 9995-00-65





DES BY	TAH						DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	ROADWAY - LUDINGTON STREET EB	SHEET NO. C-206
DR BY	JWS	PROJ NO	25-0269.00							
CHK BY	CRS	DATE	DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION	

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Road PP - Ludington EB.dwg, Layout: C-206

WisDOT PROJECT ID: 9995-00-65

NORTH

0 20 40

1603
CITY OF MARINETTE

MARINETTE MARINE
CORPORATION

CONNECT TO EX 15" STM (CONC)
W/ CONC COLLAR (FV)
12LF OF 15" RCP CLASS IV
STA 121+90, 11'LT

STM MANHOLE #26 (5' DIA)
W/ INLET CASTING
STA 121+79, 14.92'LT (COS)
GRATE TYPE 'H'
STA 121+79, 15.92'LT (BC)
TC 106.06
INV 15" (SE) 101.47 (OUTLET)
INV 12" (SW) 101.47
INV 12" (NW) 101.47

CATCH BASIN 26C (2'X3')
GRATE TYPE 'H'
STA 121+55, 16'LT (BC)
TC 106.74
INV 12" (SE) 101.70 (OUTLET)
23 LF - 12" RCP CLASS IV @ 1.00%

LIMITS OF CONSTRUCTION
(TYP)

CONNECT TO EX 12" STM (CONC)
W/ CONC COLLAR (FV)
12 LF OF 12" RCP CLASS IV

ELY STREET

LUDINGTON STREET

118EB 119EB 120EB 121EB 122EB 123EB

SEE SHEET NO SS-203

SEE SHEET NO SS-205

CB 26C

CB 26A

CB 26B

15" STM

CP 9

BM 1006

BM 100

CONNECT TO EX 10" STM (PVC)
W/ ECCENTRIC COUPLING (FV)
STA 121+52, 14'RT
8 LF - 12" PVC

CATCH BASIN #26A (2'X3')
GRATE TYPE 'H'
STA 121+51, 16'RT (BC)
TC 107.11
INV 12" (SE) 102.00 (OUTLET)
INV 10" (NW) 102.00
23 LF - 12" RCP CLASS IV @ 1.00%

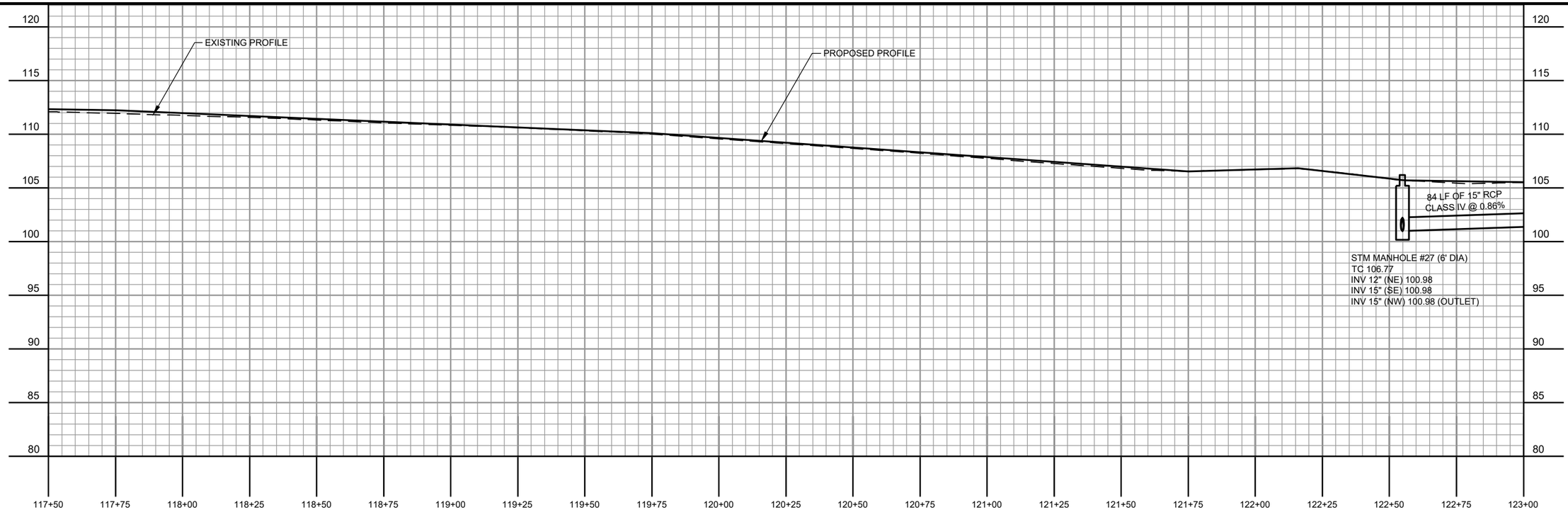
CATCH BASIN #26B (2'X3')
GRATE TYPE 'H-S'
STA 121+74, 16'RT (BC)
TC 106.87
INV 12" (NE) 101.77 (OUTLET)
INV 12" (NW) 101.77
30 LF - 12" RCP CLASS IV @ 1.00%

CONNECT TO EX 15" STM (CONC)
W/ CONC COLLAR (FV)
12 LF OF 15" RCP CLASS IV

STM MANHOLE #27 (5' DIA)
W/ INLET CASTING
STA 122+55, 14.56'RT (COS)
GRATE TYPE 'H'
STA 122+55, 15.56'RT (BC)

1428
NORTHEAST WISCONSIN
TECH COLLEGE

1402
ST JAMES EVANGELICAL
LUTHERAN CHURCH



DES BY	TAH							DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	STORM SEWER LUDINGTON STREET	SHEET NO. SS-204
DR BY	JWS	PROJ NO	25-0269.00								
CHK BY	CRS	DATE	DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION		

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Storm PP - Ludington.dwg, Layout: SS-204

WisDOT PROJECT ID: 9995-00-65

CATCH BASIN #28F (2'X3')
GRATE TYPE 'H-S'
STA 123+38, 20.5'LT (BC)
TC 105.42
INV 15" (SW) 101.82 (OUTLET)
INV 12" (SE) 101.82
20 LF - 15" RCP CLASS IV @ 1.00%

CATCH BASIN #28E (2'X3')
GRATE TYPE 'H-S'
STA 123+48, 20.5'LT (BC)
TC 105.53
INV 12" (SW) 101.92 (OUTLET)
INV 12" (SE) 101.92
10 LF - 12" RCP CLASS IV @ 1.00%

CATCH BASIN #28D (2'X3')
GRATE TYPE 'H-S'
STA 123+58, 20.5'LT (BC)
TC 105.64
INV 12" (SW) 102.02 (OUTLET)
10 LF - 12" RCP CLASS IV @ 1.00%

MARINETTE MARINE CORPORATION

NORTH

0 20 40

STM MANHOLE #28
STA 123+38

25275

MWEL

ASPH

CP 10

CB 28F
CB 28E
CB 28D

LUDINGTON STREET

123EB 124EB 125EB 126EB 127EB 128EB 129EB

SEE SHEET NO SS-204

SEE SHEET NO SS-206

CB 28B
CB 28A
CB 28C

GRAV

IP

ETRAN

12" RCP CLASS IV
STUB TO R/W
AND CAP

CATCH BASIN #28C (2'X3')
GRATE TYPE 'H-S'
STA 123+38, 20.5'RT (BC)
TC 105.61
INV 15" (NE) 101.82 (OUTLET)
INV 12" (SE) 101.82
INV 12" (SW) 101.82
20 LF - 15" RCP CLASS IV @ 1.00%

CATCH BASIN #28B (2'X3')
GRATE TYPE 'H-S'
STA 123+48, 20.5'RT (BC)
TC 105.64
INV 12" (NW) 101.92 (OUTLET)
INV 12" (SE) 101.92
10 LF - 12" RCP CLASS IV @ 1.00%

CATCH BASIN #28A (2'X3')
GRATE TYPE 'H-S'
STA 123+58, 20.5'RT (BC)
TC 105.72
INV 12" (NW) 102.02 (OUTLET)
10 LF - 12" RCP CLASS IV @ 1.00%

1386
WAYNE & DEBRA L
SLOWINSKI

CITY OF MARINETTE

1368
CITY OF MARINETTE

1340
FRANK J & LOIS E
LAUERMAN III

1320
MARINETTE COUNTY
ASSOC BUSINESS

PROPOSED PROFILE

EXISTING PROFILE

84 LF OF 15" RCP
CLASS IV @ 0.86%

STM MANHOLE #28 (5' DIA)
RIM 105.43
INV 15" (NE) 101.62
INV 15" (SW) 101.62
INV 15" (NW) 101.62 (OUTLET)

120 115 110 105 100 95 90 85 80

123+00 123+25 123+50 123+75 124+00 124+25 124+50 124+75 125+00 125+25 125+50 125+75 126+00 126+25 126+50 126+75 127+00 127+25 127+50 127+75 128+00 128+25 128+50 128+75 129+00

AA-Standard.stb
12/1/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Storm PP - Ludington.dwg, Layout: SS-205

DES BY	TAH								
DR BY	JWS	PROJ NO	25-0269.00						
CHK BY	CRS	DATE	DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION

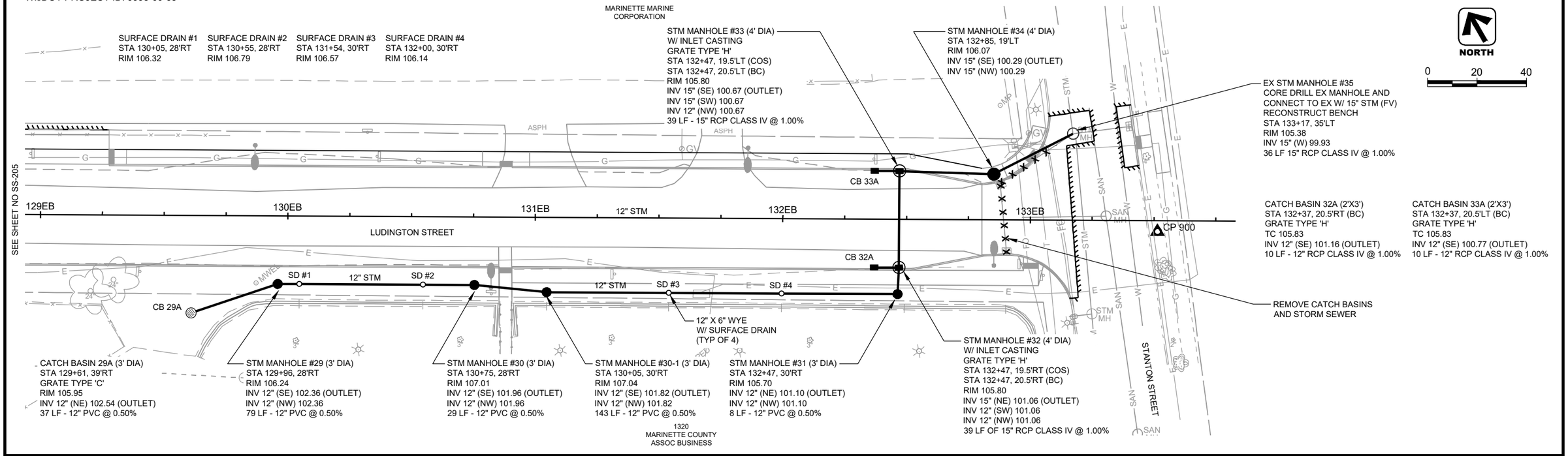
DOWNTOWN AREA IMPROVEMENTS
LUDINGTON, WELLS AND MAIN STREETS
CITY OF MARINETTE

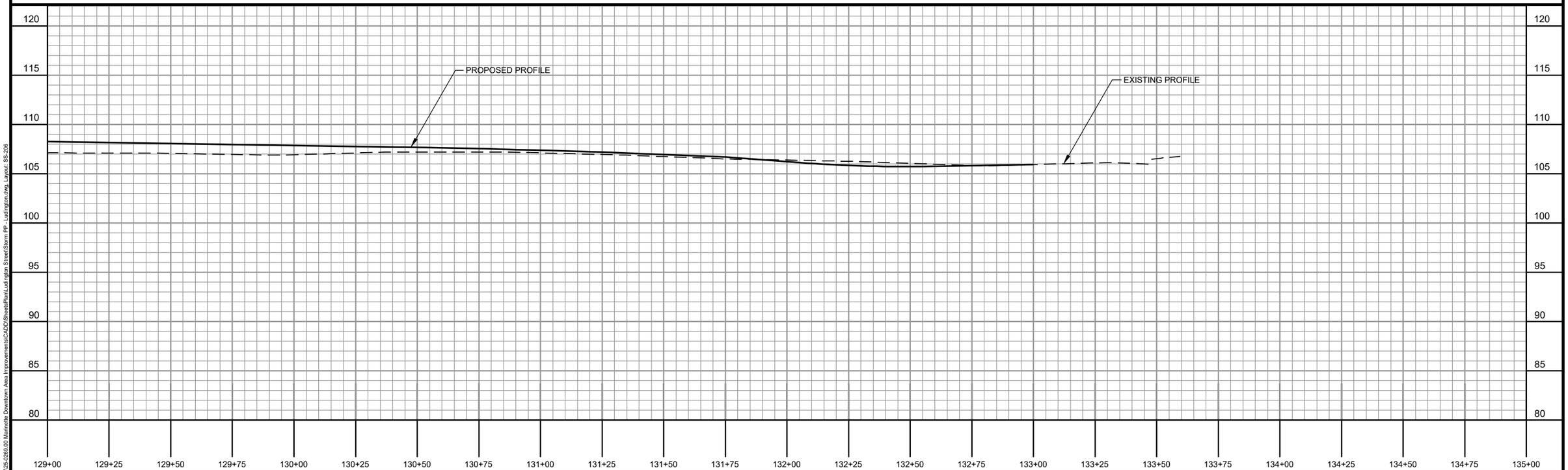
AYRES
Green Bay, WI 54115
920.498.1200

STORM SEWER
LUDINGTON STREET

SHEET NO.
SS-205

WisDOT PROJECT ID: 9995-00-65





DES BY	TAH							DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	STORM SEWER LUDINGTON STREET	SHEET NO. SS-206
DR BY	JWS	PROJ NO	25-0269.00								
CHK BY	CRS	DATE	DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION		

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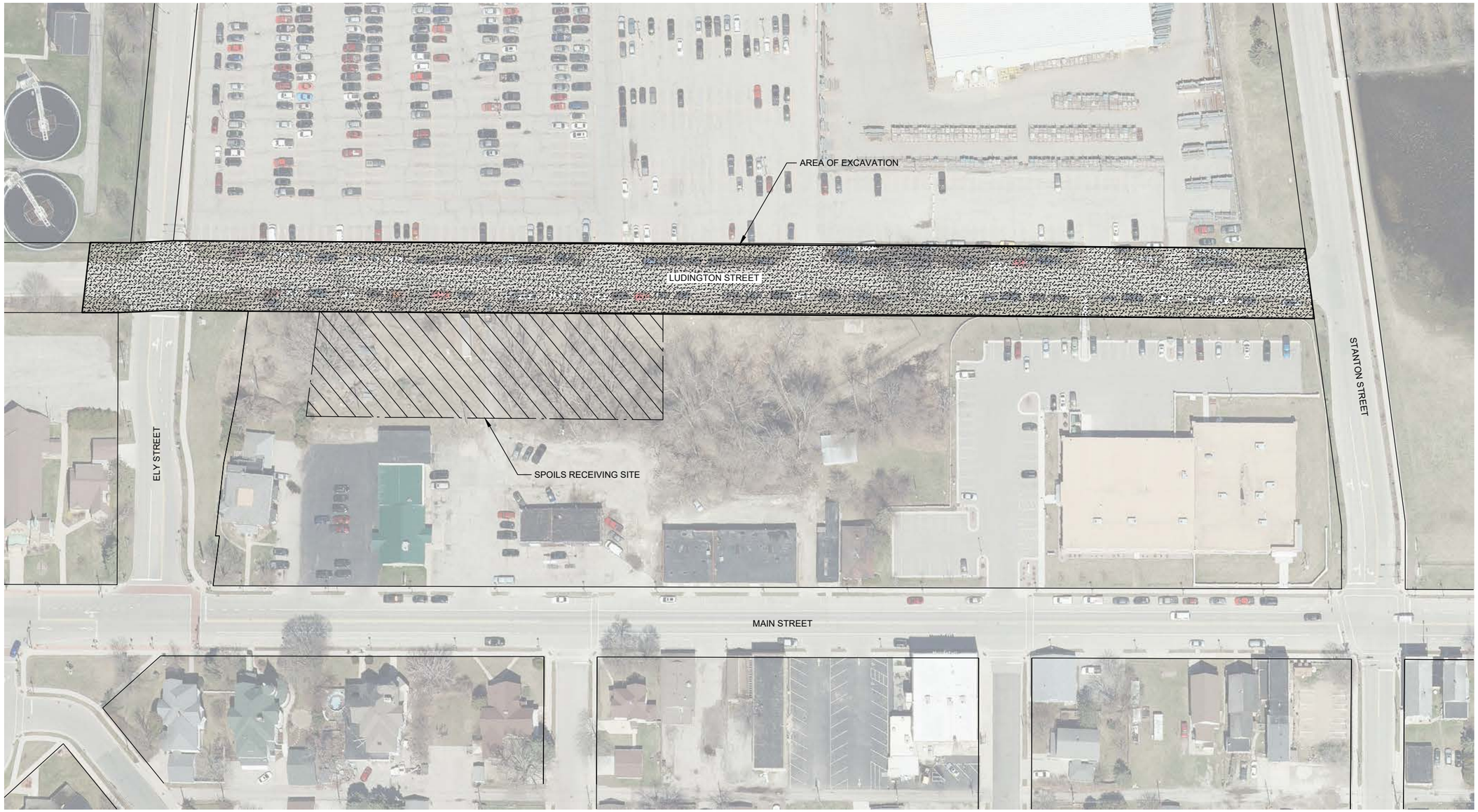
Appendix D

Receiving Site Grading and Capping Plan

NORTH

0 50 100



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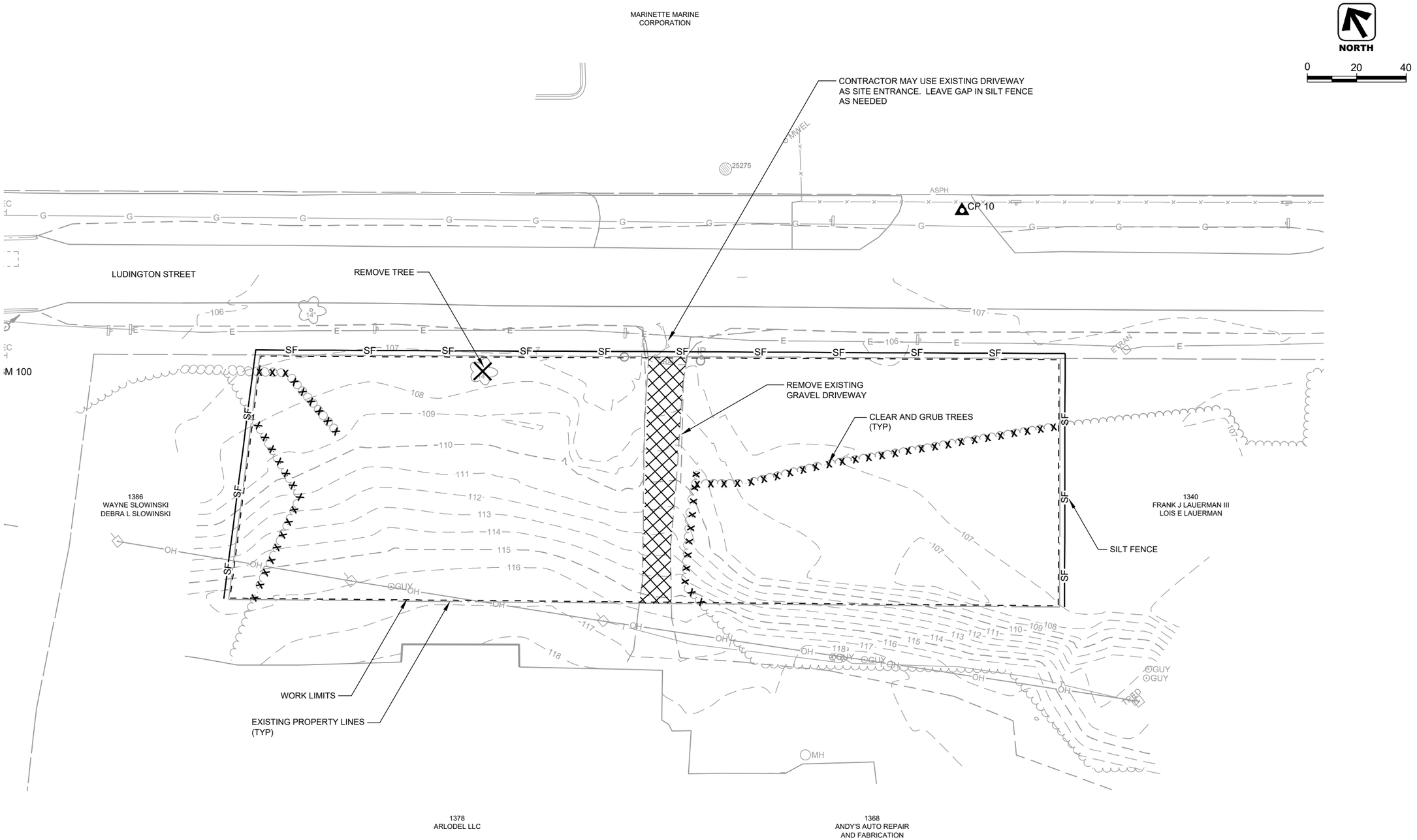
DES BY	TAH								DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	SITE OVERVIEW	SHEET NO. C-501
DR BY	JWS	PROJ NO 25-0269.00										
CHK BY	CRS	DATE DECEMBER 2022	NO	DATE	REVISION	NO	DATE	REVISION				



NOTES:

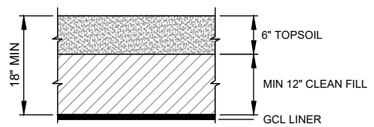
1. CLEAR AND GRUB ALL VEGETATION FROM SPOILS SITE.

DES BY	TAH								DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	EXISTING SITE AND DEMOLITION PLAN SPOILS DISPOSAL SITE	SHEET NO. C-502
DR BY	JWS	PROJ NO	25-0269.00									
CHK BY	CRS	DATE	OCTOBER 2022	NO	DATE	REVISION	NO	DATE	REVISION			

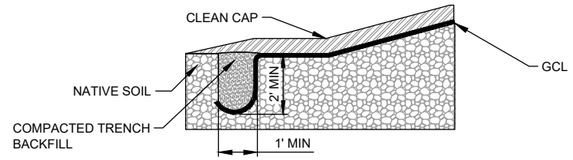
AA-Standard.stb
11/15/2022
I:\25Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Soils Disposal Ex Site.dwg, Layout: C-501

NOTES:

1. PROPOSED CONTOURS REPRESENT GRADING WITH MAXIMUM AMOUNT OF WASTE PLACED. DEPENDING ON QUANTITY OF MATERIAL, FINAL CONTOURS MAY VARY FROM WHAT IS SHOWN.
2. SLOPES SHALL NOT EXCEED 4:1.



1 **SITE CAP**
NOT TO SCALE



2 **GCL TRENCH ANCHOR**
NOT TO SCALE

AA-Standard.stb
11/15/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Soils Disposal Site Cut-Fill.dwg, Layout: C-503

DES BY	TAH									
DR BY	JWS	PROJ NO	25-0269.00							
CHK BY	CRS	DATE	OCTOBER 2022	NO	DATE	REVISION	NO	DATE	REVISION	

DOWNTOWN AREA IMPROVEMENTS
LUDINGTON, WELLS AND MAIN STREETS
CITY OF MARINETTE

AYRES
Green Bay, WI 54115
920.498.1200

CUT-FILL AND CAPPING PLAN

SHEET NO.
C-503

MARINETTE MARINE
CORPORATION

NORTH

0 20 40

LUDINGTON STREET

CP 10

ASPH

WORK LIMITS

SILT FENCE

EXISTING PROPERTY LINES
(TYP)

1386
WAYNE SLOWINSKI
DEBRA L SLOWINSKI

1340
FRANK J LAUERMAN III
LOIS E LAUERMAN

1378
ARLODEL LLC

1368
ANDY'S AUTO REPAIR
AND FABRICATION

NOTES:

1. CONTRACTOR MAY MULCH WITH TACHIFIER OR HYDROSEED/MULCH ENTIRE SITE FOLLOWING CONSTRUCTION.
2. SLOPES SHALL NOT EXCEDD 4:1.
3. SEED AND FERTILZE ALL DISTURBED AREAS WITH A MIXTURE OF WISDOT NO. 20 AND NO. 70. PROVIDE APPROPRIATE NURSE CROP PER WISDOT SECTION 630.2.1.5.3.

DES BY	TAH							DOWNTOWN AREA IMPROVEMENTS LUDINGTON, WELLS AND MAIN STREETS CITY OF MARINETTE	AYRES Green Bay, WI 54115 920.498.1200	PROPOSED SITE PLAN SPOILS DISPOSAL SITE	SHEET NO. C-504
DR BY	JWS	PROJ NO	25-0269.00								
CHK BY	CRS	DATE	OCTOBER 2022	NO	DATE	REVISION	NO	DATE	REVISION		

AA-Standard.stb
11/15/2022
I:\25\Marinette City of\25-0269.00 Marinette Downtown Area Improvements\CADD\Sheets\Plan\Ludington Street\Soils Disposal Site.dwg, Layout: C-504

BENTOFIX® NSL

NSL

Thermal Lock® Geosynthetic Clay Liners

Bentofix Thermal Lock® NSL Geosynthetic Clay Liner (GCL) is a needlepunched, thermally reinforced composite comprised of a core of natural sodium Wyoming bentonite clay between two durable geotextile layers to form a low permeability hydraulic barrier. The top layer is a staple fiber nonwoven (NW) geotextile while the bottom layer is a woven (W) geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.

Property	ASTM Test Method	Frequency	Value Imperial Units	Value Metric Units
Typical Geotextile Properties				
• Top / Cap Nonwoven	D 5261	200,000 sq ft (20,000 m^2)	6.0 oz./yd^2 MARV	200 g / m^2 MARV(1)
• Woven			3.1 oz./yd^2 MARV	105 g / m^2 MARV
Bentonite Properties (SI Units Only)				
• Swell Index	D 5890	100,000 lbs.	24 ml/ 2 g min	24 ml/ 2 g min
• Moisture Content	D 4643	(50,000 kg)	12 % max	12 % max
• Fluid Loss	D 5891	100,000 lbs.	18 ml max	18 ml max
• Smectite (Montmorillonite)	XRD		90% min.	90% min.
Finished GCL Properties				
• Bentonite Mass/Unit Area[2]	D 5993	40,000 ft^2 (4,000 m^2)	0.75 lbs/ft^2 MARV	3.66 kg/m^2 MARV
• Tensile Strength[3]	D 6768	40,000 ft^2 (4,000 m^2)	30 lb/in MARV	5 kN/m MARV
• Peel Strength	D 6496	40,000 ft^2 (4,000 m^2)	3.5 lbs/in min	610 N/m min
• Permeability[4]	D 5887	Weekly	5 x 10^{-9} cm/s max	5 x 10^{-9} cm/s max
• Index Flux[4]	D 5887	Weekly	1 x 10^{-8} $m^3/m^2/s$ max	1 x 10^{-8} $m^3/m^2/s$ max
• Internal Shear Strength[5]	D 6243	Periodic	500 psf Typical	24 kPa Typical

(1) Minimim Average Roll Value.
(2) Oven-dried measurement. Equates to 0.84 lb/sqft (4.1 kg/m^2) when indexed to 12% moisture content.
(3) Tested in machine direction.
(4) Deaired, deionized water @ 5 psi (34.5 kPa) maximum effective confining stress and 2 psi (13.8 kPa) head pressure.
(5) Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.

- - Roll width and lengths have a tolerance of +/- 1%. Standard rolls are 4.72m x 45.72m (15.5 feet by 150 feet). Rolls can be made longer if required and/or specified, however require advance notice.
- - Packaged weight of standard rolls is listed at 2,600 lbs – 1179 kg.

Appendix E
Cap Maintenance Plan

COVER or BARRIER MAINTENANCE PLAN

December 2, 2022

Property Located at:

Ludington Street Righ-of-Way

Part of Tax Parcel 251-00930.000

Part of Government Lot 4, in Section 6, T30N-R24E, in the City of Marinette, County of Marinette, State of Wisconsin, described as follows:

Commencing at the Southeast Corner of Section 6, T30N-R24E;
Thence S86°50'58"W, a distance 729.49 feet;
Thence N03°09'02", 1221.67 feet to the Point of Beginning;
Thence the N40°02'09", along the West line of Document Number 868114, a distance of 99.94 feet to the Southwest right of way line of Ludington Street;
Thence S50°14'55", along said Southwest right of way line, a distance of 125.02 feet to the East line of said Document;
Thence S39°37'17"W, along said East line, a distance of 100.55 feet;
Thence N49°58'12"W, 125.75 feet to the Point of Beginning.

Introduction

This document is the Maintenance Plan for an engineered cap at the above-referenced property in accordance with the requirements of s. NR 724.13 (2), Wis. Adm. Code. The maintenance activities relate to the existing soil cap and geosynthetic clay liner (GCL), which addresses or occupies the area over the contaminated soil.

More site-specific information about this property/site may be found in:

- The case file in the DNR Northeast Region office
- At http://dnr.wi.gov/topic/Brownfields/wrrd.html, which includes:
  - BRRTS on the Web (DNR's internet based data base of contaminated sites)for the link to a PDF for site-specific information at the time of closure and on continuing obligations;
  - RR Sites Map for a map view of the site, and
- The DNR project manager for Marinette County.

D.1. Descriptions:

Description of Contamination

Roadway grading and utility excavations for the reconstruction of Ludington Street between Ely and Stanton Street intersect a layer of contaminated fill. Spoils generated from excavations within the fill contain refuse, PAHs, PFAS, benzene, naphthalene, arsenic, and lead. These contaminated spoils will be relocated to a 110-ft x 288-ft area in the right-of-way adjoining the south side of Ludington Street (receiving site). The spoils will be capped with a low-permeability GCL and 18 inches of clean soil. The extent of the contaminated spoils is shown on the attached drawing C-503.

Description of the [Cover/Barrier] to be Maintained

The cap is comprised of 18 inches of clean soil over a geosynthetic clay liner. It is located spoils receiving site, as shown on attached drawing C-503.

Cover/Building/Slab/Barrier Purpose

The soil and GCL over the contaminated spoils serve as a barrier to prevent direct human contact with residual soil contamination that might otherwise pose a threat to human health. The cover/barrier also acts as a partial infiltration barrier to minimize future soil-to-groundwater contamination migration that would violate the groundwater standards in ch. NR 140, Wisconsin Administrative Code. Based on the current use of the property, City right-of-way, the barrier should function as intended unless disturbed.

Anual Inspection

The soil and GCL overlying the contaminated spoils and as depicted in drawing C-503 will be inspected once a year, normally in the spring after all snow and ice is gone, for deterioration, cracks and other potential problems that can cause additional infiltration into or exposure to underlying soils. The inspections will be performed by the property owner or their designated representative. The inspections will be performed to evaluate damage due to settling, exposure to the weather, wear from traffic, increasing age and other factors. Any area where soils have become or are likely to become exposed [[and] where infiltration from the surface will not be effectively minimized] will be documented.

A log of the inspections and any repairs will be maintained by the property owner and is included as D.4, Form 4400-305, Continuing Obligations Inspection and Maintenance Log. The log will include recommendations for necessary repair of any areas where underlying soils are exposed and where infiltration from the surface will not be effectively minimized. Once repairs are completed, they will be documented in the inspection log. A copy of the maintenance plan and inspection log will be kept at the site; or, if there is no acceptable place (for example, no building is present) to keep it at the site, at the address of the property owner and available for submittal or inspection by Wisconsin Department of Natural Resources (DNR) representatives upon their request.

Maintenance Activities

If problems are noted during the annual inspections or at any other time during the year, repairs will be scheduled as soon as practical. Repairs can include patching and filling or larger resurfacing or construction operations. In the event that necessary maintenance activities expose the underlying soil, the owner must inform maintenance workers of the direct contact exposure hazard and provide them with appropriate personal protection equipment (PPE). The owner must also sample any soil that is excavated from the site prior to disposal to ascertain if contamination remains. The soil must be treated, stored and disposed of by the owner in accordance with applicable local, state and federal law.

In the event the soil and GCL overlying the contaminated spoils are removed or replaced, the replacement barrier must be equally impervious. Any replacement barrier will be subject to the same maintenance and inspection guidelines as outlined in this Maintenance Plan unless indicated otherwise by the DNR or its successor.

The property owner, in order to maintain the integrity of the soil and GCL cap, will maintain a copy of this Maintenance Plan at the site; or, if there is no acceptable place to keep it at the site (for example, no building is present), at the address of the property owner and make it available to all interested parties (i.e. on-site employees, contractors, future property owners, etc.) for viewing.

Prohibition of Activities and Notification of DNR Prior to Actions Affecting a Cover/Barrier

The following activities are prohibited on any portion of the property where soil cover, engineered cap or other barrier is required as shown on the attached map, unless prior written approval has been obtained from the Wisconsin Department of Natural Resources: 1) removal of the existing barrier; 2) replacement with another barrier; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; 6) construction or placement of a building or other structure; 7) changing the use or occupancy of the property to a residential exposure setting, which may include certain uses, such as single or multiple family residences, a school, day care, senior center, hospital, or similar residential exposure settings.

If removal, replacement or other changes to a cover, or a building which is acting as a cover, are considered, the property owner will contact DNR at least 45 days before taking such an action, to determine whether further action may be necessary to protect human health, safety, or welfare or the environment, in accordance with s. NR 727.07, Wis. Adm. Code.

Amendment or Withdrawal of Maintenance Plan

This Maintenance Plan can be amended or withdrawn by the property owner and its successors with the written approval of DNR.

Contact Information

December 2022

Site Owner and Operator:
City of Marinette
Brian Miller, City Engineer
1905 Hall Avenue
Marinette, WI 54143
715.732.5180

Signature: _____

Consultant:
Ayres Associates
3376 Packerland Drive
Ashwaubenon, WI 54115
(920) 498-1200

DNR:
Sarah Krueger, PG
2984 Shawano Avenue
Green Bay, WI 54313
920.510.8277

D.2 Location Map(s)
D.3 Photographs of Cover/Barrier
D.4 Continuing Obligations Inspection and Maintenance Log Form 4400-305

Appendix F

Special Contract Provisions for Managing Contaminated Material and Groundwater (relevant provisions highlighted)

Special Provisions
Table of Contents

the named item is necessary for interchangeability or if the named product has been demonstrated to be most cost-effective.

18. Survey Corners and Above/Below Grade Obstructions.

The Contractor shall be responsible for the protection and/or replacement of all survey corners within the project area.

Contractor shall be responsible to notify DIGGERS HOTLINE prior to construction. Contractor shall also be responsible for notifying any above ground and below ground utility such as electric power, gas, telephone, cable TV companies, that relocation or reinforcement of pipes, poles, ties or anchors may be required during the progress of work. Contractor shall also notify the Marinette Water and Wastewater Utilities as needed.

The Contractor shall remove and restore at his own expense existing mailboxes, fences, signs and other above surface appurtenances, which interfere with his construction. The Contractor shall perform this work so there is no interruption to mail delivery during construction under this project. Mailboxes shall be temporarily placed in locations as dictated by the U.S. Postal Service and as designated by the local mail carrier.

The Contractor shall protect, repair and replace any structure, either above ground or below ground, damaged or displaced during construction.

19. Easements.

It is intended that all construction to be performed will be carried out within existing right-of-ways or within the limits of easements obtained by the City. Should the Contractor perform any construction operations outside of these areas, the Contractor shall be fully responsible for obtaining written authorization from the affected property owners and/or maintaining authority. The Contractor shall bear any and all costs incidental to this work and comply with all requirements of the owners or maintaining authority.

20. Dust Control.

The Contractor shall provide dust control in the form of water, calcium chloride or other approved means. Dust control shall be the contractor's responsibility and shall abate dust within three (3) hours of the Engineer's request. Cost for dust control shall be incidental to this contract.

21. Dewatering.

Perform earthwork in a manner to prevent surface water from flowing into excavations. If surface water enters excavations on Ludington Street between Mann and Stanton Street, it shall be considered contaminated. Promptly remove surface water from excavations using pumps, sumps, and other dewatering system components and place it into Contractor-furnished storage container(s) or tanker truck(s). Minimize sediment content of removed water by including screen on suction pipe.

Water that enters excavations on Main Street, Wells Street, or between Hall Avenue and Mann Street on Ludington Street, is not considered contaminated unless contamination is observed in the excavation or water (i.e., sheen or odors). Water from main breaks or

draining utility lines on Main Street, Wells Street, or between Hall Avenue and Mann Street on Ludington Street shall not be treated as contaminated unless authorized by A/E and Owner.

Groundwater beneath project site is known to be contaminated with arsenic, lead, per- and polyfluoroalkyl substances (PFAS), and chrysene, at levels that attain or exceed Wisconsin Administrative Code NR 140 Groundwater Quality Standards.

Excavation is anticipated to take place beneath groundwater table. Ground water encountered in excavations shall be considered contaminated. Construct a sump at base of excavation to collect groundwater. Remove groundwater from excavations using pumps and other dewatering system components and place it into Contractor-furnished storage container(s) or tanker truck(s). Minimize sediment content of removed water by including screen on suction pipe. Contractor shall be responsible for obtaining any permit required for dewatering over 70 gpm.

Dispose of contaminated water to sanitary sewer. Contractor is responsible for obtaining a *Permit to Discharge to City of Marinette Sanitary Sewer System.* Contractor shall comply with all discharge permit conditions including but not limited to pre-treatment of contaminated water, influent and/or effluent testing and monitoring, and reporting. Engineer can provide preliminary groundwater testing results to assist Contractor with obtaining discharge permit.

Contractor shall follow the specification for *Mobile Construction Dewatering Treatment System, Operation, Maintenance, and Monitoring* provided in Appendix I if pretreatment of contaminated water is required for disposal to sanitary sewer.

The Contractor shall at all times have on hand sufficient pumping equipment and machinery in good working condition for all ordinary emergencies, including power outage, and shall have available at all times competent workmen for the operation of the pumping equipment.

The dewatering systems shall be operated in a manner to minimize the unnecessary removal of contaminated water. Dewatering activities shall cease as soon as practicable after the completion of work or in excavations where the Contractor in not actively working. In active work areas, dewatering systems shall not be shut down between shifts, weekends, holidays or during work stoppages without written permission from the Engineer. The control of ground water shall prevent softening of the bottom of excavations or formation of “quick” conditions or “boils”. Dewatering systems shall be designed and operated to prevent the removal of the natural soils.

Do not open trenches intersecting groundwater more than 100 ft in advance of pipe laying unless otherwise permitted by A/E. Trenches shall be backfilled at the end of each workday to within 50 ft of complete pipe installation.

During excavation, construction of pipelines and appurtenances, and backfilling, excavations shall be kept free of water. The static water level shall be drawn down a minimum of one (1) foot below the bottom of the excavation to maintain the undisturbed state of the natural soils and allow the placement of any fill or backfill to the required density. The dewatering system shall be installed and operated so the groundwater level outside the excavation is not reduced to the extent that would damage or endanger

adjacent structures or property. The release of groundwater to its static level shall be performed in a manner to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted fill or backfill, and prevent the flotation or movement of all pipelines and appurtenances.

The Contractor shall at all times convey water from the dewatering system through a piped system until the water reaches the receiving point (holding tank or sanitary sewer). Ground water shall not be discharged onto ground, storm sewer, or surface water.

The owner will pay for the work specified under the various dewatering items.

22. Trench Backfill.

The Contractor will be allowed to use trench excavation as trench backfill, provided, the materials are deemed suitable for backfill by the Engineer. If the backfill materials are saturated or have a high moisture content that will not allow for 95% modified proctor compaction, the Contractor will be responsible for achieving the required moisture content to attain specified compaction; or remove and dispose trench excavation and import suitable granular backfill at no additional expense to the Owner.

Frozen trench backfill will not be allowed and no compensation will be provided for imported trench backfill that is necessary due to native trench material being frozen.

23. Down Time.

Contractor Down Time will not be considered for compensation unless it is due to a change in condition.

The following will not be considered Down Time for additional compensation:

a. Searching for and exposing sanitary laterals or water services.
b. Draining water mains for water main connections.
c. Waiting for City of Marinette crews to shut down water mains, requiring less than two (2) hours each.
d. Coordinating with, working around or repairing utilities not owned by the City of Marinette.

24. Sanitary Lateral Locating.

The City of Marinette will not locate sanitary laterals between the main and the property line. The Contractor shall be responsible to locate each existing sanitary lateral if this information is needed. If laterals are encountered that are not shown, contractor must determine source and if lateral is active. Contractor shall utilize hand operated video inspection equipment to determine if laterals are active or disconnected. Ridgid SeeSnake or similar type camera equipment with live video feed shall be utilized. Upon completion of video inspection of laterals the City of Marinette or A/E will make determinations as to whether laterals shall be reconnected.

The Owner will not measure Roadway Excavating. The Owner will use the plan quantity in accordance with subsection 109.1.1.2 of the standard specifications.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.03	Roadway Excavating	CY

Payment is in accordance with subsection 205.5.2 of the standard specifications except payment will be made per PLAN QUANTITY.

53. Planting Soil Mix, Item SPV.0035.04

A Description
This special provision describes Planting Soil Mix, in accordance with standard spec 632, as shown on the plans, and hereinafter described.

B Materials
Furnish planting soil mix conforming to standard spec 632.2.3.4

C Construction
Remove compacted base from within 6 inches of curbs and pavement of planting beds. Loosen subgrade of planting beds to a minimum depth of 12". Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter. Thoroughly blend planting soil mix off-site before spreading. Do not spread frozen, muddy, or excessively wet planting soil or subgrade. Spread approximately one-third the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 6 inches of subgrade. Spread planting soil mix, in maximum of 6 inch lifts, to a minimum depth of 12" but not less than required to meet finish grades after natural settlement. Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades

D Measurement
The department will measure Planting Soil Mix by the cubic yard acceptably completed.

E Payment
The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.04	Planting Soil Mix	CY

Payment is full compensation for furnishing and placing all materials, including excavation, disposal, hauling, placing, grading.

54. Loading, Hauling, Placing, and Grading Fill Site Material, Item SPV.0035.05

A Description
This special provision describes all work associated with transporting, placing, and grading contaminated spoil material generated in excavations from Ludington Street between Ely

Street and Stanton Street, to the identified fill site area shown on the plans, and hereinafter described.

B Materials (Vacant)

C Construction

C.1 Loading and Hauling

Directly load and haul spoils material to the identified fill site. Use loading and hauling practices that are appropriate to prevent any spills or releases of contaminated soils or residues. Before transport, sufficiently dewater soils designated so as not to contain free liquids.

Excavate soil in a manner that eliminated or reduces the need to stockpile trench spoils prior to transportation to the fill site. If needed, construct and maintain any temporary stockpile(s) of the material according to NR 718.05(3), including, but not limited to, placement of the contaminated soil/fill material on an impervious surface and covering the stockpile with impervious material to prevent infiltration of precipitation.

When material is encountered outside the identified limits of known contamination that contains solid waste or is obviously impacted with petroleum or chemical products, or when other obvious potentially contaminated materials are encountered or material exhibits characteristics of industrial-type wastes, such as fly ash, foundry sand, and cinders, or when underground storage tanks are encountered, suspend excavation in that area and notify the A/E.

Hauling of contaminated soils off of project site onto public roads shall be performed by a WDNR licensed solid waste hauler. Contractor shall obtain appropriate permits for transporting contaminated soils.

Vehicles transporting contaminated soils or backfill soils shall have adequate sideboards, tailgates, and covers to prevent spillage. Vehicles transporting contaminated soils shall have leak-tight material boxes when required.

Leakage or spillage of hauled materials onto public roads and streets will not be permitted, and if unavoidably done, shall be removed daily in a manner acceptable to governmental authorities.

C.2 Placing and Grading

Place soil classified as contaminated by A/E within designated fill site limits as shown on the drawings, and covered with a cap.

Grade areas within project limits to achieve cross sections, lines, and elevations indicated. Slope grades to direct water away from structures and to prevent ponding. Finish surface to be reasonably smooth and free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

C.3 Compaction

Provide compaction equipment required to obtain specified compaction. Compaction by travel of grading equipment is not considered adequate for uniform compaction.

General site fill shall be placed in maximum 12 inch lifts and shall meet 90% of maximum density determined in accordance with ASTM D1557 (Modified Proctor test).

D Measurement

The department will measure Loading, Hauling, Placing, and Grading Fill Site Material by the cubic yard acceptably completed. Payment for uncontaminated topsoil stripping and stockpiling will be paid under Site Preparation, Fill Site item.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.05	Loading, Hauling, and Placing Fill Site Material	CY

Payment is full compensation for loading, hauling, placing, compacting, and grading all spoil materials at designated fill site, together with all labor, tools, equipment, and incidentals required to perform the work. Payment will be made per PLAN QUANTITY.

55. Fill Site Cap, Item SPV.0035.06

A Description

This special provision describes constructing a cap over the contaminated spoils on the proposed fill site as shown on the plans, and hereinafter described. Work includes excavating, loading, hauling, grading, sorting, stockpiling, placing, conditioning, and compacting soil materials including finish grading necessary and incidental to accommodate lines, grades, thicknesses, and typical sections shown on Drawings, including that required for borrow site.

Site cap shall be constructed with a minimum of 18-Inches of imported soil fill on top of a geosynthetic clay liner (GCL). Clean fill shall for the site cap shall consist of 12-inches of general soil fill and 6-inches of topsoil.

B Materials

Soil materials shall be free of organic matter, debris, frozen soils, ice, and other objectionable materials. Rock particles larger than 3 inch diameter shall be removed prior to placement of soil.

Soil materials for the cap are currently not available on site and shall be furnished by the Contractor. Excavation, hauling, handling, and placement of cap soils shall be responsibility of Contractor.

General soil fill for the cap shall consist of silty or clay soils.

C Construction

Place soil cap with low ground pressure equipment (less than 5 psi). Minimum protective fill thicknesses of 12 in. must be maintained between low ground pressure equipment and geosynthetic clay liner (GCL). Avoid excessive traffic compaction. Push materials up slopes, not down.

Use placement methods that prevent advancement of wrinkles in underlying GCL. Haul roads over GCL for purpose of hauling subsequent soil layers for placement shall be a minimum of 3-ft. thick. Caution shall be used in spreading material to prevent wrinkling or other disturbance of GCL. If a wrinkle occurs, notify A/E. A minimum of 12-in. of cover soil is required between the GCL and all other tracked or flotation tire equipped vehicles.

Thickness of cap soil and topsoil layers shall be within 0.10 ft of required thicknesses.

D Measurement
The department will measure Fill Site Cap by the cubic yard of soil acceptably placed.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0035.06	Fill Site Cap	CY

Payment is full compensation for furnishing and placing all materials, including excavation, disposal, hauling, placing, grading. Payment will be made per PLAN QUANTITY.

56. Removing Fire Hydrants, Item SPV.0060.01.

A Description
This special provision describes removing existing fire hydrants at the locations shown on the plans and as hereinafter provided.

B (Vacant)

C Construction
Excavate the existing fire hydrant following abandonment of the connecting water main, remove the fire hydrant from the connecting pipe, cap the connecting pipe with a mechanical joint cap or plug the pipe with a minimum of one foot of cast-in-place concrete, and backfill and compact the excavation with excavated material.

Owner shall have first right to retain fire hydrants that are removed by contractor. Deliver hydrants that Owner wishes to retain to Owner specified location within 5 miles or project site. Hydrants that Owner does not wish to retain shall become the property of the contractor and shall be removed from the site.

This work shall consist of removing fire hydrants that are not in the same trench as new water main. Fire hydrants that are removed during installation of new water main or hydrants will not be paid for.

D Measurement
The owner will measure Removing Fire Hydrants as each individual fire hydrant acceptably removed.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

foreign materials and unsuitable soils, and maintaining surface free of loose and protruding stones. Conduct visual inspection of clay surface prior to backfilling and remove any visible stones or foreign objects.

D Measurement
The Owner will measure all bid items under this section as each individual unit acceptably completed.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.84	Clay Trench Seal	EACH

96. Contaminated Water Disposal, Item SPV.0070.01

A Description
This work consists of dewatering excavations, temporarily storing contaminated water in tank(s) or tanker truck(s), disposal of contaminated water to the sanitary sewer, and pretreatment of contaminated water if required by the City of Marinette Wastewater Treatment Plant.

Groundwater beneath the project site is contaminated with arsenic, lead, per- and polyfluoroalkyl substances (PFAS), and chrysene at levels that attain or exceed Wisconsin Administrative Code NR 140 Groundwater Quality Standards. A/E can provide previous groundwater test results upon request.

Dewatering, storage, pretreatment, and disposal of non-contaminated water or contaminated water not authorized by A/E or Owner will be at Contractor's expense. Water from main breaks or draining utility lines on Main Street, Wells Street, or between Hall Avenue and Mann Street on Ludington Street shall not be treated as contaminated unless authorized by A/E or Owner.

Contractor is responsible for obtaining a *Permit for Wastewater Discharge to City of Marinette Sanitary Sewer System*. A/E will provide existing groundwater testing results to assist with the permit application. Additional testing required for the permit application and/or monitoring required by the permit conditions shall be at the contractor’s expense.

The groundwater table is approximately 4 to 6 feet below grade between Ely and Stanton Street. Storm sewer excavations are anticipated to intersect groundwater between Mann and Stanton Street.

The groundwater table is approximately 10 to 12 feet below grade between Hall Avenue and Mann Street. Utility excavations are not expected to intersect groundwater between Hall Avenue.

B Materials
Contractor shall furnish the following:

- Sufficient pumping equipment.
- Tank(s) or tanker truck(s) for contaminated water storage.

- Filter media and consumable items required for pretreatment system operation.
- A/E estimates that dewatering activities between Ely and Stanton Street may generate 8,400 gallons per day. Estimates are based on sandy soil conditions with pumps running for a 12-hour work day to dewater 350 linear feet of excavation. Changes in the duration of the work day, soil conditions, groundwater levels, or a variety of other factors may impact the actual quantity of contaminated water generated during construction.

C Construction

Install dewatering sumps as necessary along the length of the excavation(s) to draw the water level below the base of the excavation. Sump(s) shall extend at least 1 foot below the base of the excavation and of sufficient dimension to accommodate pump intake with screen. The base of the sump shall be covered with at least 6 inches of aggregate and space between the sidewalls of the sump and pump intake shall be filled with aggregate to reduce sediment intake.

Contractor shall pump contaminated water directly to container(s) for temporary storage or, if authorized under a *Permit to Discharge to City of Marinette Sanitary Sewer System* directly, to sanitary sewer or pretreatment system.

D Measurement

The Owner will measure Contaminated Water Disposal as gallons discharged to sanitary sewer. The unit rate shall include permit application, City wastewater treatment plant fees related to the discharge of contaminated water to sanitary sewer, any additional water testing (if required), pumping equipment, and temporary storage of contaminated water.

Disposal of non-contaminated water will be at the Contractor's expense. Owner will only pay for pretreatment if it is required by the receiving wastewater treatment facility (City of Marinette Wastewater Treatment Plant).

E Payment

The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0070.01	Contaminated Water Disposal	GAL

97. Full Crew Rate, Item SPV.0075.01

A Description

This special provision describes the Contractors resources for a full crew that is used for underground work including water main, sanitary sewer main, and storm sewer main. The special provision will be used for additional work that requires an hourly rate for a full crew. The Contractor shall provide a detail listing an hourly rate for each labor category and each piece of equipment that makes up the unit price for Full Crew Rate. If additional work does not require a full crew, then the labor and equipment rates provided will be used to determine appropriate compensation for such work.

B Materials (Vacant)

C Construction

Construction of work shall be performed on an as needed basis as directed by engineer.

all excavation, dewatering, sewage pumping (if necessary); together will all labor, tools, equipment, and incidentals required to perform the work.

124. Dewatering Pretreatment System Setup, SPV.0105.10.

A Description

This work consists of mobilization of system to pretreat contaminated water (if needed) prior to disposal to sanitary sewer. Pretreatment shall comply with all conditions of Contractor's *Permit for Wastewater Discharge to City of Marinette Sanitary Sewer System*.

Pretreatment system specifications are provided in Appendix I. Contractor shall furnish treatment system and necessary equipment for the system's operation.

Groundwater beneath project site is contaminated with arsenic, lead, per- and polyfluoroalkyl substances (PFAS), and chrysene, at levels that attain or exceed Wisconsin Administrative Code NR 140 Groundwater Quality Standards. A/E can provide previous groundwater test results upon request.

B Materials

Contractor shall furnish:

- Pretreatment system.
- Necessary support equipment for operation of pretreatment system.

C Construction

Pretreatment system specifications are provided in Appendix I.

D Measurement

The Owner will measure Dewatering Pretreatment System Setup on a lump sum unit basis, acceptably completed. Setup includes mobilization and demobilization of the treatment system and supporting equipment.

E Payment

The Owner will pay for measured quantities at the contract unit price under the following bid item(s):

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.10	Dewatering Pretreatment System Setup	LS

125. Site Preparation, Fill Site, SPV.0105.11.

A Description

This special provision describes work associated with preparing designated project area for spoil disposal, including but not limited to clearing and grubbing trees and vegetation, stripping and salvaging topsoil, as shown on the plans and hereinafter provided.

B Materials (Vacant)

C Construction

Remove trees, stumps, snags, shrubs, brush, heavy growths of grass, weeds and other vegetation, improvements, rubbish and debris, and obstructions that interfere with proposed construction; remove items only as necessary for completion of work.

Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Cut back roots a minimum of 1 ft from concrete work, paving, and structures and to a depth of not less than 2 ft below structures, foundations, and embankments.

Strip topsoil from project area to whatever depths encountered; prevent intermingling with underlaying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping topsoil.

D Measurement

The Owner will measure Site Preparation, Fill Site on a lump sum unit basis, acceptably completed.

E Payment

The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.11	Site Preparation, Fill Site	LS

Payment is full compensation for locating utilities and coordinating with utility companies, clearing and grubbing trees and vegetation, stripping, salvaging, and stockpiling topsoil, and all necessary work to prepare project area for spoil disposal, and for all labor, tools, equipment and incidentals necessary to complete the work.

126. Site Restoration, Fill Site, SPV.0105.12.

A Description

This special provision describes replacement of turf and appurtenant improvements distributed by construction as shown on the plans and hereinafter provided.

B Materials

B.1 Topsoil

Obtain salvaged topsoil from within work area.

If necessary to supplement insufficient quantities of salvaged topsoil, furnish topsoil that is in accordance with the pertinent requirements of subsection 625.2 of the Standard Specifications.

B.2 Fertilizer and Lime

Furnish materials that are in accordance with the pertinent requirements of subsection 629.2 of the Standard Specifications.

B.3 Grass Seed

Furnish seed mixtures that are in accordance with the pertinent requirements of subsection 630.2 of the Standard Specifications. Seed mixtures shall be a mixture of No. 20 and No. 75, or approved equal.

B.4 Mulch

Furnish materials that are in accordance with the pertinent requirements of subsection 627.2 of the Standard Specifications.

B.5 Erosion Mat
Furnish materials that are in accordance with the pertinent requirements of subsection 628.2 of the Standard Specifications and the WisDOT Erosion Control Product Acceptability List (PAL) for class and type of erosion mat indicated on the drawings. If not indicated provide Class I, Urban, Type A, erosion mat.

C Construction
Place topsoil in accordance with subsection 625.3 of the Standard Specifications. Depth of topsoil shall be a minimum of 6-inches.

Apply mulch using Method B or Method C in accordance with subsection 627.3 of the Standard Specifications.

Apply fertilizer using Type A method and lime in accordance with subsection 629.3 of the Standard Specifications.

Seed shall be applied using Method A or Method B in accordance with subsection 630.3 of the Standard Specifications.

Install erosion mat in accordance with subsection 628.3 of the Standard Specifications.

D Measurement
The Owner will measure Site Restoration, Fill Site on a lump sum unit basis, acceptably completed.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0105.12	Site Restoration, Fill Site	LS

Payment is full compensation for work in accordance with subsections 625, 627, 628, 629, and 630 of the Standard Specifications, together with all labor, tools, equipment and incidentals necessary to complete the work.

127. Lighting Control Cabinet M1, SPV.0105.13.

A Description
This special provision describes furnishing and installing lighting control cabinet and concrete base as shown on the plans and hereinafter provided.

Meter pedestal is paid under a separate bid item.

B Materials
B.1 Contactors
The contactors shall be electrically held Square D LG series in a NEMA 1 enclosure with and cover mounted Hand-Off-Auto Switch with legend plate or equal by Eaton or GE. Provide white engraved plaque on contactor cover with “LIGHTING” or “RECEPTACLES” in ½” black text as appropriate.

C Construction
Construction shall comply with the requirements of section 460 with the exception of 460.2.8, 460.3.3.3, and those noted below. Density testing is waived.

After fine grading, no paving may be completed until approval is received from A/E following proof roll. All casting and valve box adjustments must be approved by A/E prior to placing and rolling surface course.

Initial compaction of freshly placed HMA must be performed with a 10 ton to 12 ton vibratory roller on each course of pavement. Final compaction must be performed with a 15 ton or greater pneumatic rubber tire roller equipped with a tire lubricator system on the binder course and on the surface course, if determined by the A/E. Tack coat must be applied between binder and surface course.

The measured difference between the finished asphalt surface and the structure surface must not exceed 1/2-inch. Contractor must correct any deficiencies.

D Measurement
The Owner will measure Asphaltic Pavement by the square yard of HMA successfully installed. HMA pavement placed in driveways or field entrances will be paid for separately.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.01	Asphaltic Pavement	SY

Payment is full compensation for providing HMA mixture designs, preparing foundation, furnishing, preparing, hauling, mixing, placing, and compacting mixture, QMP testing, aggregate source testing, asphaltic materials, tack coat, and adjusting existing utilities; together with all labor, tools, equipment, and incidentals required to perform the work.

133. Geosynthetic Clay Liner, Item SPV.0180.02

A Description
This special provision describes the geosynthetic clay liner (GCL) beneath the fill site cap over the contaminated spoils on the proposed fill site as shown on the plans, and hereinafter described. Work includes installing (GCL) as shown in typical sections and on Drawings for fill site.

B Materials
Extent of GCL work is shown on the Drawings. Work includes furnishing and installing sheets of GCL material directly on top of the compacted spoil material generated from Ludington Street between Ely Street and Stanton Street, at the identified fill site area shown on the plans.

GCL shall consist of a layer of sodium bentonite clay encapsulated between two polypropylene geotextile layers. GCL shall be manufactured by mechanically bonding geotextile using a needle punch process.

GCL shall have the following properties:

Property	Test Method	Value
Cover Geotextile	ASTM D5261	6.0 oz/yd2 MARV
Carrier Geotextile	ASTM D5261	6.0 oz/yd2 MARV
Bentonite Mass/Area	ASTM D5993	0.75 lb/ft2 MARV
Bentonite Swell Index	ASTM D5890	24 ml/2 g min.
Bentonite Moisture Content	ASTM D4643	12% max.
Bentonite Fluid Loss	ASTM D5891	18 ml max.
GCL Grab Tensile Strength	ASTM D6768	45 lb/in. MARV
GCL Peel Strength	ASTM D6496	3.5 lb/in. MARV
GCL Hydraulic Conductivity	ASTM D5887	5 x 10-9 cm/sec max.
GCL Index Flux	ASTM D5887	1 x 10-8 m3/m2/sec max.
GCL Internal Shear Strength	ASTM D6243	500 psf

Bentonite sealing compound or bentonite granules used to make repairs shall be made of the same natural sodium bentonite as GCL and shall be as recommended by GCL manufacturer.

GCL shall be manufactured in minimum 12 ft widths without factory seams or joints.

Each roll delivered to site shall be individually wrapped in a relatively impermeable cover and shall be marked or tagged with the following information: manufacturer's name, product identification, roll number, roll length, and manufacturer's style number.

GCL shall be CETCO "Bentomat DN", GSE Environmental "BentoLiner NWL", Terrafix Geosynthethics "Bentofix SRNWL", or approved equal. Obtain GCL material from a single manufacturer.

Submit product data, installation instructions, and general recommendations from GCL manufacturer prior to delivery. Product data shall include information on the geotextile components, type of bentonite, thickness, and physical and mechanical properties. Installation instructions shall include information on constraints due to weather conditions and traffic travel over installed GCL. General recommendations shall include storage and handling.

Store and handle products in accordance with manufacturer's recommendations. Materials shall be suitably prepared and packaged to prevent moisture damage or deterioration during shipping and storage. Store GCL material in location where it is protected from vandalism, vehicular traffic, and construction activities.

C Construction

GCL installer shall certify that top of compacted fill soil in a smooth, uniform, and compacted condition and free from debris during installation.

Handle and deploy GCL in a manner to ensure it is not damaged during installation. At a minimum, comply with the following:

1. Weight GCL with sandbags or equivalent when wind is present.
2. On slopes, anchor GCL securely and deploy it down slope in a controlled manner.
3. Cut GCL with a geotextile cutter or other approved device.
4. Check surface before deployment. Do not entrap stones or trash under GCL.
5. Do not place GCL during periods of heavy rain or in areas of ponded water.

6. Replace GCL that is significantly hydrated before placement of overlaying geomembrane. GCL shall be considered significantly hydrated when liner is more than 3/4 in. thick or moisture content of bentonite is greater than 40%.
7. Only deploy amount of GCL that can be covered during that day by geomembrane.
8. On side slopes, run GCL to bottom of slope as indicated.
9. Orient preferred GCL surface in relation to geomembrane as directed by A/E.

Overlap GCL in accordance with manufacturer's instructions. In general, no horizontal seams shall be allowed on side slopes. For needle-punched GCLs, apply granular bentonite to overlapped area at rate recommended by manufacturer.

Excavate GCL liner anchor trenches as shown on Drawings and coordinate excavation with GCL installer.

Repair flaws or damaged areas by placing a patch of the same material extending a minimum of 1-ft beyond flaw or damaged area. Apply bentonite to seam as described in "GCL Installation" article, above.

D Measurement
The department will measure GCL by the square yard acceptably installed.

E Payment
The Owner will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0180.02	Geosynthetic Clay Liner	SY

134. Storm Sewer Manhole 3-FT Diameter, Item SPV.0200.01; Storm Sewer Manhole 4-FT Diameter, Item SPV.0200.02; Storm Sewer Manhole 5-ft Diameter, Item SPV.0200.03; Storm Sewer Manhole 6-FT Diameter, Item SPV.0200.04; Storm Sewer Manhole 7-FT Diameter, Item SPV.0200.05

A Description
This special provision describes furnishing and installing new storm sewer manholes at the locations shown on the plans and as hereinafter provided.

B Materials
Materials shall be in accordance with standard specification section 611

Use Key-Lock lift inserts in lieu of lift holes.

Submit storm sewer manhole shop drawings to engineer. Do not begin fabrication of storm sewer manholes until shop drawings have been reviewed by engineer.

C Construction
Construction shall be in accordance with standard specification section 611 and standard detail drawings.

D Measurement

Appendix G
Specifications for Mobile Construction Dewatering Treatment System, Operation, Maintenance, and Monitoring

SCOPE OF WORK
FOR
MOBILE CONSTRUCTION DEWATERING TREATMENT SYSTEM, OPERATION, MAINTENANCE AND MONITORING

November 17, 2022

OWNER:	City of Marinette, Wisconsin
WORK SITE:	Ludington Street
ENGINEER:	Ayres Associates
CONTACTS:	Brian Miller – City of Marinette, City Engineer 1905 Hall Avenue, Marinette, WI 54143 715.732.5134 Warren Howard – City of Marinette, Wastewater Operations Manager 1905 Hall Avenue, Marinette, WI 54143 715.732.5180 Trace Hubbard – Ayres Associates, Project Engineer 3376 Packerland Drive, Ashwaubenon, WI 54115 920.327.7834

SCOPE OF WORK
FOR
MOBILE CONSTRUCTION DEWATERING TREATMENT SYSTEM, OPERATION, MAINTENANCE AND MONITORING

Background Summary

A mobile construction dewatering treatment system is required for the treatment of water containing per- and polyfluoroalkyl substances (PFAS) that will be generated during utility construction project(s) in the City of Marinette, Wisconsin. The scope of work (SOW) will also include the operation and maintenance of the treatment system and discharge sampling/ compliance in accordance with applicable regulatory permits.

Definitions

Whenever the following terms are used in this SOW, it is understood that they represent the following:

1. ENGINEER. The ENGINEER for this project is Ayres Associates.

2. BIDDER. One who submits a Bid directly to the OWNER as distinct from a sub-bidder, who submits a Bid to the BIDDER.

3. CONTRACTOR. The individual, firm, partnership, or corporation designated as the CONTRACTOR selected by the OWNER to perform the work. CONTRACTOR shall furnish the work and materials for placement, installation and operation as described herein.

4. OWNER. The OWNER is the entity with whom the CONTRACTOR is under contract. The ENGINEER Is under contract with City of Marinette, Wisconsin.

1.0 Scope of Work

The SOW includes the following list of items, which is meant as a guide to the Work required and is intended to provide a general description of the scope of the job. The CONTRACTOR shall provide the necessary labor, materials, equipment, tools, and appurtenances for the project, which are acceptable to ENGINEER. Performance of Work shall comply with the respective codes, and all special instructions.

The work consists of providing and delivering a temporary water treatment system as described within. Equipment, components, and appurtenances shall be shipped to the Ludington Street Project site in Marinette, Wisconsin.

BIDS shall be based on the scope of work herein described. The CONTRACTOR may propose changes or modifications to the described scope of work in a separate section of the BID entitled "Alternates". Proposed alternates shall clearly describe the nature of the proposed change or modification, the reason for the proposed change or modification and the corresponding changes in the base BID price (add or deduct). The OWNER reserves the right to accept or reject any or all proposed changes or modifications to the scope of work. By submitting a proposal, the CONTRACTOR agrees to comply with the scope of work herein specified without change or modification should the ENGINEER deem appropriate.
Work By CONTRACTOR:

1.1 Furnish, install and operate mobile treatment system to remove PFAS from groundwater (the dewatering system will be furnished and installed by others). The treatment system shall be capable of processing up to 150 gallons per minute (gpm), per treatment train, of groundwater generated during general construction excavation work. Higher dewatering flowrates require additional treatment trains (e.g., two treatment trains for 251 to 500 gpm, three treatment trains for 501 to 750 gpm, etc.). Alternate treatment volumes require ENGINEER approval.

1.2 The CONTACTOR shall completely inform itself of, and be in full compliance with, local construction codes, construction hazards and procedure, labor, and all other conditions and factors, local and otherwise, which would affect the execution and completion of the work and its cost. Such considerations shall include the availability and cost of labor, facilities, and permits for transportation of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the work. There will be no subsequent financial adjustment for lack of such prior information.

1.3 Taxes:

1.3.1 BID to be provided by the CONTRACTOR will not include any applicable taxes. OWNER shall be responsible for obtaining a Certificate of Exemption or some other acceptable form of verification that sales tax will not apply to equipment procured from the CONTRACTOR.

1.4 Packing, Shipment, and Risk of Loss:

1.4.1 No charge for packing or cartage will be allowed except as set forth herein. Unless otherwise specified, the base BID price of all equipment and materials purchased hereunder shall be freight on board (FOB) to the Ludington Street project site. Title to and risk of loss of any equipment and materials covered hereby shall not pass to the OWNER until the work herein is completed to the acceptance of the ENGINEER. CONTRACTOR shall have all responsibility for and expense of preparing and filing claims against carriers for loss or damage to equipment and materials in transit.

1.5 Care and Storage of Materials:

1.5.1 The CONTRACTOR shall be responsible for proper loading and protection of equipment and material items delivered to the job site for its work. The CONTRACTOR will replace at its sole expense all CONTRACTOR-furnished materials damaged during transportation to the job site.

1.6 Coordination with CONTRACTOR or ENGINEER

1.6.1 The CONTRACTOR shall receive, offload, inspect and install materials and equipment and observe for potential defects which affect the installation, operation, or capability of the equipment. The CONTRACTOR shall immediately notify the ENGINEER of such defects or suspected defects. The CONTRACTOR shall assist the ENGINEER in preparing those portions of the construction schedule relative to the CONTRACTOR's system and coordinate/support work being performed by others.

1.7 Submittals:

1.7.1 The CONTRACTOR shall furnish shop drawings, catalog data, and other materials for approval required to completely describe the materials and equipment to the ENGINEER in accordance with the requirements contained in Section 2.0.

1.7.2 The CONTRACTOR shall furnish a compiled Operations, Maintenance, and Monitoring (OM&M) Plan for the treatment system in accordance with the requirements contained in Section 4.0

1.7.3 The CONTRACTOR shall prepare and submit these items upon contract award. Submittal date shall provide sufficient time for review and comment by the ENGINEER, including shipping time allowances, such that the construction schedule is not adversely impacted.

1.8 Proof of Payment:

1.8.1 The CONTRACTOR shall furnish affidavits and instruments certifying that payment has been made for all labor, materials, goods, and services furnished, releases and indemnities as required at the time for payment, and written guarantees with respect to the labor, materials, goods and services supplied. These documents shall be in such form and substance as may be required by the ENGINEER.

1.9 Terms of Invoicing and Payment:

1.9.1 The CONTRACTOR's BID shall clearly state their proposed terms of invoicing and payment. The OWNER reserves the right to negotiate alternate terms prior to issuance of an order.

1.10 Responsibilities:

1.10.1 The responsibilities of ENGINEER and CONTRACTOR provided in this Section are not all inclusive. Responsibilities may be adjusted by ENGINEER during the performance of the Work to ensure a complete and satisfactory project.

1.10.2 **ENGINEER's Responsibilities:**

- Stop Work should the quality or quantity not comply with the terms of the specifications and contract;
- Render approvals, clarifications, instructions, change order, etc. (when appropriate);
- On delivery, inspect material jointly with CONTRACTOR;

- Observe and verify operation activities; and
- Provide technical support.

1.10.3 CONTRACTOR's Responsibilities:

- Perform all Work in accordance with Federal, State, and local laws, regulations, and building codes, statutes, ordinances, and permits.
- Obtain all licenses and permits necessary for the execution of the Work.
- Provide accurate schedules, adhere to schedules, and modify the schedules if necessary;
- Arrange for and deliver product data and samples to ENGINEER;
- Perform testing and receive approvals for all materials prior to delivery to the site.
- Furnish, install and operate mobile treatment system to remove PFAS from groundwater as detailed in this SOW.

2.0 PFAS Treatment System Specifications

This Section includes the management of water that is generated during new or rehabilitation construction projects in the City of Marinette.

2.1 Furnish and install sumps, sediment removal, suction and discharge lines, and other dewatering system components required to remove water from the trenches and/or excavation areas.

2.2 Furnish, install, start-up, test and place into satisfactory operating condition a mobile groundwater treatment system complete.

2.3 The system shall include tankage, bag filters, and a three-stage Granular Activated Carbon (GAC) filter system operating in a lead-lag mode and shall be flexible and scalable capacity of up to 150 (GPM) for an individual treatment train. Higher volumes will require additional treatment trains, as described previously.

2.4 The system shall be mobile and can be staged along streets and roadways for extended periods of time.

2.5 The system shall be equipped with a portable power generation equipment as needed, with appropriate fuel containment systems.

2.6 Furnish and install GAC media and filter bags as necessary and provide replacement and disposal services for exhausted media.

- Weir storage tank (where/when applicable).
- Fabric filter bags, 5-200 micron in sequential sizing steps as needed.
- GAC – as specified in Section 3.2.3.
- Spare filter bags to maintain operation.
- Spare GAC media within 10 miles of the site sufficient to provide complete changeout of two GAC filter vessels as required to maintain compliance with Permit requirements and/or the City of Marinette discharge standards.

2.7 Furnish and install recirculation and retreatment storage, piping, valves, controls, and appurtenances for effluent in non-compliance with discharge criteria.

2.8 Furnish, install, test and place into satisfactory operating condition, trash pumps, sump pumps or approved equivalent equipment for flexible and scalable capacity as required for dewatering of trench/excavation areas.

2.9 Furnish and install effluent discharge piping as needed to reach outfall/discharge location(s).

2.10 Furnish and install sufficient frac tanks and weir tanks (influent and effluent) with the required hose connections and secondary containment to ensure proper treatment and disposal of water collected. Each tank shall be equipped with stairwell to the extent practical.

2.11 Furnish and install portable power generation equipment, fuel, labor, and operation as required by the treatment system.

2.12 Furnish and install temporary dissipater bag filter when discharge to ground surface areas if required.

2.13 Furnish and install medias and filter bags as necessary and provide regeneration and disposal services of exhausted medias.

- Oil Absorbent booms, if any (i.e., Frac Tank[s], Weir Tank).
- Fabric filter bags, 5-200 micron.
- PFAS Selective GAC (regenerated or virgin).
- PFAS Selective Ion-Exchange Resin

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2.14 Furnish labor for operation of the treatment system. At least one operator certified by Wisconsin Department of Natural Resources (WDNR) and one technician per shift to conduct Operation, Maintenance, and Monitoring (OM&M) of treatment system. Per the discharge permit, an OM&M manual shall be required.

2.15 CONTRACTOR shall comply with permit for wastewater discharge to City of Marinette Sanitary Sewer System sampling protocol and operating procedures for treatment.

3.0 PFAS Treatment System Equipment

3.1 Performance and Design Requirements

3.1.1 Furnish, install, test and place into satisfactory operating condition, trash pumps, sump pumps or approved equivalent configured for flexible and scalable capacity to meet the requirements of this Scope of Work and as required for excavation dewatering of construction areas.

3.1.2 CONTRACTOR shall furnish and operate mobile filtration treatment systems throughout the duration of trenching, excavation and construction activities to successfully dewater the excavation and treat PFAS impacted groundwater and surface water infiltration in conformance with the Permit requirements.

3.1.3 Furnish, install, and operate the filtration systems with capacities specified in this Scope of Work.

3.1.4 Mobile construction dewatering filtration system train (150 GPM) shall include:

- Sufficient influent storage to enable backwashing of multimedia filters, bag filter. One (1) Influent Frac Tank (21,000 Gallons) will be furnished at a minimum.
- A means of providing gravity settling of suspended solids will be provided: one (1) Influent Weir Tank (18,000 Gallons) will be furnished at a minimum. Inclined plate clarifier, or other means of gravity settling can be provided in lieu of a frac tank.
- Multimedia filtration will be provided to reduce suspended solids load to the downstream unit processes. Redundancy will be provided to optimize treatment system uptime (or sufficient influent storage will be provided).
- Two (2) 2-stage bag filters will be provided to reduced fine suspended solids load to the downstream unit processes.
- Three (3) GAC vessels (10,000 lb. media vessels) will be provided at a minimum; Supply and load each GAC vessel with GAC as specified in Section 3.2.3.
- One (1) effluent 21,000-gallon capacity frac tank with associated manifolds, piping, and appurtenances necessary for water transfer compatible with treatment system flow rates.
- System Secondary Containment
- Pressure gauges and sample ports
- Discharge flow meter
- Influent/Effluent camlock connections
- Transfer pumps for system pumping and liquid transfer
- Generator and Compressor
- Fuel cell with secondary containment
- System piping, manifolds, controls, valves and appurtenances
- System Controls

3.1.5 GAC Vessels shall be provided with carbon shipped loose and added in field by Contractor. The GAC systems shall be specifically designed and selected for the following design criteria:

• Trains Required:	Minimum of 1
• Vessels Per Train:	Minimum of 3 (3-GAC)
• Total # of Vessels Required:	Minimum of 3
• Type:	Liquid Phase
• GAC per Vessel:	10,000 lbs.
• Carbon Type:	As specified in Section 3.2.3
• Capacity:	150 GPM

3.1.6 Furnish and install grounding for all equipment.

3.1.7 Furnish staff for OM&M of dewatering treatment system.

3.2 Filtration Systems

3.2.1 One (1) mobile construction dewatering treatment system with a capacity as specified in this Scope of Work.

3.2.2 Each filtration system train shall include a minimum of three (3) GAC vessels equipped with manifolds, piping, and appurtenances necessary for series operation.

- The GAC system supplier shall verify sizing of vessels, piping, and appurtenances.

- The GAC system supplier shall guarantee the compatibility of the system components.
- Each vessel shall have a maximum flow rate of no less than 250 GPM and a backwash rate (if applicable) of no more than 250 GPM.
- Each vessel shall be sized for a minimum empty bed contact time (EBCT) of 8 minutes at 250 GPM.
- Piping and valves shall be configured to allow each of the skid-mounted vessels to operate in series, parallel, or vessel isolation flows.
- Vessels shall include camlock inlet and outlet, pressure gauge, sample ports, air eliminator and vacuum loop.
- Filtration systems shall include pressure/suction rated hose sets for vessel connections
- The filtration system train shall be equipped with influent storage of a minimum of one (1) 21,000-gallon capacity frac tank, and 18,000-gallon open top weir tank (or ENGINEER approved equivalent) with associated manifolds, piping, and appurtenances necessary for water transfer compatible with treatment system flow rates.
- The filtration system train shall be equipped with an effluent storage of a minimum of one (1) 21,000-gallon capacity frac tank with associated manifolds, piping, and appurtenances necessary for water transfer compatible with treatment system flow rates.

3.2.3 Granular-Activated Carbon (GAC) Specifications

- Each vessel shall be supplied with virgin, GAC, and manufactured from bituminous coal. Coconut shell, lignite, peat, or wood based GAC shall not be accepted.
- The GAC shall be effective in the removal of PFAS to the prescribed acceptable levels. The GAC shall be visually free of clay, dirt, and deleterious material. The GAC shall be durable GAC capable of withstanding the abrasion associated with repeated backwashing.
- Minimum empty bed contact time (EBCT) for effective PFAS treatment is 20 minutes in total for all vessels in series. Alternate determination of EBCT by CONTRACTOR shall be provided to ENGINEER for approval.
- The GAC to be furnished shall meet the following specifications:
    - Calgon Carbon Filtrasorb 400, or ENGINEER-approved alternative
    - Pretreatment shall be required to remove total suspended solids from the filtrate (e.g., clarification or dissolved air flotation) prior to GAC treatment
    - Frac tank(s), supplied by CONTRACTOR shall be employed for equalization of rinsate (and GAC backwash, as necessary)

3.2.4 Furnish and install portable power generation equipment and fuel cells in the size as required for operating the dewatering and filtration systems.

3.2.5 Furnish and install, and teardown up to a maximum of 200 linear feet of 4-inch Sch. 40 PVC piping system or 4-inch flexible hose with camlock fittings approved equivalent from the treatment system to the outfall/discharge location. and a maximum of 2,000 linear feet of 8-inch flexible hose and camlock fittings for dewatering pumping conveyance work areas.

3.2.6 Furnish and install a lift station in the effluent holding tank of sufficient size to convey the effluent to the outfall/discharge location.

3.2.7 Furnish trailer mounted generator or approved equivalent power supply for operation of all necessary sump pumps from the excavation dewatering work zones, influent transfer pumps, backwash pumps, and effluent transfer pumps.

3.2.8 Furnish and install sampling port on effluent discharge conveyance piping for Permit compliance sampling. Sampling location shall be located downstream of the lag GAC vessel. Sampling port shall be comprised of a stainless steel or brass 3/8-inch ball valve sample port with associated tubing for sampling or approved equivalent.

3.2.9 Furnish and install drip pans or suitable secondary containment for camlock fittings and observed drips/leaks in forced main (influent/effluent) conveyance.

3.2.10 Furnish and install secure measures for camlock fittings and connected hose to prevent leaks, disconnections and ensure secure connections. CONTRACTOR shall observe, document, and report maintenance of conveyance system as part of OM&M Plan.

3.3 Spare Parts

3.3.1 The CONTRACTOR shall supply a manufacturer's list of spare parts. Supply a quantity of supplier recommended spare parts which will provide for uninterrupted continuous operations for the operational period.

4 Execution

4.1 Installation and Staging

4.1.1 Execute installation and staging in accordance to Project Schedule developed by the CONTRACTOR and approved by the ENGINEER.

- Mobilize and Install one (1) treatment system and associated peripheral systems at Ludington Street project site.
- Furnish and install Effluent piping and required lift station pumping staging as required by this Scope of Work from the equipment area to the outfall/discharge location.
- Furnish and install pumping dewatering locations and associated system influent piping as required by this Scope of Work.

4.1.2 Filtration Systems

- Install trailer mounted GAC filtration systems in strict accordance with the supplier's installation instructions.

4.1.3 The CONTRACTOR shall provide a Field Representative properly trained in the inspection and operation of the mechanism to approve the installation and operation. The service shall be, at a minimum, in the form of two (2) trips to the Site to include one (1) day for installation inspection and one (1) days of training during system start-up for both units

- Following testing, inspection, and disinfection of the system, the GAC vessels shall be filled with a minimum 10,000 pounds of virgin GAC in accordance with this Scope of Work.
- GAC shall be transferred as water slurry only, using air pressure on the trailer as the motive force. Use of a pump or educator to transfer the carbon from the trailer into the adsorber vessels will not be allowed. Bag loading or dry loading of the GAC into the adsorber vessels is prohibited.
- Install trailer mounted bag filtration systems in strict accordance with the supplier's installation instructions.
- Following testing, inspection, and disinfection of the system, the bag filter systems shall be loaded with filters in accordance with this Scope of Work.

4.1.4 Influent/Effluent Frac & Weir Tanks

- Install Frac/Weir Tanks in strict accordance with the manufacturer's installation instructions and sequence.
- Install piping, pumps, secondary containment, and power generation
- Following testing, inspection, and disinfections, of the tanks, the vessels shall be operated.

4.2 Operation, Maintenance and Monitoring

4.2.1 Compile product data, cut sheets, and manufacturer's operations and maintenance manuals of treatment system components, along with standard operational procedures for the operations, monitoring, and maintenance of the entire treatment system as a whole.

- Prepare one (1) copy of the compiled OM&M Plan, indexed, and bound for use at the project site.
- Prepare an electronic copy of the OM&M Plan in portable document format (.pdf) to the ENGINEER and OWNER.

4.2.2 General.

- CONTRACTOR shall provide complete operation, maintenance, and monitoring (OM&M) for the temporary excavation dewatering system.
- CONTRACTOR shall operate and maintain all equipment associated with the dewatering system in accordance with the written instruction and recommendations of each equipment manufacturer and this specification.
- CONTRACTOR shall mobilize and provide all labor, materials, fuel, equipment, tools, expendables, and incidentals required to operate, monitor, and maintain the dewatering and discharge system.
- CONTRACTOR shall provide all monthly project management, administration, and general conditions as required by the Contract.
- CONTRACTOR shall operate all system in compliance with all federal, state, and local codes, permits, and regulations.

4.2.3 Health and Safety

- CONTRACTOR shall conduct all OM&M activities in conformance with the standards and guidelines, as amended, established in the following:
  - NFPA 70E, Standard for Electrical Safety in the Workplace.
  - 29 CFR 1910, OSHA, General Industry Standards.
  - 29 CFR Subpart R, OSHA, Electrical Standards.
  - 29 CFR Subpart S, OSHA, Electrical Standards.
  - 29 CFR 1910.146, OSHA, Permit-Required Confined Spaces

4.2.4 Start-Up Demonstration

- CONTRACTOR shall perform the following activities to start-up the system before the discharge is resumed following periods of no-discharge that exceed 48 hours or when requested in writing by the ENGINEER/OWNER:
- Record date, arrival time, departure time, weather conditions, personnel and affiliation, purpose of visit, ambient temperature during the visit, and general site observations.
- CONTRACTOR shall perform Daily OM&M inspections of dewatering and filtration system components prior to energizing and operating equipment.
- CONTRACTOR shall document start-up test demonstration within an OM&M Template report.
- CONTRACTOR shall perform a test demonstration of all components of the dewatering and filtration system and demonstrate system functionality and integrity prior to resuming discharge operations into the effluent discharge tank.

4.2.5 Daily Operation, Maintenance, and Monitoring (OM&M) Event:

- CONTRACTOR shall perform Daily OM&M Events for the dewatering and treatment system.
- Perform general housekeeping within the staging areas of the dewatering and treatment system and discharge location, removing debris and litter.
- Inspect and record the integrity of pipe connections in the dewatering pumping components, filtration system trains, and effluent discharge. In the event repairs appear to be necessary, document, schedule, and provide maintenance as required.
- CONTRACTOR shall schedule and provide any necessary subcontractor work required for adequate dewatering and treatment system performance and operation.
- Inspect the frac and weir tanks and remove debris, sediment, and exhausted oil absorbent booms as necessary without entering the confined space. Describe tank inspections in the OM&M event report along with any other physical observations.
- Describe discharge location conditions in the OM&M event report along with any other physical observations. In the event repairs appear to be necessary, document, schedule, and provide maintenance as required. Inspect and record the condition of the Permit Discharge location. In the event repairs appear to be necessary, document, schedule, and provide maintenance as required in accordance with Permit requirements.
- Inspect all wiring and connections and identify any worn or loose connections. Describe wiring and connection observations in the OM&M event report. In the event repairs appear to be necessary, document, schedule, and provide maintenance as required.
- Perform scheduled maintenance events.

4.2.6 Cleaning

- CONTRACTOR shall furnish labor and materials necessary to clean frac tanks and vac boxes upon completion of the work. CONTRACTOR shall adhere to OSHA Standard 29 CFR 1910.146 for procedures for confined space entry work and shall containerize and dispose of rinsate and residual solids.
- CONTRACTOR shall furnish labor and material necessary to clean dewatering and filtration system as required or recommended by manufacturer and as necessary for sufficient system performance.

4.2.7 Sampling

- Operate, Maintain, and Monitor the system conforming to the requirements of Section 4.2 –Operation, Maintenance, and Monitoring.
- CONTRACTOR shall collect performance samples from the filtration systems (influent and mid-fluent stages) at the specified intervals required for calculating media consumption rates, for preparing, scheduling, and conducting media changeouts and maintenance as necessary.

4.2.8 Decontamination

- Immediately after Site construction activities are completed, CONTRACTOR shall decontaminate all equipment used onsite during construction activities. Decontamination wastewater shall be placed in an on-site frac tank prior to transportation and disposal.

4.2.9 Disposal

- CONTRACTOR shall furnish transportation and disposal of all non-hazardous solid waste to an OWNER approved licensed disposal facility, including the bag filters and GAC.
- CONTRACTOR shall furnish transportation and disposal of all non-hazardous liquid waste to an OWNER approved licensed disposal facility, which would include Frac Tank Rinsate and Decontamination Rinsate

4.3 Performance Requirement:

4.3.1 CONTRACTOR shall guarantee that their treatment system shall be capable of meeting the Local POTW Requirements specified below. Treated effluent is returned to POTW headworks. This guarantee shall be based on the influent parameters and design information provided above.

Effluent Wastewater Requirements:

pH:	6.0 to 9.0
TSS:	<20 mg/L
PFOS:	11 ng/L
PFOA:	420 ng/L

The basis for evaluating system performance and meeting the performance guarantee shall be effluent sampling data to be collected during system operation. CONTRACTOR shall be notified by ENGINEER if any of the effluent sample results within the dewatering campaign period are not in compliance with the effluent wastewater requirements specified above. CONTRACTOR shall provide a written response within three days, or less if required by the ENGINEER specifying what actions are proposed by CONTRACTOR to achieve compliance with the effluent discharge requirements. ENGINEER will respond back to CONTRACTOR with approval for the proposed actions or request for alternate actions. CONTRACTOR is responsible for all costs associated with addressing non-compliance with the specified effluent discharge requirements, including but not limited to: any regulatory fines, analytical costs, consulting fees, and any equipment modification and construction activities necessary for correcting system performance deficiencies. This provision does not apply if the cause for non-compliance is related to influent flow rate and/or influent concentrations that are significantly different than the design information presented above.

A 10 percent retainage (10 percent of final contract price) will be held by the OWNER to cover any costs that may arise for non-compliance with the effluent discharge requirements. This retainage may be released, in whole or in part, to CONTRACTOR within following completion of the Construction Dewatering and Treatment System operational timeframe.

4.3.2 Discharge Monitoring Reports (DMRs) – ENGINEER/OWNER shall be responsible for preparing the DMRs for the project work in accordance with the WDNR's permitting requirements. CONTRACTOR shall assist ENGINEER/OWNER with providing daily average flow rate data obtained from the system's flowmeter, corresponding daily total gallons discharged, corresponding daily average flow rates, daily average of flow for the reporting period.

Appendix H

Testing Results Summary Tables and Laboratory Analytical Packages

Table 1: List of Soil Explorations, Samples Collected, and Analytes Sought

Table 1
Soil Explorations, Samples Collected, and Analytes Sought

Ludington Street
Hall Avenue to Stanton Street, Marinette, WI

Boring	Boring Depth (ft bgs)	Sample Depth (ft bgs)	Soil Type	As and Pb (EPA 6010)	Cyanide (EPA 9012)	PFAS (Isotope)	VOCs (EPA 8260)	PAHs (SIM 8270)	PCBs (EPA 8081)	Asbestos (PLM)
GP-1	12	2 - 4	Sand	✓			✓			
GP-1	12	9 - 11	Sand	✓			✓			
GP-2	12	2 - 4	Sand	✓			✓			
GP-2	12	9 - 11	Sand	✓			✓			
GP-3	12	1.5 - 2.5	Sand	✓						
GP-3	12	8 - 10	Sand	✓						
GP-4	12	1.5 - 2.5	Sand	✓						
GP-4	12	8 - 10	Sand	✓						
GP-5	4	1.5 - 2.5	Sand	✓	✓		✓	✓	✓	
GP-6	4	2 - 4	Sand	✓	✓		✓	✓	✓	
GP-7	4	2 - 4	Sand	✓	✓		✓	✓	✓	
GP-8	8	2 - 4	Sand	✓		✓	✓	✓		✓
GP-8	8	7 - 8	Refuse	✓			✓	✓		✓
GP-9	8	1.5 - 3.5	Sand	✓		✓	✓	✓		✓
GP-9	8	5.5 - 7.5	Sand	✓		✓	✓	✓		✓
GP-10	8	2 - 4	Refuse	✓		✓	✓	✓		✓
GP-10	8	6.5 - 8	Sand	✓			✓	✓		✓

Notes: bgs - below ground surface. PAHs - Polycyclic aromatic hydrocarbons. VOCs - Volatile organic compounds. PCB - Polychlorinated biphenyls. PFAS - Per- and Polyfluoroalkyl substances.

Table 2: List of Groundwater Sample Locations, Water Level Measurements, and Analytes Sought

Table 2
Groundwater Sample Locations, Water Level Measurements, and Analytes Sought

Ludingtion Street
Hall Avenue to Stanton Street, Marinette, WI

Boring	Total Depth (ft bgs)	Screened Interval (ft bgs)	Depth to Water (ft bgs)	Dissolved As and Pb (EPA 6010)	PFAS	VOCs (EPA 8260)	PAHs (SIM 8270)
GP-1	12	7 - 12	10.8	✓	✓	✓	
GP-3	12	7 - 12	11.8		✓		
GP-4	12	7 - 12	Dry				
GP-8	8	3 - 8	6.4	✓	✓	✓	✓
GP-10	8	3 - 8	4.2	✓	✓	✓	✓

Notes: bgs - below ground surface. PFAS - Per- and polyfluoroalkyl substances. PAHs - Polycyclic aromatic hydrocarbons. VOCs - Volatile organic compounds.

Table 3: Soil Analyte Detection Summary

Table 3
Soil Analyte Detection Summary
Ludington Street
Hall Avenue to Stanton Street, Marinette, WI

						Hall Avenue to Wells Street				*Wells Street to Mann Street*				*Mann Street to Ely Street*			*Ely Street to Stanton Street*					
		NR 720 Soil Cleanup Standards				**GP-1**	**GP-1**	**GP-2**	**GP-2**	**GP-3**	**GP-3**	**GP-4**	**GP-4**	**GP-5**	**GP-6**	**GP-7**	**GP-8**	**GP-8**	**GP-9**	**GP-9**	**GP-10**	**GP-10**
						10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021
		Industrial Direct Contact	**Non-Industrial Direct Contact**	**Protection of Groundwater**	**Background Threshold Value**	2 - 4	9 - 11	2 - 4	9 - 11	1.5 - 2.5	8 - 10	1.5 - 2.5	8 - 10	1.5 - 2.5	2 - 4	2 - 4	2 - 4	7 - 8	1.5 - 3.5	5.5 - 7.5	2 - 4	6.5 - 8
						Sand	Sand	Sand	Sand	Sand	Sand	Fill	Sand	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Sand
mg/Kg	Arsenic	3.0	0.677	0.584	8	2.4 J	1.9 J	<1.4	3.4	2.6	<1.5	3.5	1.8 J	2.3 J	2.8	2.7	6.3	**287**	3.6	3.4	**14.0**	1.7 J
	Lead	800	400	27	52	1.0 J	0.64 J	0.74 J	1.2 J	11.9	0.88 J	42.4	6.2	*84.6*	47.1	4.6	*104*	*353*	*57.5*	*56.5*	*211*	2.9
	Cyanide	195	27.1	4.04	NS	NA	NA	NA	NA	NA	NA	NA	NA	*7.0*	*9.4*	<0.18	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances PFAS (mg/Kg)	PFBA (Perfluorobutanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00003 J	NA	0.00003 J	0.000068 J	0.000051 J	NA
	PFPeA (Perfluoropentanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00007 J	NA	0.000054 J	0.0001	0.00016	NA
	PFHxA (Perfluorohexanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00003	NA	<0.00003	0.000042 IJ	0.000098 IJ	NA
	PFHpA (Perfluoroheptanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000026	NA	<0.000022	0.000044 J	0.00007 J	NA
	PFXxS (Perfluorohexanesulfonic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000051 IJ	NA	0.000067 IJ	0.000290 I	0.000027 IJ	NA
	PFOA (Perfluorooctanoic acid)	16.4	1.26	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00003 J	NA	0.000034 J	0.000057 J	0.00022	NA
	6:2 FTS (6:2 Fluorotelomer sulfonic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000068 J	NA	0.000044 J	0.000038 J	<0.000022	NA
	PFHpS (Perfluoroheptanesulfonic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000025	NA	<0.000025	<0.000025	0.000063 IJ	NA
	PFNA (Perfluorononanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000028	NA	<0.000028	<0.000028	0.00017	NA
	PFOS (Perfluorooctanesulfonic acid)	16.4	1.26	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00033	NA	0.00031	0.00038	0.0032	NA
	NEtFOSAA (N-Ethyl perfluorooctane sulfonamidoacetic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000077 J	NA	<0.000024	<0.000024	0.00017	NA
	PFTrDA (Perfluorotridecanoic acid)	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000021	NA	<0.000021	<0.000021	0.000068 IJ	NA
Polycyclic Aromatic Hydrocarbons (mg/kg)	1-Methylnaphthalene	72.7	17.6	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.0718 J	0.282 J	<0.0026	0.0543 J	8.58	8.52 J	0.124 J	2.36 J	<0.0029
	2-Methylnaphthalene	3,010	239	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.109 J	0.665	<0.0026	0.0752 J	13.0	12.3	0.150 J	3.09 J	<0.0029
	Acenaphthene	45,200	3,590	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	<0.0452	<0.0472	<0.0023	0.0585 J	0.555	17.0	0.154 J	2.93 J	<0.0026
	Acenaphthylene	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.78	2.0	0.003 J	0.0339 J	0.748	1.61	0.122 J	3.57 J	<0.0025
	Anthracene	100,000	17,900	197	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.317 J	0.456	0.0032 J	0.0352 J	0.458 J	63.6	0.301 J	14.3	<0.0025
	Benzo(a)anthracene	20.8	1.14	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.867	**2.09**	0.0185	**1.68**	0.655	**59.3**	0.861	**26.1**	0.0045 J
	Benzo(a)pyrene	2.11	0.115	0.47	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.996**	**1.03**	0.0251	**1.79**	**0.368 J**	**49.6**	**0.773**	**19.7**	0.0026 J
	Benzo(b)fluoranthene	21.1	1.15	0.4781	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1.53**	**3.67**	0.0375	**2.42**	*0.541*	**58.5**	*0.977*	**29.3**	0.0036 J
	Benzo(g,h,i)perylene	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	1.09	1.6	0.0157 J	0.949	0.146 J	20.9	0.469	7.53 J	<0.0035
	Benzo(k)fluoranthene	211	11.5	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.597	1.74	0.0144 J	1.21	0.183 J	**33.2**	0.324 J	**14.3**	<0.0026
	Chrysene	2,110	115	0.1442	NS	NA	NA	NA	NA	NA	NA	NA	NA	*1.03*	*3.06*	0.0307	*1.77*	*0.587*	*56.4*	*0.926*	*28.6*	<0.0038
	Dibenz(a,h)anthracene	2.11	0.115	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.301 J**	**0.624**	0.0046 J	**0.292 J**	<0.0659	**6.4 J**	0.100 J	**2.91 J**	<0.0028
	Fluoranthene	30,100	2,390	88.9	NS	NA	NA	NA	NA	NA	NA	NA	NA	1.16	1.01	0.0431	3.35	1.25	*191*	1.39	65.4	0.0072 J
	Fluorene	30,100	2,390	14.8	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.0667 J	0.1 J	<0.0021	0.117 J	0.937	*35.9*	0.236 J	13.2	<0.0024
	Indeno(1,2,3-cd)pyrene	21.1	1.15	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.893	**1.46**	0.0104 J	0.858	0.123 J	**19.1**	0.345 J	**7.44 J**	<0.0042
	Naphthalene	24.1	5.52	0.6582	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.388	*1.62*	0.0019 J	0.111 J	**14.4**	**34.1**	0.118 J	*5.31 J*	<0.0020
	Phenanthrene	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.519	0.372	0.013 J	1.04	2.14	184	1.8	71.6	0.0061 J
	Pyrene	22,600	1,790	55	NS	NA	NA	NA	NA	NA	NA	NA	NA	1.31	1.09	0.0351	2.76	1.47	*117*	3.89	41.5	0.0045 J
Volatile Organic Compounds (mg/Kg)	1,2,4-Trimethylbenzene	219	219	NS	NS	<0.0158	<0.0168	<0.0155	<0.0163	NA	NA	NA	NA	<0.0162	<0.0175	<0.0170	<0.0169	0.306	<0.0164	0.0210 J	<0.0286	<0.0210
	1,3,5-Trimethylbenzene	182	182	NS	NS	<0.0170	<0.0182	<0.0168	<0.0176	NA	NA	NA	NA	<0.0175	<0.0190	<0.0184	<0.0182	0.18	<0.0177	<0.0187	<0.0309	<0.0226
	Benzene	7.07	1.6	0.0051	NS	<0.0126	<0.0134	<0.0124	<0.0130	NA	NA	NA	NA	*0.0287*	*0.0683*	<0.0136	<0.0135	*0.0458*	<0.0131	0.0149 J	<0.0228	<0.0167
	Chlorobenzene	761	370	0.1358	NS	<0.0063	<0.0068	<0.0062	<0.0065	NA	NA	NA	NA	<0.0065	<0.0071	<0.0068	<0.0068	0.0230 J	<0.0066	<0.0070	<0.0115	<0.0084
	Ethylbenzene	35.4	8.02	1.57	NS	<0.0126	<0.0134	<0.0124	<0.0130	NA	NA	NA	NA	<0.0130	<0.0140	<0.0136	<0.0135	0.11	<0.0131	<0.0138	0.0288 J	<0.0167
	Isopropylbenzene (Cumene)	268	268	NS	NS	<0.0143	<0.0152	<0.0141	<0.0148	NA	NA	NA	NA	<0.0147	<0.0159	<0.0154	<0.0153	0.379	<0.0148	<0.0157	<0.0259	<0.0190
	m&p-Xylene	388	388	NS	NS	<0.0223	<0.0238	<0.0220	<0.0231	NA	NA	NA	NA	0.0243 J	0.0467 J	<0.0241	<0.0239	0.0716 J	<0.0232	0.0277 J	0.239	<0.0297
	Naphthalene	24.1	5.52	0.6582	NS	<0.0165	<0.0176	<0.0163	<0.0171	NA	NA	NA	NA	0.240 J	*0.819*	<0.0178	<0.0177	*4.84*	0.611	0.136 J	0.0666 J	<0.0219
	n-Butylbenzene	108	108	NS	NS	<0.0242	<0.0258	<0.0239	<0.0250	NA	NA	NA	NA	<0.0249	<0.0270	<0.0261	<0.0260	1.01	<0.0251	<0.0267	<0.0439	<0.0322
	n-Propylbenzene	264	264	NS	NS	<0.0127	<0.0135	<0.0125	<0.0131	NA	NA	NA	NA	<0.0131	<0.0141	<0.0137	<0.0136	0.137	<0.0132	<0.0140	<0.0230	<0.0169
	o-Xylene	434	434	NS	NS	<0.0159	<0.0169	<0.0156	<0.0164	NA	NA	NA	NA	<0.0163	0.0194 J	<0.0171	<0.0170	0.0682 J	<0.0165	<0.0175	0.0487 J	<0.0211
	p-Isopropyltoluene	162	162	NS	NS	<0.0161	<0.0172	<0.0159	<0.0166	NA	NA	NA	NA	<0.0165	<0.0179	<0.0173	<0.0172	0.164	<0.0167	<0.0177	<0.0291	<0.0214
	sec-Butylbenzene	145	145	NS	NS	<0.0129	<0.0138	<0.0127	<0.0133	NA	NA	NA	NA	<0.0133	<0.0144	<0.0139	<0.0138	0.198	<0.0134	<0.0142	<0.0234	<0.0172
	Styrene	867	867	0.22	NS	<0.0136	<0.0144	<0.0134	<0.0140	NA	NA	NA	NA	0.0143 J	0.0328 J	<0.0146	<0.0145	<0.0237	<0.0141	<0.0149	<0.0245	<0.0180
	tert-Butylbenzene	183	183	NS	NS	<0.0166	<0.0177	<0.0164	<0.0172	NA	NA	NA	NA	<0.0171	<0.0185	<0.0179	<0.0178	0.0348 J	<0.0172	<0.0183	<0.0301	<0.0221
	Toluene	818	818	1.1072	NS	<0.0133	<0.0142	<0.0131	<0.0138	NA	NA	NA	NA	0.0458 J	0.0959	<0.0144	<0.0143	0.146	<0.0138	0.0348 J	0.0366 J	<0.0177
	Trimethylbenzene (total)	NS	NS	1.3787	NS	<0.0328	<0.035	<0.0323	<0.0339	NA	NA	NA	NA	<0.0337	<0.0365	<0.0354	<0.0351	0.486	<0.0341	0.0397	<0.0595	<0.0436
	Xylene (total)	NS	NS	3.96	NS	<0.0382	<0.0407	<0.0376	<0.0395	NA	NA	NA	NA	<0.0406	<0.0661	<0.0412	<0.0409	0.1398	<0.0397	0.0452	<0.2877	<0.0508
Number of Protection of Groundwater Exceedances		NA	0	NA	NA	0	0	0	0	0	0	0	0	**6**	**6**	0	**4**	**6**	**8**	**4**	**6**	0
Number of Non-Industrial Direct Contact Exceedances		NA	0	NA	NA	0	0	0	0	0	0	0	0	**3**	**5**	0	**4**	**3**	**7**	**1**	**7**	0
Non-Industrial Cumulative Hazard Index		NA	1.0	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	0.1	0.4	**9.3**	**3.4**	0.2	**2.2**	0.0
Non-Industrial Cumulative Cancer Risk		NA	1.0E-05	NA	NA	7.7E-07	8.2E-07	7.6E-07	8.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	**1.6E-05**	**2.2E-05**	1.7E-06	**2.3E-05**	**4.3E-04**	**6.2E-04**	**1.0E-05**	**2.8E-04**	1.2E-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.

Table 4: Groundwater Analyte Detection Summary

Table 4
Groundwater
Analyte Detection Summary
Ludington Street
Hall Avenue to Stanton Street, Marinette, WI

		NR 140 Groundwater Quality Standards		*Hall Avenue to Mann Street*			*Ely Street to Stanton Street*	
		Preventive Action Limit	**Enforcement Standard**	**GP-1** 10/13/2021	**GP-3** 10/13/2021	**GP-4** 10/13/2021	**GP-8** 10/13/2021	**GP-10** 10/13/2021
µg/L	Arsenic, Dissolved	1	10	**15.3 J**	NA	NA	<8.3	**78.1**
	Lead, Dissolved	1.5	15	*9.3*	NA	NA	**50**	<6.4
PFAS ng/L	PFBA (Perfluorobutanoic acid)	NS	NS	2.2 J	21	NA	60	49
	PFPeA (Perfluoropentanoic acid)	NS	NS	3.5 J	30	NA	150	140
	PFBS (Perfluorobutanesulfonic acid)	NS	NS	4.8 J	8.3	NA	6	6.8
	PFHxA (Perfluorohexanoic acid)	NS	NS	<2.2	18	NA	120	120
	PFPeS (Perfluoropentanesulfonic acid)	NS	NS	<2.1	<1.1	NA	<1.2	6.0
	PFHpA (Perfluoroheptanoic acid)	NS	NS	4.0 J	12	NA	72	130
	PFHxS (Perfluorohexanesulfonic acid)	NS	NS	<2.3	2.5 J	NA	6.8	22
	PFOA (Perfluorooctanoic acid)	2	20	*3.2 IJ*	*15*	NA	**28**	**350**
	6:2 FTS (6:2 Fluorotelomer sulfonic acid)	NS	NS	<2.9	<1.6	NA	4.4 J	11
	PFHpS (Perfluoroheptanesulfonic acid)	NS	NS	<1.8	<0.99	NA	<1.0	1.6 J
	PFNA (Perfluorononanoic acid)	NS	NS	<3.3	3.9 J	NA	3.3 J	<1.9
	PFOS (Perfluorooctanesulfonic acid)	2	20	*19*	*4.5*	NA	*16*	**31**
	PFDA (Perfluorodecanoic acid)	NS	NS	3.8 J	<1.4	NA	1.7 J	<1.4
	8:2 FTS (8:2 Fluorotelomer sulfonic acid)	NS	NS	<2.9	<1.6	NA	<1.6	4.7 J
	NEtFOSAA (N-Ethyl perfluorooctane sulfonamidoacetic acid)	NS	NS	<2.5	<1.3	NA	7.5	<1.4
PAH (µg/L)	1-Methylnaphthalene	NS	NS	NA	NA	NA	0.78	<0.017
	2-Methylnaphthalene	NS	NS	NA	NA	NA	0.47	0.016 J
	Acenaphthene	NS	NS	NA	NA	NA	0.47	0.021 J
	Benzo(a)anthracene	NS	NS	NA	NA	NA	0.014 J	<0.013
	Chrysene	0.02	0.2	NA	NA	NA	0.029 J	<0.025
	Fluoranthene	80	400	NA	NA	NA	0.043 J	<0.025
	Fluorene	80	400	NA	NA	NA	0.024 J	<0.022
	Naphthalene	10	100	NA	NA	NA	0.37	0.046 J
	Phenanthrene	NS	NS	NA	NA	NA	0.093	0.044 J
	Pyrene	50	250	NA	NA	NA	0.035 J	<0.021
VOC (µg/L)	1,2,4-Trimethylbenzene	96	480	<0.45	NA	NA	1.4	<0.45
	Chlorobenzene	NS	NS	<0.86	NA	NA	2.8	<0.86

Notes: < Value less than laboratory limit of detection. J - Value between laboratory limit of detection and limit of quantitation. NA - not analyzed. ND - none detected. NS - no standard. *Underlined italic* values are greater than preventive action limits. **Bold** values are greater than enforcement standards.

Table 5: Groundwater Vapor Risk Screening Level Summary

Table 5 - Groundwater Vapor Risk Screening Level Summary

Ludington Street

Hall Avenue to Stanton Street, Marinette, WI

			Groundwater VRSL		Groundwater Samples				
					GP-1	GP-3	GP-4	GP-8	GP-10
		U.S. EPA RSL Basis	Residental	Non-residental	10/13/2021	10/13/2021	10/13/2021	10/13/2021	10/13/2021
VOCs (µg/L)	1,2,4-Trimethylbenzene	n	250	10,317	<0.45	NA	NA	1.4	<0.45
	Chlorobenzene	n	409	17,323	<0.86	NA	NA	2.8	<0.86
	Naphthalene	c	46	2,000	<1.1	NA	NA	0.37	0.046 J

Notes: < Value less than laboratory limit of detection. J - Value between laboratory limit of detection and limit of quantitation. Bold values are greater than or equal to residential VRSLs. Bold underlined values are greater than or equal to small commercial VRSLs. Bold Underlined Italic values are greater than or equal to large commerical/industrial VRSLs. c - carcinogenic based RSL. n - non-carcinogenic based RSL. VAL - Vapor action level. VRSL - Vapor risk screening level. RSL - Regional screening level.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

December 07, 2021

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

RE: Project: LUDINGTON
Pace Project No.: 40237395

Dear Bill Honea:

Enclosed are the analytical results for sample(s) received by the laboratory on November 22, 2021. 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,

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

Enclosures

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: LUDINGTON
Pace Project No.: 40237395

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
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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: LUDINGTON
Pace Project No.: 40237395

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40237395001	**GP-8 (7-8)**	Solid	10/13/21 13:10	11/22/21 16:40

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: LUDINGTON
Pace Project No.: 40237395

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40237395001	**GP-8 (7-8)**	EPA 6010D	TXW	2	PASI-G

PASI-G = Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40237395

Sample: GP-8 (7-8) **Lab ID: 40237395001** Collected: 10/13/21 13:10 Received: 11/22/21 16:40 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP, TCLP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Leachate Method/Date: EPA 1311; 11/30/21 13:32 Pace Analytical Services - Green Bay								
Arsenic	**0.12**	mg/L	0.050	0.017	2	12/02/21 10:05	12/06/21 13:37	7440-38-2	
Lead	**3.3**	mg/L	0.040	0.012	2	12/02/21 10:05	12/06/21 13:37	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40237395

QC Batch: 403230
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET TCLP
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40237395001

METHOD BLANK: 2327836 Matrix: Water
Associated Lab Samples: 40237395001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0084	0.025	12/02/21 22:58	
Lead	mg/L	<0.0059	0.020	12/02/21 22:58	

METHOD BLANK: 2327020 Matrix: Solid
Associated Lab Samples: 40237395001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0084	0.025	12/02/21 23:49	
Lead	mg/L	<0.0059	0.020	12/02/21 23:49	

METHOD BLANK: 2327255 Matrix: Solid
Associated Lab Samples: 40237395001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	<0.0084	0.025	12/02/21 23:31	
Lead	mg/L	<0.0059	0.020	12/02/21 23:31	

LABORATORY CONTROL SAMPLE: 2327837

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.25	0.23	90	80-120	
Lead	mg/L	0.25	0.24	95	80-120	

MATRIX SPIKE SAMPLE: 2327838

Parameter	Units	40237541001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.017	0.25	0.25	99	75-125	
Lead	mg/L	<0.012	0.25	0.27	105	75-125	

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

Pace Analytical Services, LLC
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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40237395

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2327839 2327840

Parameter	Units	40237575045 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	<0.0084	0.25	0.25	0.25	0.25	97	97	75-125	0	20	
Lead	mg/L	<0.0059	0.25	0.25	0.25	0.24	99	97	75-125	2	20	

MATRIX SPIKE SAMPLE: 2327841

Parameter	Units	40237577001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.011J	0.25	0.26	98	75-125	
Lead	mg/L	<0.0059	0.25	0.25	102	75-125	

MATRIX SPIKE SAMPLE: 2327842

Parameter	Units	50303942001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.012J	0.25	0.26	99	75-125	
Lead	mg/L	<0.0059	0.25	0.25	99	75-125	

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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: LUDINGTON
Pace Project No.: 40237395

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LUDINGTON
Pace Project No.: 40237395

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40237395001	**GP-8 (7-8)**	EPA 3010A	403230	EPA 6010D	403280

REPORT OF LABORATORY ANALYSIS

40237395

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

Page 1 of 2

40235057

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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

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Lidington
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@ayresassociates.com
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, SI = Sludge, WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	As + Pb	PFAS	VOCs	PAHs	Asbestos	As, Pb, + Cyanide	PAHs + PCBs	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	GP-1 (2-4)	10-13-21	9:35	S		F	1		1							
002	GP-1 (9-11)	10-13-21	9:45	S			1		1							
003	GP-2 (2-4)	10-13-21	10:15	S			1		1							
004	GP-2 (9-11)	10-13-21	10:20	S			1		1							
005	GP-3 (1.5-2.5)	10-13-21	10:45	S			1									
006	GP-3 (8-10)	10-13-21	10:50	S			1									
007	GP-5 (1.5-2.5)	10-13-21	12:00	S					1			1	1			
008	GP-6 (2-4)	10-13-21	12:28	S					1			1	1			
009	GP-7 (2-4)	10-13-21	12:35	S					1			1	1			
010	GP-8 (2-4)	10-13-21	13:05	S			1	1	1	1	1					
011	GP-8 (7-8)	10-13-21	13:10	S			1	X	1	1	1			No PFAS sample	RELOG TCLP As/Pb	
012	GP-9 (1.5-3.5)	10-13-21	14:05	S			1	1	1	1	1					
013	GP-9 (5.5-7.5)	10-13-21	14:10	S			1	1	1	1	1				40237395	

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:
William Honea	10/13/21 1640		

PACE Project No.: 40235057

Receipt Temp = 3 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal: Present / Not Present; Intact / Not Intact

Version 6.0 06/14/06

ORIGINAL

40237395

From: Susan Wylie
Sent: Tuesday, November 23, 2021 9:10 AM
To: Dan Milewsky; WI Sample Receiving
Cc: Vyvyan Cole; McKenna Arnoldi; Kylee Richards
Subject: RE: # 40235057011

JGFU approx.. 200g; WPFU approx.. 217g

Sent from Mail for Windows

From: Dan Milewsky
Sent: Monday, November 22, 2021 1:06 PM
To: WI Sample Receiving
Cc: Vyvyan Cole; McKenna Arnoldi; Kylee Richards
Subject: RE: # 40235057011

If enough sample is left for TCLP, use this COC for the relog.

From: Dan Milewsky
Sent: Monday, November 22, 2021 1:01 PM
To: WI Sample Receiving <WISampleReceiving@pacelabs.com>
Subject: # 40235057011

Good afternoon receiving,

Can you pull this sample and tell me if there is enough left for TCLP Metals?
If so it will get logged with a new work order number.

Ayres
40235057011

Dan Milewsky
Project Manager | Pace Environmental Sciences
1241 Bellevue St, STE 9
Green Bay, WI 54302
Direct/Cell-920-412-8566 | Lab-920.469.2436 |
pacelabs.com

Pace Analytical will be **closed** for Thanksgiving on November 25th, 26th, & 27th Please make the necessary changes to your sampling schedule, especially if you have short hold or rush items. During the week of Thanksgiving, the lab will **only** set BOD or cBOD samples on Wednesday, November 24th

Client Name: Ayres

Sample Preservation Receipt Form

Project # 40237375

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

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

Lab Lot# of pH paper:

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

Initial when completed:

Date/ Time:

Pace Lab #	Glass								Plastic					Vials						Jars				General			VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN						
001																				/			/									2.5 / 5 / 10
002																																2.5 / 5 / 10
003																																2.5 / 5 / 10
004																																2.5 / 5 / 10
005																																2.5 / 5 / 10
006																																2.5 / 5 / 10
007																																2.5 / 5 / 10
008																																2.5 / 5 / 10
009																																2.5 / 5 / 10
010																																2.5 / 5 / 10
011																																2.5 / 5 / 10
012																																2.5 / 5 / 10
013																																2.5 / 5 / 10
014																																2.5 / 5 / 10
015																																2.5 / 5 / 10
016																																2.5 / 5 / 10
017																																2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																												11/23/24		8K			2.5 / 5 / 10

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Ayres

WO#: 40237395

40237395

Courier: ☐ CS Logistics ☐ FedEx ☐ Speedee ☐ UPS ☐ Waltco
☐ Client ☐ Pace Other:

Tracking #: N/A 11/23/21 SW

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

Cooler Temperature Uncorr: /Corr:

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

Person examining contents:
Date: 11/23/21 /Initials: JCW

Labeled By Initials: JW

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1. Sample from 40235057 getting relogged per PM 11/23/21 SW
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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 logi

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

November 18, 2021

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

RE: Project: LUDINGTON
Pace Project No.: 40235057

Dear Bill Honea:

Enclosed are the analytical results for sample(s) received by the laboratory on October 13, 2021. 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,

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

Enclosures

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: LUDINGTON
Pace Project No.: 40235057

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
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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: LUDINGTON
Pace Project No.: 40235057

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40235057001	**GP-1 (2-4)**	Solid	10/13/21 09:35	10/13/21 16:40
40235057002	**GP-1 (9-11)**	Solid	10/13/21 09:45	10/13/21 16:40
40235057003	**GP-2 (2-4)**	Solid	10/13/21 10:15	10/13/21 16:40
40235057004	**GP-2 (9-11)**	Solid	10/13/21 10:20	10/13/21 16:40
40235057005	**GP-3 (1.5-2.5)**	Solid	10/13/21 10:45	10/13/21 16:40
40235057006	**GP-3 (8-10)**	Solid	10/13/21 10:50	10/13/21 16:40
40235057007	**GP-5 (1.5-2.5)**	Solid	10/13/21 12:00	10/13/21 16:40
40235057008	**GP-6 (2-4)**	Solid	10/13/21 12:20	10/13/21 16:40
40235057009	**GP-7 (2-4)**	Solid	10/13/21 12:35	10/13/21 16:40
40235057010	**GP-8 (2-4)**	Solid	10/13/21 13:05	10/13/21 16:40
40235057011	**GP-8 (7-8)**	Solid	10/13/21 13:10	10/13/21 16:40
40235057012	**GP-9 (1.5-3.5)**	Solid	10/13/21 14:05	10/13/21 16:40
40235057013	**GP-9 (5.5-7.5)**	Solid	10/13/21 14:10	10/13/21 16:40
40235057014	**GP-10 (2-4)**	Solid	10/13/21 14:40	10/13/21 16:40
40235057015	**GP-10 (6.5-8)**	Solid	10/13/21 14:45	10/13/21 16:40
40235057016	**GP-4 (1.5-2.5)**	Solid	10/13/21 11:15	10/13/21 16:40
40235057017	**GP-4 (8-10)**	Solid	10/13/21 11:20	10/13/21 16:40

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: LUDINGTON
Pace Project No.: 40235057

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40235057001	**GP-1 (2-4)**	EPA 6010D	TXW	2	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057002	**GP-1 (9-11)**	EPA 6010D	TXW	2	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057003	**GP-2 (2-4)**	EPA 6010D	TXW	2	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057004	**GP-2 (9-11)**	EPA 6010D	TXW	2	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057005	**GP-3 (1.5-2.5)**	EPA 6010D	TXW	2	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057006	**GP-3 (8-10)**	EPA 6010D	TXW	2	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057007	**GP-5 (1.5-2.5)**	EPA 8082	BLM	10	PASI-G
		EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
		EPA 9012B	DAW	1	PASI-G
40235057008	**GP-6 (2-4)**	EPA 8082	BLM	10	PASI-G
		EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
		EPA 9012B	DAW	1	PASI-G
40235057009	**GP-7 (2-4)**	EPA 8082	BLM	10	PASI-G
		EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
		EPA 9012B	DAW	1	PASI-G
40235057010	**GP-8 (2-4)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: LUDINGTON
Pace Project No.: 40235057

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	K1S	1	PASI-G
40235057011	**GP-8 (7-8)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057012	**GP-9 (1.5-3.5)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057013	**GP-9 (5.5-7.5)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	K1S	1	PASI-G
40235057014	**GP-10 (2-4)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	SKW	1	PASI-G
40235057015	**GP-10 (6.5-8)**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	ALD	64	PASI-G
		ASTM D2974-87	SKW	1	PASI-G
40235057016	**GP-4 (1.5-2.5)**	EPA 6010D	TXW	2	PASI-G
		ASTM D2974-87	SKW	1	PASI-G
40235057017	**GP-4 (8-10)**	EPA 6010D	TXW	2	PASI-G
		ASTM D2974-87	SKW	1	PASI-G

PASI-G = Pace Analytical Services - Green Bay

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-1 (2-4) **Lab ID: 40235057001** Collected: 10/13/21 09:35 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**2.4J**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 21:24	7440-38-2	
Lead	**1.0J**	mg/kg	2.1	0.61	1	10/19/21 06:21	10/19/21 21:24	7439-92-1	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<12.6**	ug/kg	21.2	12.6	1	10/21/21 08:15	10/22/21 12:50	71-43-2	
Bromobenzene	**<20.6**	ug/kg	52.9	20.6	1	10/21/21 08:15	10/22/21 12:50	108-86-1	
Bromochloromethane	**<14.5**	ug/kg	52.9	14.5	1	10/21/21 08:15	10/22/21 12:50	74-97-5	
Bromodichloromethane	**<12.6**	ug/kg	52.9	12.6	1	10/21/21 08:15	10/22/21 12:50	75-27-4	
Bromoform	**<233**	ug/kg	265	233	1	10/21/21 08:15	10/22/21 12:50	75-25-2	
Bromomethane	**<74.2**	ug/kg	265	74.2	1	10/21/21 08:15	10/22/21 12:50	74-83-9	
n-Butylbenzene	**<24.2**	ug/kg	52.9	24.2	1	10/21/21 08:15	10/22/21 12:50	104-51-8	
sec-Butylbenzene	**<12.9**	ug/kg	52.9	12.9	1	10/21/21 08:15	10/22/21 12:50	135-98-8	
tert-Butylbenzene	**<16.6**	ug/kg	52.9	16.6	1	10/21/21 08:15	10/22/21 12:50	98-06-6	
Carbon tetrachloride	**<11.6**	ug/kg	52.9	11.6	1	10/21/21 08:15	10/22/21 12:50	56-23-5	
Chlorobenzene	**<6.3**	ug/kg	52.9	6.3	1	10/21/21 08:15	10/22/21 12:50	108-90-7	
Chloroethane	**<22.3**	ug/kg	265	22.3	1	10/21/21 08:15	10/22/21 12:50	75-00-3	
Chloroform	**<37.9**	ug/kg	265	37.9	1	10/21/21 08:15	10/22/21 12:50	67-66-3	
Chloromethane	**<20.1**	ug/kg	52.9	20.1	1	10/21/21 08:15	10/22/21 12:50	74-87-3	
2-Chlorotoluene	**<17.2**	ug/kg	52.9	17.2	1	10/21/21 08:15	10/22/21 12:50	95-49-8	
4-Chlorotoluene	**<20.1**	ug/kg	52.9	20.1	1	10/21/21 08:15	10/22/21 12:50	106-43-4	
1,2-Dibromo-3-chloropropane	**<41.1**	ug/kg	265	41.1	1	10/21/21 08:15	10/22/21 12:50	96-12-8	
Dibromochloromethane	**<181**	ug/kg	265	181	1	10/21/21 08:15	10/22/21 12:50	124-48-1	
1,2-Dibromoethane (EDB)	**<14.5**	ug/kg	52.9	14.5	1	10/21/21 08:15	10/22/21 12:50	106-93-4	
Dibromomethane	**<15.7**	ug/kg	52.9	15.7	1	10/21/21 08:15	10/22/21 12:50	74-95-3	
1,2-Dichlorobenzene	**<16.4**	ug/kg	52.9	16.4	1	10/21/21 08:15	10/22/21 12:50	95-50-1	
1,3-Dichlorobenzene	**<14.5**	ug/kg	52.9	14.5	1	10/21/21 08:15	10/22/21 12:50	541-73-1	
1,4-Dichlorobenzene	**<14.5**	ug/kg	52.9	14.5	1	10/21/21 08:15	10/22/21 12:50	106-46-7	
Dichlorodifluoromethane	**<22.8**	ug/kg	52.9	22.8	1	10/21/21 08:15	10/22/21 12:50	75-71-8	
1,1-Dichloroethane	**<13.6**	ug/kg	52.9	13.6	1	10/21/21 08:15	10/22/21 12:50	75-34-3	
1,2-Dichloroethane	**<12.2**	ug/kg	52.9	12.2	1	10/21/21 08:15	10/22/21 12:50	107-06-2	
1,1-Dichloroethene	**<17.6**	ug/kg	52.9	17.6	1	10/21/21 08:15	10/22/21 12:50	75-35-4	
cis-1,2-Dichloroethene	**<11.3**	ug/kg	52.9	11.3	1	10/21/21 08:15	10/22/21 12:50	156-59-2	
trans-1,2-Dichloroethene	**<11.4**	ug/kg	52.9	11.4	1	10/21/21 08:15	10/22/21 12:50	156-60-5	
1,2-Dichloropropane	**<12.6**	ug/kg	52.9	12.6	1	10/21/21 08:15	10/22/21 12:50	78-87-5	
1,3-Dichloropropane	**<11.5**	ug/kg	52.9	11.5	1	10/21/21 08:15	10/22/21 12:50	142-28-9	
2,2-Dichloropropane	**<14.3**	ug/kg	52.9	14.3	1	10/21/21 08:15	10/22/21 12:50	594-20-7	
1,1-Dichloropropene	**<17.2**	ug/kg	52.9	17.2	1	10/21/21 08:15	10/22/21 12:50	563-58-6	
cis-1,3-Dichloropropene	**<34.9**	ug/kg	265	34.9	1	10/21/21 08:15	10/22/21 12:50	10061-01-5	
trans-1,3-Dichloropropene	**<151**	ug/kg	265	151	1	10/21/21 08:15	10/22/21 12:50	10061-02-6	
Diisopropyl ether	**<13.1**	ug/kg	52.9	13.1	1	10/21/21 08:15	10/22/21 12:50	108-20-3	
Ethylbenzene	**<12.6**	ug/kg	52.9	12.6	1	10/21/21 08:15	10/22/21 12:50	100-41-4	
Hexachloro-1,3-butadiene	**<105**	ug/kg	265	105	1	10/21/21 08:15	10/22/21 12:50	87-68-3	
Isopropylbenzene (Cumene)	**<14.3**	ug/kg	52.9	14.3	1	10/21/21 08:15	10/22/21 12:50	98-82-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-1 (2-4) **Lab ID: 40235057001** Collected: 10/13/21 09:35 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
p-Isopropyltoluene	**<16.1**	ug/kg	52.9	16.1	1	10/21/21 08:15	10/22/21 12:50	99-87-6	
Methylene Chloride	**<14.7**	ug/kg	52.9	14.7	1	10/21/21 08:15	10/22/21 12:50	75-09-2	
Methyl-tert-butyl ether	**<15.6**	ug/kg	52.9	15.6	1	10/21/21 08:15	10/22/21 12:50	1634-04-4	
Naphthalene	**<16.5**	ug/kg	265	16.5	1	10/21/21 08:15	10/22/21 12:50	91-20-3	
n-Propylbenzene	**<12.7**	ug/kg	52.9	12.7	1	10/21/21 08:15	10/22/21 12:50	103-65-1	
Styrene	**<13.6**	ug/kg	52.9	13.6	1	10/21/21 08:15	10/22/21 12:50	100-42-5	
1,1,1,2-Tetrachloroethane	**<12.7**	ug/kg	52.9	12.7	1	10/21/21 08:15	10/22/21 12:50	630-20-6	
1,1,2,2-Tetrachloroethane	**<19.2**	ug/kg	52.9	19.2	1	10/21/21 08:15	10/22/21 12:50	79-34-5	
Tetrachloroethene	**<20.5**	ug/kg	52.9	20.5	1	10/21/21 08:15	10/22/21 12:50	127-18-4	
Toluene	**<13.3**	ug/kg	52.9	13.3	1	10/21/21 08:15	10/22/21 12:50	108-88-3	
1,2,3-Trichlorobenzene	**<59.0**	ug/kg	265	59.0	1	10/21/21 08:15	10/22/21 12:50	87-61-6	
1,2,4-Trichlorobenzene	**<43.6**	ug/kg	265	43.6	1	10/21/21 08:15	10/22/21 12:50	120-82-1	
1,1,1-Trichloroethane	**<13.6**	ug/kg	52.9	13.6	1	10/21/21 08:15	10/22/21 12:50	71-55-6	
1,1,2-Trichloroethane	**<19.3**	ug/kg	52.9	19.3	1	10/21/21 08:15	10/22/21 12:50	79-00-5	
Trichloroethene	**<19.8**	ug/kg	52.9	19.8	1	10/21/21 08:15	10/22/21 12:50	79-01-6	
Trichlorofluoromethane	**<15.4**	ug/kg	52.9	15.4	1	10/21/21 08:15	10/22/21 12:50	75-69-4	
1,2,3-Trichloropropane	**<25.7**	ug/kg	52.9	25.7	1	10/21/21 08:15	10/22/21 12:50	96-18-4	
1,2,4-Trimethylbenzene	**<15.8**	ug/kg	52.9	15.8	1	10/21/21 08:15	10/22/21 12:50	95-63-6	
1,3,5-Trimethylbenzene	**<17.0**	ug/kg	52.9	17.0	1	10/21/21 08:15	10/22/21 12:50	108-67-8	
Vinyl chloride	**<10.7**	ug/kg	52.9	10.7	1	10/21/21 08:15	10/22/21 12:50	75-01-4	
m&p-Xylene	**<22.3**	ug/kg	106	22.3	1	10/21/21 08:15	10/22/21 12:50	179601-23-1	
o-Xylene	**<15.9**	ug/kg	52.9	15.9	1	10/21/21 08:15	10/22/21 12:50	95-47-6	
Surrogates									
Toluene-d8 (S)	122	%	67-159		1	10/21/21 08:15	10/22/21 12:50	2037-26-5	
4-Bromofluorobenzene (S)	127	%	66-153		1	10/21/21 08:15	10/22/21 12:50	460-00-4	
1,2-Dichlorobenzene-d4 (S)	119	%	82-158		1	10/21/21 08:15	10/22/21 12:50	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**2.9**	%	0.10	0.10	1		10/14/21 13:23		

Sample: GP-1 (9-11) **Lab ID: 40235057002** Collected: 10/13/21 09:45 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**1.9J**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 21:38	7440-38-2	
Lead	**0.64J**	mg/kg	2.1	0.63	1	10/19/21 06:21	10/19/21 21:38	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-1 (9-11) **Lab ID: 40235057002** Collected: 10/13/21 09:45 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<13.4**	ug/kg	22.6	13.4	1	10/21/21 08:15	10/22/21 13:09	71-43-2	
Bromobenzene	**<22.0**	ug/kg	56.4	22.0	1	10/21/21 08:15	10/22/21 13:09	108-86-1	
Bromochloromethane	**<15.5**	ug/kg	56.4	15.5	1	10/21/21 08:15	10/22/21 13:09	74-97-5	
Bromodichloromethane	**<13.4**	ug/kg	56.4	13.4	1	10/21/21 08:15	10/22/21 13:09	75-27-4	
Bromoform	**<248**	ug/kg	282	248	1	10/21/21 08:15	10/22/21 13:09	75-25-2	
Bromomethane	**<79.1**	ug/kg	282	79.1	1	10/21/21 08:15	10/22/21 13:09	74-83-9	
n-Butylbenzene	**<25.8**	ug/kg	56.4	25.8	1	10/21/21 08:15	10/22/21 13:09	104-51-8	
sec-Butylbenzene	**<13.8**	ug/kg	56.4	13.8	1	10/21/21 08:15	10/22/21 13:09	135-98-8	
tert-Butylbenzene	**<17.7**	ug/kg	56.4	17.7	1	10/21/21 08:15	10/22/21 13:09	98-06-6	
Carbon tetrachloride	**<12.4**	ug/kg	56.4	12.4	1	10/21/21 08:15	10/22/21 13:09	56-23-5	
Chlorobenzene	**<6.8**	ug/kg	56.4	6.8	1	10/21/21 08:15	10/22/21 13:09	108-90-7	
Chloroethane	**<23.8**	ug/kg	282	23.8	1	10/21/21 08:15	10/22/21 13:09	75-00-3	
Chloroform	**<40.4**	ug/kg	282	40.4	1	10/21/21 08:15	10/22/21 13:09	67-66-3	
Chloromethane	**<21.4**	ug/kg	56.4	21.4	1	10/21/21 08:15	10/22/21 13:09	74-87-3	
2-Chlorotoluene	**<18.3**	ug/kg	56.4	18.3	1	10/21/21 08:15	10/22/21 13:09	95-49-8	
4-Chlorotoluene	**<21.4**	ug/kg	56.4	21.4	1	10/21/21 08:15	10/22/21 13:09	106-43-4	
1,2-Dibromo-3-chloropropane	**<43.8**	ug/kg	282	43.8	1	10/21/21 08:15	10/22/21 13:09	96-12-8	
Dibromochloromethane	**<193**	ug/kg	282	193	1	10/21/21 08:15	10/22/21 13:09	124-48-1	
1,2-Dibromoethane (EDB)	**<15.5**	ug/kg	56.4	15.5	1	10/21/21 08:15	10/22/21 13:09	106-93-4	
Dibromomethane	**<16.7**	ug/kg	56.4	16.7	1	10/21/21 08:15	10/22/21 13:09	74-95-3	
1,2-Dichlorobenzene	**<17.5**	ug/kg	56.4	17.5	1	10/21/21 08:15	10/22/21 13:09	95-50-1	
1,3-Dichlorobenzene	**<15.5**	ug/kg	56.4	15.5	1	10/21/21 08:15	10/22/21 13:09	541-73-1	
1,4-Dichlorobenzene	**<15.5**	ug/kg	56.4	15.5	1	10/21/21 08:15	10/22/21 13:09	106-46-7	
Dichlorodifluoromethane	**<24.3**	ug/kg	56.4	24.3	1	10/21/21 08:15	10/22/21 13:09	75-71-8	
1,1-Dichloroethane	**<14.4**	ug/kg	56.4	14.4	1	10/21/21 08:15	10/22/21 13:09	75-34-3	
1,2-Dichloroethane	**<13.0**	ug/kg	56.4	13.0	1	10/21/21 08:15	10/22/21 13:09	107-06-2	
1,1-Dichloroethene	**<18.7**	ug/kg	56.4	18.7	1	10/21/21 08:15	10/22/21 13:09	75-35-4	
cis-1,2-Dichloroethene	**<12.1**	ug/kg	56.4	12.1	1	10/21/21 08:15	10/22/21 13:09	156-59-2	
trans-1,2-Dichloroethene	**<12.2**	ug/kg	56.4	12.2	1	10/21/21 08:15	10/22/21 13:09	156-60-5	
1,2-Dichloropropane	**<13.4**	ug/kg	56.4	13.4	1	10/21/21 08:15	10/22/21 13:09	78-87-5	
1,3-Dichloropropane	**<12.3**	ug/kg	56.4	12.3	1	10/21/21 08:15	10/22/21 13:09	142-28-9	
2,2-Dichloropropane	**<15.2**	ug/kg	56.4	15.2	1	10/21/21 08:15	10/22/21 13:09	594-20-7	
1,1-Dichloropropene	**<18.3**	ug/kg	56.4	18.3	1	10/21/21 08:15	10/22/21 13:09	563-58-6	
cis-1,3-Dichloropropene	**<37.2**	ug/kg	282	37.2	1	10/21/21 08:15	10/22/21 13:09	10061-01-5	
trans-1,3-Dichloropropene	**<161**	ug/kg	282	161	1	10/21/21 08:15	10/22/21 13:09	10061-02-6	
Diisopropyl ether	**<14.0**	ug/kg	56.4	14.0	1	10/21/21 08:15	10/22/21 13:09	108-20-3	
Ethylbenzene	**<13.4**	ug/kg	56.4	13.4	1	10/21/21 08:15	10/22/21 13:09	100-41-4	
Hexachloro-1,3-butadiene	**<112**	ug/kg	282	112	1	10/21/21 08:15	10/22/21 13:09	87-68-3	
Isopropylbenzene (Cumene)	**<15.2**	ug/kg	56.4	15.2	1	10/21/21 08:15	10/22/21 13:09	98-82-8	
p-Isopropyltoluene	**<17.2**	ug/kg	56.4	17.2	1	10/21/21 08:15	10/22/21 13:09	99-87-6	
Methylene Chloride	**<15.7**	ug/kg	56.4	15.7	1	10/21/21 08:15	10/22/21 13:09	75-09-2	
Methyl-tert-butyl ether	**<16.6**	ug/kg	56.4	16.6	1	10/21/21 08:15	10/22/21 13:09	1634-04-4	
Naphthalene	**<17.6**	ug/kg	282	17.6	1	10/21/21 08:15	10/22/21 13:09	91-20-3	
n-Propylbenzene	**<13.5**	ug/kg	56.4	13.5	1	10/21/21 08:15	10/22/21 13:09	103-65-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-1 (9-11) **Lab ID: 40235057002** Collected: 10/13/21 09:45 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Styrene	**<14.4**	ug/kg	56.4	14.4	1	10/21/21 08:15	10/22/21 13:09	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.5**	ug/kg	56.4	13.5	1	10/21/21 08:15	10/22/21 13:09	630-20-6	
1,1,2,2-Tetrachloroethane	**<20.4**	ug/kg	56.4	20.4	1	10/21/21 08:15	10/22/21 13:09	79-34-5	
Tetrachloroethene	**<21.9**	ug/kg	56.4	21.9	1	10/21/21 08:15	10/22/21 13:09	127-18-4	
Toluene	**<14.2**	ug/kg	56.4	14.2	1	10/21/21 08:15	10/22/21 13:09	108-88-3	
1,2,3-Trichlorobenzene	**<62.9**	ug/kg	282	62.9	1	10/21/21 08:15	10/22/21 13:09	87-61-6	
1,2,4-Trichlorobenzene	**<46.5**	ug/kg	282	46.5	1	10/21/21 08:15	10/22/21 13:09	120-82-1	
1,1,1-Trichloroethane	**<14.4**	ug/kg	56.4	14.4	1	10/21/21 08:15	10/22/21 13:09	71-55-6	
1,1,2-Trichloroethane	**<20.5**	ug/kg	56.4	20.5	1	10/21/21 08:15	10/22/21 13:09	79-00-5	
Trichloroethene	**<21.1**	ug/kg	56.4	21.1	1	10/21/21 08:15	10/22/21 13:09	79-01-6	
Trichlorofluoromethane	**<16.4**	ug/kg	56.4	16.4	1	10/21/21 08:15	10/22/21 13:09	75-69-4	
1,2,3-Trichloropropane	**<27.4**	ug/kg	56.4	27.4	1	10/21/21 08:15	10/22/21 13:09	96-18-4	
1,2,4-Trimethylbenzene	**<16.8**	ug/kg	56.4	16.8	1	10/21/21 08:15	10/22/21 13:09	95-63-6	
1,3,5-Trimethylbenzene	**<18.2**	ug/kg	56.4	18.2	1	10/21/21 08:15	10/22/21 13:09	108-67-8	
Vinyl chloride	**<11.4**	ug/kg	56.4	11.4	1	10/21/21 08:15	10/22/21 13:09	75-01-4	
m&p-Xylene	**<23.8**	ug/kg	113	23.8	1	10/21/21 08:15	10/22/21 13:09	179601-23-1	
o-Xylene	**<16.9**	ug/kg	56.4	16.9	1	10/21/21 08:15	10/22/21 13:09	95-47-6	
Surrogates									
Toluene-d8 (S)	124	%	67-159		1	10/21/21 08:15	10/22/21 13:09	2037-26-5	
4-Bromofluorobenzene (S)	126	%	66-153		1	10/21/21 08:15	10/22/21 13:09	460-00-4	
1,2-Dichlorobenzene-d4 (S)	124	%	82-158		1	10/21/21 08:15	10/22/21 13:09	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**6.0**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-2 (2-4) **Lab ID: 40235057003** Collected: 10/13/21 10:15 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**<1.4**	mg/kg	2.4	1.4	1	10/19/21 06:21	10/19/21 21:43	7440-38-2	
Lead	**0.74J**	mg/kg	2.0	0.59	1	10/19/21 06:21	10/19/21 21:43	7439-92-1	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<12.4**	ug/kg	20.9	12.4	1	10/21/21 08:15	10/22/21 13:29	71-43-2	
Bromobenzene	**<20.3**	ug/kg	52.2	20.3	1	10/21/21 08:15	10/22/21 13:29	108-86-1	
Bromochloromethane	**<14.3**	ug/kg	52.2	14.3	1	10/21/21 08:15	10/22/21 13:29	74-97-5	
Bromodichloromethane	**<12.4**	ug/kg	52.2	12.4	1	10/21/21 08:15	10/22/21 13:29	75-27-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-2 (2-4) **Lab ID: 40235057003** Collected: 10/13/21 10:15 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Bromoform	**<229**	ug/kg	261	229	1	10/21/21 08:15	10/22/21 13:29	75-25-2	
Bromomethane	**<73.1**	ug/kg	261	73.1	1	10/21/21 08:15	10/22/21 13:29	74-83-9	
n-Butylbenzene	**<23.9**	ug/kg	52.2	23.9	1	10/21/21 08:15	10/22/21 13:29	104-51-8	
sec-Butylbenzene	**<12.7**	ug/kg	52.2	12.7	1	10/21/21 08:15	10/22/21 13:29	135-98-8	
tert-Butylbenzene	**<16.4**	ug/kg	52.2	16.4	1	10/21/21 08:15	10/22/21 13:29	98-06-6	
Carbon tetrachloride	**<11.5**	ug/kg	52.2	11.5	1	10/21/21 08:15	10/22/21 13:29	56-23-5	
Chlorobenzene	**<6.2**	ug/kg	52.2	6.2	1	10/21/21 08:15	10/22/21 13:29	108-90-7	
Chloroethane	**<22.0**	ug/kg	261	22.0	1	10/21/21 08:15	10/22/21 13:29	75-00-3	
Chloroform	**<37.3**	ug/kg	261	37.3	1	10/21/21 08:15	10/22/21 13:29	67-66-3	
Chloromethane	**<19.8**	ug/kg	52.2	19.8	1	10/21/21 08:15	10/22/21 13:29	74-87-3	
2-Chlorotoluene	**<16.9**	ug/kg	52.2	16.9	1	10/21/21 08:15	10/22/21 13:29	95-49-8	
4-Chlorotoluene	**<19.8**	ug/kg	52.2	19.8	1	10/21/21 08:15	10/22/21 13:29	106-43-4	
1,2-Dibromo-3-chloropropane	**<40.5**	ug/kg	261	40.5	1	10/21/21 08:15	10/22/21 13:29	96-12-8	
Dibromochloromethane	**<178**	ug/kg	261	178	1	10/21/21 08:15	10/22/21 13:29	124-48-1	
1,2-Dibromoethane (EDB)	**<14.3**	ug/kg	52.2	14.3	1	10/21/21 08:15	10/22/21 13:29	106-93-4	
Dibromomethane	**<15.4**	ug/kg	52.2	15.4	1	10/21/21 08:15	10/22/21 13:29	74-95-3	
1,2-Dichlorobenzene	**<16.2**	ug/kg	52.2	16.2	1	10/21/21 08:15	10/22/21 13:29	95-50-1	
1,3-Dichlorobenzene	**<14.3**	ug/kg	52.2	14.3	1	10/21/21 08:15	10/22/21 13:29	541-73-1	
1,4-Dichlorobenzene	**<14.3**	ug/kg	52.2	14.3	1	10/21/21 08:15	10/22/21 13:29	106-46-7	
Dichlorodifluoromethane	**<22.4**	ug/kg	52.2	22.4	1	10/21/21 08:15	10/22/21 13:29	75-71-8	
1,1-Dichloroethane	**<13.4**	ug/kg	52.2	13.4	1	10/21/21 08:15	10/22/21 13:29	75-34-3	
1,2-Dichloroethane	**<12.0**	ug/kg	52.2	12.0	1	10/21/21 08:15	10/22/21 13:29	107-06-2	
1,1-Dichloroethene	**<17.3**	ug/kg	52.2	17.3	1	10/21/21 08:15	10/22/21 13:29	75-35-4	
cis-1,2-Dichloroethene	**<11.2**	ug/kg	52.2	11.2	1	10/21/21 08:15	10/22/21 13:29	156-59-2	
trans-1,2-Dichloroethene	**<11.3**	ug/kg	52.2	11.3	1	10/21/21 08:15	10/22/21 13:29	156-60-5	
1,2-Dichloropropane	**<12.4**	ug/kg	52.2	12.4	1	10/21/21 08:15	10/22/21 13:29	78-87-5	
1,3-Dichloropropane	**<11.4**	ug/kg	52.2	11.4	1	10/21/21 08:15	10/22/21 13:29	142-28-9	
2,2-Dichloropropane	**<14.1**	ug/kg	52.2	14.1	1	10/21/21 08:15	10/22/21 13:29	594-20-7	
1,1-Dichloropropene	**<16.9**	ug/kg	52.2	16.9	1	10/21/21 08:15	10/22/21 13:29	563-58-6	
cis-1,3-Dichloropropene	**<34.4**	ug/kg	261	34.4	1	10/21/21 08:15	10/22/21 13:29	10061-01-5	
trans-1,3-Dichloropropene	**<149**	ug/kg	261	149	1	10/21/21 08:15	10/22/21 13:29	10061-02-6	
Diisopropyl ether	**<12.9**	ug/kg	52.2	12.9	1	10/21/21 08:15	10/22/21 13:29	108-20-3	
Ethylbenzene	**<12.4**	ug/kg	52.2	12.4	1	10/21/21 08:15	10/22/21 13:29	100-41-4	
Hexachloro-1,3-butadiene	**<104**	ug/kg	261	104	1	10/21/21 08:15	10/22/21 13:29	87-68-3	
Isopropylbenzene (Cumene)	**<14.1**	ug/kg	52.2	14.1	1	10/21/21 08:15	10/22/21 13:29	98-82-8	
p-Isopropyltoluene	**<15.9**	ug/kg	52.2	15.9	1	10/21/21 08:15	10/22/21 13:29	99-87-6	
Methylene Chloride	**<14.5**	ug/kg	52.2	14.5	1	10/21/21 08:15	10/22/21 13:29	75-09-2	
Methyl-tert-butyl ether	**<15.3**	ug/kg	52.2	15.3	1	10/21/21 08:15	10/22/21 13:29	1634-04-4	
Naphthalene	**<16.3**	ug/kg	261	16.3	1	10/21/21 08:15	10/22/21 13:29	91-20-3	
n-Propylbenzene	**<12.5**	ug/kg	52.2	12.5	1	10/21/21 08:15	10/22/21 13:29	103-65-1	
Styrene	**<13.4**	ug/kg	52.2	13.4	1	10/21/21 08:15	10/22/21 13:29	100-42-5	
1,1,1,2-Tetrachloroethane	**<12.5**	ug/kg	52.2	12.5	1	10/21/21 08:15	10/22/21 13:29	630-20-6	
1,1,2,2-Tetrachloroethane	**<18.9**	ug/kg	52.2	18.9	1	10/21/21 08:15	10/22/21 13:29	79-34-5	
Tetrachloroethene	**<20.2**	ug/kg	52.2	20.2	1	10/21/21 08:15	10/22/21 13:29	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-2 (2-4) **Lab ID: 40235057003** Collected: 10/13/21 10:15 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Toluene	**<13.1**	ug/kg	52.2	13.1	1	10/21/21 08:15	10/22/21 13:29	108-88-3	
1,2,3-Trichlorobenzene	**<58.1**	ug/kg	261	58.1	1	10/21/21 08:15	10/22/21 13:29	87-61-6	
1,2,4-Trichlorobenzene	**<43.0**	ug/kg	261	43.0	1	10/21/21 08:15	10/22/21 13:29	120-82-1	
1,1,1-Trichloroethane	**<13.4**	ug/kg	52.2	13.4	1	10/21/21 08:15	10/22/21 13:29	71-55-6	
1,1,2-Trichloroethane	**<19.0**	ug/kg	52.2	19.0	1	10/21/21 08:15	10/22/21 13:29	79-00-5	
Trichloroethene	**<19.5**	ug/kg	52.2	19.5	1	10/21/21 08:15	10/22/21 13:29	79-01-6	
Trichlorofluoromethane	**<15.1**	ug/kg	52.2	15.1	1	10/21/21 08:15	10/22/21 13:29	75-69-4	
1,2,3-Trichloropropane	**<25.3**	ug/kg	52.2	25.3	1	10/21/21 08:15	10/22/21 13:29	96-18-4	
1,2,4-Trimethylbenzene	**<15.5**	ug/kg	52.2	15.5	1	10/21/21 08:15	10/22/21 13:29	95-63-6	
1,3,5-Trimethylbenzene	**<16.8**	ug/kg	52.2	16.8	1	10/21/21 08:15	10/22/21 13:29	108-67-8	
Vinyl chloride	**<10.5**	ug/kg	52.2	10.5	1	10/21/21 08:15	10/22/21 13:29	75-01-4	
m&p-Xylene	**<22.0**	ug/kg	104	22.0	1	10/21/21 08:15	10/22/21 13:29	179601-23-1	
o-Xylene	**<15.6**	ug/kg	52.2	15.6	1	10/21/21 08:15	10/22/21 13:29	95-47-6	
Surrogates									
Toluene-d8 (S)	120	%	67-159		1	10/21/21 08:15	10/22/21 13:29	2037-26-5	
4-Bromofluorobenzene (S)	122	%	66-153		1	10/21/21 08:15	10/22/21 13:29	460-00-4	
1,2-Dichlorobenzene-d4 (S)	118	%	82-158		1	10/21/21 08:15	10/22/21 13:29	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**2.1**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-2 (9-11) **Lab ID: 40235057004** Collected: 10/13/21 10:20 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**3.4**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 21:45	7440-38-2	
Lead	**1.2J**	mg/kg	2.1	0.62	1	10/19/21 06:21	10/19/21 21:45	7439-92-1	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<13.0**	ug/kg	21.9	13.0	1	10/21/21 08:15	10/22/21 13:49	71-43-2	
Bromobenzene	**<21.3**	ug/kg	54.7	21.3	1	10/21/21 08:15	10/22/21 13:49	108-86-1	
Bromochloromethane	**<15.0**	ug/kg	54.7	15.0	1	10/21/21 08:15	10/22/21 13:49	74-97-5	
Bromodichloromethane	**<13.0**	ug/kg	54.7	13.0	1	10/21/21 08:15	10/22/21 13:49	75-27-4	
Bromoform	**<241**	ug/kg	273	241	1	10/21/21 08:15	10/22/21 13:49	75-25-2	
Bromomethane	**<76.6**	ug/kg	273	76.6	1	10/21/21 08:15	10/22/21 13:49	74-83-9	
n-Butylbenzene	**<25.0**	ug/kg	54.7	25.0	1	10/21/21 08:15	10/22/21 13:49	104-51-8	
sec-Butylbenzene	**<13.3**	ug/kg	54.7	13.3	1	10/21/21 08:15	10/22/21 13:49	135-98-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-2 (9-11) **Lab ID: 40235057004** Collected: 10/13/21 10:20 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
tert-Butylbenzene	**<17.2**	ug/kg	54.7	17.2	1	10/21/21 08:15	10/22/21 13:49	98-06-6	
Carbon tetrachloride	**<12.0**	ug/kg	54.7	12.0	1	10/21/21 08:15	10/22/21 13:49	56-23-5	
Chlorobenzene	**<6.5**	ug/kg	54.7	6.5	1	10/21/21 08:15	10/22/21 13:49	108-90-7	
Chloroethane	**<23.1**	ug/kg	273	23.1	1	10/21/21 08:15	10/22/21 13:49	75-00-3	
Chloroform	**<39.1**	ug/kg	273	39.1	1	10/21/21 08:15	10/22/21 13:49	67-66-3	
Chloromethane	**<20.8**	ug/kg	54.7	20.8	1	10/21/21 08:15	10/22/21 13:49	74-87-3	
2-Chlorotoluene	**<17.7**	ug/kg	54.7	17.7	1	10/21/21 08:15	10/22/21 13:49	95-49-8	
4-Chlorotoluene	**<20.8**	ug/kg	54.7	20.8	1	10/21/21 08:15	10/22/21 13:49	106-43-4	
1,2-Dibromo-3-chloropropane	**<42.4**	ug/kg	273	42.4	1	10/21/21 08:15	10/22/21 13:49	96-12-8	
Dibromochloromethane	**<187**	ug/kg	273	187	1	10/21/21 08:15	10/22/21 13:49	124-48-1	
1,2-Dibromoethane (EDB)	**<15.0**	ug/kg	54.7	15.0	1	10/21/21 08:15	10/22/21 13:49	106-93-4	
Dibromomethane	**<16.2**	ug/kg	54.7	16.2	1	10/21/21 08:15	10/22/21 13:49	74-95-3	
1,2-Dichlorobenzene	**<16.9**	ug/kg	54.7	16.9	1	10/21/21 08:15	10/22/21 13:49	95-50-1	
1,3-Dichlorobenzene	**<15.0**	ug/kg	54.7	15.0	1	10/21/21 08:15	10/22/21 13:49	541-73-1	
1,4-Dichlorobenzene	**<15.0**	ug/kg	54.7	15.0	1	10/21/21 08:15	10/22/21 13:49	106-46-7	
Dichlorodifluoromethane	**<23.5**	ug/kg	54.7	23.5	1	10/21/21 08:15	10/22/21 13:49	75-71-8	
1,1-Dichloroethane	**<14.0**	ug/kg	54.7	14.0	1	10/21/21 08:15	10/22/21 13:49	75-34-3	
1,2-Dichloroethane	**<12.6**	ug/kg	54.7	12.6	1	10/21/21 08:15	10/22/21 13:49	107-06-2	
1,1-Dichloroethene	**<18.1**	ug/kg	54.7	18.1	1	10/21/21 08:15	10/22/21 13:49	75-35-4	
cis-1,2-Dichloroethene	**<11.7**	ug/kg	54.7	11.7	1	10/21/21 08:15	10/22/21 13:49	156-59-2	
trans-1,2-Dichloroethene	**<11.8**	ug/kg	54.7	11.8	1	10/21/21 08:15	10/22/21 13:49	156-60-5	
1,2-Dichloropropane	**<13.0**	ug/kg	54.7	13.0	1	10/21/21 08:15	10/22/21 13:49	78-87-5	
1,3-Dichloropropane	**<11.9**	ug/kg	54.7	11.9	1	10/21/21 08:15	10/22/21 13:49	142-28-9	
2,2-Dichloropropane	**<14.8**	ug/kg	54.7	14.8	1	10/21/21 08:15	10/22/21 13:49	594-20-7	
1,1-Dichloropropene	**<17.7**	ug/kg	54.7	17.7	1	10/21/21 08:15	10/22/21 13:49	563-58-6	
cis-1,3-Dichloropropene	**<36.1**	ug/kg	273	36.1	1	10/21/21 08:15	10/22/21 13:49	10061-01-5	
trans-1,3-Dichloropropene	**<156**	ug/kg	273	156	1	10/21/21 08:15	10/22/21 13:49	10061-02-6	
Diisopropyl ether	**<13.6**	ug/kg	54.7	13.6	1	10/21/21 08:15	10/22/21 13:49	108-20-3	
Ethylbenzene	**<13.0**	ug/kg	54.7	13.0	1	10/21/21 08:15	10/22/21 13:49	100-41-4	
Hexachloro-1,3-butadiene	**<109**	ug/kg	273	109	1	10/21/21 08:15	10/22/21 13:49	87-68-3	
Isopropylbenzene (Cumene)	**<14.8**	ug/kg	54.7	14.8	1	10/21/21 08:15	10/22/21 13:49	98-82-8	
p-Isopropyltoluene	**<16.6**	ug/kg	54.7	16.6	1	10/21/21 08:15	10/22/21 13:49	99-87-6	
Methylene Chloride	**<15.2**	ug/kg	54.7	15.2	1	10/21/21 08:15	10/22/21 13:49	75-09-2	
Methyl-tert-butyl ether	**<16.1**	ug/kg	54.7	16.1	1	10/21/21 08:15	10/22/21 13:49	1634-04-4	
Naphthalene	**<17.1**	ug/kg	273	17.1	1	10/21/21 08:15	10/22/21 13:49	91-20-3	
n-Propylbenzene	**<13.1**	ug/kg	54.7	13.1	1	10/21/21 08:15	10/22/21 13:49	103-65-1	
Styrene	**<14.0**	ug/kg	54.7	14.0	1	10/21/21 08:15	10/22/21 13:49	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.1**	ug/kg	54.7	13.1	1	10/21/21 08:15	10/22/21 13:49	630-20-6	
1,1,2,2-Tetrachloroethane	**<19.8**	ug/kg	54.7	19.8	1	10/21/21 08:15	10/22/21 13:49	79-34-5	
Tetrachloroethene	**<21.2**	ug/kg	54.7	21.2	1	10/21/21 08:15	10/22/21 13:49	127-18-4	
Toluene	**<13.8**	ug/kg	54.7	13.8	1	10/21/21 08:15	10/22/21 13:49	108-88-3	
1,2,3-Trichlorobenzene	**<60.9**	ug/kg	273	60.9	1	10/21/21 08:15	10/22/21 13:49	87-61-6	
1,2,4-Trichlorobenzene	**<45.0**	ug/kg	273	45.0	1	10/21/21 08:15	10/22/21 13:49	120-82-1	
1,1,1-Trichloroethane	**<14.0**	ug/kg	54.7	14.0	1	10/21/21 08:15	10/22/21 13:49	71-55-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-2 (9-11) **Lab ID: 40235057004** Collected: 10/13/21 10:20 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
1,1,2-Trichloroethane	**<19.9**	ug/kg	54.7	19.9	1	10/21/21 08:15	10/22/21 13:49	79-00-5	
Trichloroethene	**<20.4**	ug/kg	54.7	20.4	1	10/21/21 08:15	10/22/21 13:49	79-01-6	
Trichlorofluoromethane	**<15.9**	ug/kg	54.7	15.9	1	10/21/21 08:15	10/22/21 13:49	75-69-4	
1,2,3-Trichloropropane	**<26.6**	ug/kg	54.7	26.6	1	10/21/21 08:15	10/22/21 13:49	96-18-4	
1,2,4-Trimethylbenzene	**<16.3**	ug/kg	54.7	16.3	1	10/21/21 08:15	10/22/21 13:49	95-63-6	
1,3,5-Trimethylbenzene	**<17.6**	ug/kg	54.7	17.6	1	10/21/21 08:15	10/22/21 13:49	108-67-8	
Vinyl chloride	**<11.0**	ug/kg	54.7	11.0	1	10/21/21 08:15	10/22/21 13:49	75-01-4	
m&p-Xylene	**<23.1**	ug/kg	109	23.1	1	10/21/21 08:15	10/22/21 13:49	179601-23-1	
o-Xylene	**<16.4**	ug/kg	54.7	16.4	1	10/21/21 08:15	10/22/21 13:49	95-47-6	
Surrogates									
Toluene-d8 (S)	113	%	67-159		1	10/21/21 08:15	10/22/21 13:49	2037-26-5	
4-Bromofluorobenzene (S)	121	%	66-153		1	10/21/21 08:15	10/22/21 13:49	460-00-4	
1,2-Dichlorobenzene-d4 (S)	112	%	82-158		1	10/21/21 08:15	10/22/21 13:49	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.5**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-3 (1.5-2.5) **Lab ID: 40235057005** Collected: 10/13/21 10:45 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**2.6**	mg/kg	2.4	1.4	1	10/19/21 06:21	10/19/21 21:48	7440-38-2	
Lead	**11.9**	mg/kg	1.9	0.58	1	10/19/21 06:21	10/19/21 21:48	7439-92-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**3.3**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-3 (8-10) **Lab ID: 40235057006** Collected: 10/13/21 10:50 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**<1.5**	mg/kg	2.5	1.5	1	10/19/21 06:21	10/19/21 21:50	7440-38-2	
Lead	**0.88J**	mg/kg	2.0	0.60	1	10/19/21 06:21	10/19/21 21:50	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-3 (8-10) **Lab ID: 40235057006** Collected: 10/13/21 10:50 Received: 10/13/21 16:40 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
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.1**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-5 (1.5-2.5) **Lab ID: 40235057007** Collected: 10/13/21 12:00 Received: 10/13/21 16:40 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
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	12674-11-2	
PCB-1221 (Aroclor 1221)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	11104-28-2	
PCB-1232 (Aroclor 1232)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	11141-16-5	
PCB-1242 (Aroclor 1242)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	53469-21-9	
PCB-1248 (Aroclor 1248)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	12672-29-6	
PCB-1254 (Aroclor 1254)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	11097-69-1	
PCB-1260 (Aroclor 1260)	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	11096-82-5	
PCB, Total	**<15.9**	ug/kg	52.1	15.9	1	10/14/21 16:03	10/16/21 00:34	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	90	%	67-102		1	10/14/21 16:03	10/16/21 00:34	877-09-8	
Decachlorobiphenyl (S)	88	%	47-114		1	10/14/21 16:03	10/16/21 00:34	2051-24-3	
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**2.3J**	mg/kg	2.5	1.5	1	10/19/21 06:21	10/19/21 21:52	7440-38-2	
Lead	**84.6**	mg/kg	2.0	0.61	1	10/19/21 06:21	10/19/21 21:52	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**<45.2**	ug/kg	348	45.2	20	10/21/21 07:37	10/21/21 18:33	83-32-9	
Acenaphthylene	**780**	ug/kg	348	43.9	20	10/21/21 07:37	10/21/21 18:33	208-96-8	
Anthracene	**317J**	ug/kg	348	43.2	20	10/21/21 07:37	10/21/21 18:33	120-12-7	
Benzo(a)anthracene	**867**	ug/kg	348	45.0	20	10/21/21 07:37	10/21/21 18:33	56-55-3	
Benzo(a)pyrene	**996**	ug/kg	348	39.6	20	10/21/21 07:37	10/21/21 18:33	50-32-8	
Benzo(b)fluoranthene	**1530**	ug/kg	348	48.4	20	10/21/21 07:37	10/21/21 18:33	205-99-2	
Benzo(g,h,i)perylene	**1090**	ug/kg	348	61.1	20	10/21/21 07:37	10/21/21 18:33	191-24-2	
Benzo(k)fluoranthene	**597**	ug/kg	348	44.5	20	10/21/21 07:37	10/21/21 18:33	207-08-9	
Chrysene	**1030**	ug/kg	348	65.7	20	10/21/21 07:37	10/21/21 18:33	218-01-9	
Dibenz(a,h)anthracene	**301J**	ug/kg	348	48.2	20	10/21/21 07:37	10/21/21 18:33	53-70-3	
Fluoranthene	**1160**	ug/kg	348	41.2	20	10/21/21 07:37	10/21/21 18:33	206-44-0	
Fluorene	**66.7J**	ug/kg	348	41.8	20	10/21/21 07:37	10/21/21 18:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**893**	ug/kg	348	72.6	20	10/21/21 07:37	10/21/21 18:33	193-39-5	
1-Methylnaphthalene	**71.8J**	ug/kg	348	50.9	20	10/21/21 07:37	10/21/21 18:33	90-12-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-5 (1.5-2.5) **Lab ID: 40235057007** Collected: 10/13/21 12:00 Received: 10/13/21 16:40 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
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
2-Methylnaphthalene	**109J**	ug/kg	348	50.9	20	10/21/21 07:37	10/21/21 18:33	91-57-6	
Naphthalene	**388**	ug/kg	348	33.9	20	10/21/21 07:37	10/21/21 18:33	91-20-3	
Phenanthrene	**519**	ug/kg	348	39.9	20	10/21/21 07:37	10/21/21 18:33	85-01-8	
Pyrene	**1310**	ug/kg	348	51.2	20	10/21/21 07:37	10/21/21 18:33	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	49	%	36-86		20	10/21/21 07:37	10/21/21 18:33	321-60-8	
Terphenyl-d14 (S)	57	%	41-97		20	10/21/21 07:37	10/21/21 18:33	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**28.7**	ug/kg	21.8	13.0	1	10/21/21 08:15	10/22/21 14:08	71-43-2	
Bromobenzene	**<21.2**	ug/kg	54.4	21.2	1	10/21/21 08:15	10/22/21 14:08	108-86-1	
Bromochloromethane	**<14.9**	ug/kg	54.4	14.9	1	10/21/21 08:15	10/22/21 14:08	74-97-5	
Bromodichloromethane	**<13.0**	ug/kg	54.4	13.0	1	10/21/21 08:15	10/22/21 14:08	75-27-4	
Bromoform	**<240**	ug/kg	272	240	1	10/21/21 08:15	10/22/21 14:08	75-25-2	
Bromomethane	**<76.3**	ug/kg	272	76.3	1	10/21/21 08:15	10/22/21 14:08	74-83-9	
n-Butylbenzene	**<24.9**	ug/kg	54.4	24.9	1	10/21/21 08:15	10/22/21 14:08	104-51-8	
sec-Butylbenzene	**<13.3**	ug/kg	54.4	13.3	1	10/21/21 08:15	10/22/21 14:08	135-98-8	
tert-Butylbenzene	**<17.1**	ug/kg	54.4	17.1	1	10/21/21 08:15	10/22/21 14:08	98-06-6	
Carbon tetrachloride	**<12.0**	ug/kg	54.4	12.0	1	10/21/21 08:15	10/22/21 14:08	56-23-5	
Chlorobenzene	**<6.5**	ug/kg	54.4	6.5	1	10/21/21 08:15	10/22/21 14:08	108-90-7	
Chloroethane	**<23.0**	ug/kg	272	23.0	1	10/21/21 08:15	10/22/21 14:08	75-00-3	
Chloroform	**<39.0**	ug/kg	272	39.0	1	10/21/21 08:15	10/22/21 14:08	67-66-3	
Chloromethane	**<20.7**	ug/kg	54.4	20.7	1	10/21/21 08:15	10/22/21 14:08	74-87-3	
2-Chlorotoluene	**<17.6**	ug/kg	54.4	17.6	1	10/21/21 08:15	10/22/21 14:08	95-49-8	
4-Chlorotoluene	**<20.7**	ug/kg	54.4	20.7	1	10/21/21 08:15	10/22/21 14:08	106-43-4	
1,2-Dibromo-3-chloropropane	**<42.2**	ug/kg	272	42.2	1	10/21/21 08:15	10/22/21 14:08	96-12-8	
Dibromochloromethane	**<186**	ug/kg	272	186	1	10/21/21 08:15	10/22/21 14:08	124-48-1	
1,2-Dibromoethane (EDB)	**<14.9**	ug/kg	54.4	14.9	1	10/21/21 08:15	10/22/21 14:08	106-93-4	
Dibromomethane	**<16.1**	ug/kg	54.4	16.1	1	10/21/21 08:15	10/22/21 14:08	74-95-3	
1,2-Dichlorobenzene	**<16.9**	ug/kg	54.4	16.9	1	10/21/21 08:15	10/22/21 14:08	95-50-1	
1,3-Dichlorobenzene	**<14.9**	ug/kg	54.4	14.9	1	10/21/21 08:15	10/22/21 14:08	541-73-1	
1,4-Dichlorobenzene	**<14.9**	ug/kg	54.4	14.9	1	10/21/21 08:15	10/22/21 14:08	106-46-7	
Dichlorodifluoromethane	**<23.4**	ug/kg	54.4	23.4	1	10/21/21 08:15	10/22/21 14:08	75-71-8	
1,1-Dichloroethane	**<13.9**	ug/kg	54.4	13.9	1	10/21/21 08:15	10/22/21 14:08	75-34-3	
1,2-Dichloroethane	**<12.5**	ug/kg	54.4	12.5	1	10/21/21 08:15	10/22/21 14:08	107-06-2	
1,1-Dichloroethene	**<18.1**	ug/kg	54.4	18.1	1	10/21/21 08:15	10/22/21 14:08	75-35-4	
cis-1,2-Dichloroethene	**<11.6**	ug/kg	54.4	11.6	1	10/21/21 08:15	10/22/21 14:08	156-59-2	
trans-1,2-Dichloroethene	**<11.8**	ug/kg	54.4	11.8	1	10/21/21 08:15	10/22/21 14:08	156-60-5	
1,2-Dichloropropane	**<13.0**	ug/kg	54.4	13.0	1	10/21/21 08:15	10/22/21 14:08	78-87-5	
1,3-Dichloropropane	**<11.9**	ug/kg	54.4	11.9	1	10/21/21 08:15	10/22/21 14:08	142-28-9	
2,2-Dichloropropane	**<14.7**	ug/kg	54.4	14.7	1	10/21/21 08:15	10/22/21 14:08	594-20-7	
1,1-Dichloropropene	**<17.6**	ug/kg	54.4	17.6	1	10/21/21 08:15	10/22/21 14:08	563-58-6	
cis-1,3-Dichloropropene	**<35.9**	ug/kg	272	35.9	1	10/21/21 08:15	10/22/21 14:08	10061-01-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-5 (1.5-2.5) **Lab ID: 40235057007** Collected: 10/13/21 12:00 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
trans-1,3-Dichloropropene	**<156**	ug/kg	272	156	1	10/21/21 08:15	10/22/21 14:08	10061-02-6	
Diisopropyl ether	**<13.5**	ug/kg	54.4	13.5	1	10/21/21 08:15	10/22/21 14:08	108-20-3	
Ethylbenzene	**<13.0**	ug/kg	54.4	13.0	1	10/21/21 08:15	10/22/21 14:08	100-41-4	
Hexachloro-1,3-butadiene	**<108**	ug/kg	272	108	1	10/21/21 08:15	10/22/21 14:08	87-68-3	
Isopropylbenzene (Cumene)	**<14.7**	ug/kg	54.4	14.7	1	10/21/21 08:15	10/22/21 14:08	98-82-8	
p-Isopropyltoluene	**<16.5**	ug/kg	54.4	16.5	1	10/21/21 08:15	10/22/21 14:08	99-87-6	
Methylene Chloride	**<15.1**	ug/kg	54.4	15.1	1	10/21/21 08:15	10/22/21 14:08	75-09-2	
Methyl-tert-butyl ether	**<16.0**	ug/kg	54.4	16.0	1	10/21/21 08:15	10/22/21 14:08	1634-04-4	
Naphthalene	**240J**	ug/kg	272	17.0	1	10/21/21 08:15	10/22/21 14:08	91-20-3	
n-Propylbenzene	**<13.1**	ug/kg	54.4	13.1	1	10/21/21 08:15	10/22/21 14:08	103-65-1	
Styrene	**14.3J**	ug/kg	54.4	13.9	1	10/21/21 08:15	10/22/21 14:08	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.1**	ug/kg	54.4	13.1	1	10/21/21 08:15	10/22/21 14:08	630-20-6	
1,1,2,2-Tetrachloroethane	**<19.7**	ug/kg	54.4	19.7	1	10/21/21 08:15	10/22/21 14:08	79-34-5	
Tetrachloroethene	**<21.1**	ug/kg	54.4	21.1	1	10/21/21 08:15	10/22/21 14:08	127-18-4	
Toluene	**45.8J**	ug/kg	54.4	13.7	1	10/21/21 08:15	10/22/21 14:08	108-88-3	
1,2,3-Trichlorobenzene	**<60.6**	ug/kg	272	60.6	1	10/21/21 08:15	10/22/21 14:08	87-61-6	
1,2,4-Trichlorobenzene	**<44.9**	ug/kg	272	44.9	1	10/21/21 08:15	10/22/21 14:08	120-82-1	
1,1,1-Trichloroethane	**<13.9**	ug/kg	54.4	13.9	1	10/21/21 08:15	10/22/21 14:08	71-55-6	
1,1,2-Trichloroethane	**<19.8**	ug/kg	54.4	19.8	1	10/21/21 08:15	10/22/21 14:08	79-00-5	
Trichloroethene	**<20.4**	ug/kg	54.4	20.4	1	10/21/21 08:15	10/22/21 14:08	79-01-6	
Trichlorofluoromethane	**<15.8**	ug/kg	54.4	15.8	1	10/21/21 08:15	10/22/21 14:08	75-69-4	
1,2,3-Trichloropropane	**<26.5**	ug/kg	54.4	26.5	1	10/21/21 08:15	10/22/21 14:08	96-18-4	
1,2,4-Trimethylbenzene	**<16.2**	ug/kg	54.4	16.2	1	10/21/21 08:15	10/22/21 14:08	95-63-6	
1,3,5-Trimethylbenzene	**<17.5**	ug/kg	54.4	17.5	1	10/21/21 08:15	10/22/21 14:08	108-67-8	
Vinyl chloride	**<11.0**	ug/kg	54.4	11.0	1	10/21/21 08:15	10/22/21 14:08	75-01-4	
m&p-Xylene	**24.3J**	ug/kg	109	23.0	1	10/21/21 08:15	10/22/21 14:08	179601-23-1	
o-Xylene	**<16.3**	ug/kg	54.4	16.3	1	10/21/21 08:15	10/22/21 14:08	95-47-6	
Surrogates									
Toluene-d8 (S)	116	%	67-159		1	10/21/21 08:15	10/22/21 14:08	2037-26-5	
4-Bromofluorobenzene (S)	125	%	66-153		1	10/21/21 08:15	10/22/21 14:08	460-00-4	
1,2-Dichlorobenzene-d4 (S)	116	%	82-158		1	10/21/21 08:15	10/22/21 14:08	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.2**	%	0.10	0.10	1		10/14/21 13:24		
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**7.0**	mg/kg	0.86	0.29	1	10/21/21 12:15	10/21/21 15:06	57-12-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-6 (2-4) **Lab ID: 40235057008** Collected: 10/13/21 12:20 Received: 10/13/21 16:40 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
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	12674-11-2	D3
PCB-1221 (Aroclor 1221)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	11104-28-2	
PCB-1232 (Aroclor 1232)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	11141-16-5	
PCB-1242 (Aroclor 1242)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	53469-21-9	
PCB-1248 (Aroclor 1248)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	12672-29-6	
PCB-1254 (Aroclor 1254)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	11097-69-1	
PCB-1260 (Aroclor 1260)	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	11096-82-5	
PCB, Total	**<8310**	ug/kg	27300	8310	500	10/14/21 16:03	10/16/21 02:01	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	0	%	67-102		500	10/14/21 16:03	10/16/21 02:01	877-09-8	S4
Decachlorobiphenyl (S)	0	%	47-114		500	10/14/21 16:03	10/16/21 02:01	2051-24-3	S4
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**2.8**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 21:55	7440-38-2	
Lead	**47.1**	mg/kg	2.1	0.63	1	10/19/21 06:21	10/19/21 21:55	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**<47.2**	ug/kg	364	47.2	20	10/20/21 06:47	10/20/21 17:12	83-32-9	
Acenaphthylene	**2000**	ug/kg	364	45.8	20	10/20/21 06:47	10/20/21 17:12	208-96-8	
Anthracene	**456**	ug/kg	364	45.1	20	10/20/21 06:47	10/20/21 17:12	120-12-7	
Benzo(a)anthracene	**2090**	ug/kg	364	47.0	20	10/20/21 06:47	10/20/21 17:12	56-55-3	
Benzo(a)pyrene	**1030**	ug/kg	364	41.3	20	10/20/21 06:47	10/20/21 17:12	50-32-8	
Benzo(b)fluoranthene	**3670**	ug/kg	364	50.5	20	10/20/21 06:47	10/20/21 17:12	205-99-2	
Benzo(g,h,i)perylene	**1600**	ug/kg	364	63.8	20	10/20/21 06:47	10/20/21 17:12	191-24-2	
Benzo(k)fluoranthene	**1740**	ug/kg	364	46.5	20	10/20/21 06:47	10/20/21 17:12	207-08-9	
Chrysene	**3060**	ug/kg	364	68.6	20	10/20/21 06:47	10/20/21 17:12	218-01-9	
Dibenz(a,h)anthracene	**624**	ug/kg	364	50.3	20	10/20/21 06:47	10/20/21 17:12	53-70-3	
Fluoranthene	**1010**	ug/kg	364	43.0	20	10/20/21 06:47	10/20/21 17:12	206-44-0	
Fluorene	**100J**	ug/kg	364	43.6	20	10/20/21 06:47	10/20/21 17:12	86-73-7	
Indeno(1,2,3-cd)pyrene	**1460**	ug/kg	364	75.8	20	10/20/21 06:47	10/20/21 17:12	193-39-5	
1-Methylnaphthalene	**282J**	ug/kg	364	53.1	20	10/20/21 06:47	10/20/21 17:12	90-12-0	
2-Methylnaphthalene	**665**	ug/kg	364	53.2	20	10/20/21 06:47	10/20/21 17:12	91-57-6	
Naphthalene	**1620**	ug/kg	364	35.4	20	10/20/21 06:47	10/20/21 17:12	91-20-3	
Phenanthrene	**372**	ug/kg	364	41.6	20	10/20/21 06:47	10/20/21 17:12	85-01-8	
Pyrene	**1090**	ug/kg	364	53.4	20	10/20/21 06:47	10/20/21 17:12	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	55	%	36-86		20	10/20/21 06:47	10/20/21 17:12	321-60-8	
Terphenyl-d14 (S)	64	%	41-97		20	10/20/21 06:47	10/20/21 17:12	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**68.3**	ug/kg	23.6	14.0	1	10/21/21 08:15	10/22/21 14:28	71-43-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-6 (2-4) **Lab ID: 40235057008** Collected: 10/13/21 12:20 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Bromobenzene	**<23.0**	ug/kg	58.9	23.0	1	10/21/21 08:15	10/22/21 14:28	108-86-1	
Bromochloromethane	**<16.1**	ug/kg	58.9	16.1	1	10/21/21 08:15	10/22/21 14:28	74-97-5	
Bromodichloromethane	**<14.0**	ug/kg	58.9	14.0	1	10/21/21 08:15	10/22/21 14:28	75-27-4	
Bromoform	**<259**	ug/kg	294	259	1	10/21/21 08:15	10/22/21 14:28	75-25-2	
Bromomethane	**<82.5**	ug/kg	294	82.5	1	10/21/21 08:15	10/22/21 14:28	74-83-9	
n-Butylbenzene	**<27.0**	ug/kg	58.9	27.0	1	10/21/21 08:15	10/22/21 14:28	104-51-8	
sec-Butylbenzene	**<14.4**	ug/kg	58.9	14.4	1	10/21/21 08:15	10/22/21 14:28	135-98-8	
tert-Butylbenzene	**<18.5**	ug/kg	58.9	18.5	1	10/21/21 08:15	10/22/21 14:28	98-06-6	
Carbon tetrachloride	**<13.0**	ug/kg	58.9	13.0	1	10/21/21 08:15	10/22/21 14:28	56-23-5	
Chlorobenzene	**<7.1**	ug/kg	58.9	7.1	1	10/21/21 08:15	10/22/21 14:28	108-90-7	
Chloroethane	**<24.8**	ug/kg	294	24.8	1	10/21/21 08:15	10/22/21 14:28	75-00-3	
Chloroform	**<42.2**	ug/kg	294	42.2	1	10/21/21 08:15	10/22/21 14:28	67-66-3	
Chloromethane	**<22.4**	ug/kg	58.9	22.4	1	10/21/21 08:15	10/22/21 14:28	74-87-3	
2-Chlorotoluene	**<19.1**	ug/kg	58.9	19.1	1	10/21/21 08:15	10/22/21 14:28	95-49-8	
4-Chlorotoluene	**<22.4**	ug/kg	58.9	22.4	1	10/21/21 08:15	10/22/21 14:28	106-43-4	
1,2-Dibromo-3-chloropropane	**<45.7**	ug/kg	294	45.7	1	10/21/21 08:15	10/22/21 14:28	96-12-8	
Dibromochloromethane	**<201**	ug/kg	294	201	1	10/21/21 08:15	10/22/21 14:28	124-48-1	
1,2-Dibromoethane (EDB)	**<16.1**	ug/kg	58.9	16.1	1	10/21/21 08:15	10/22/21 14:28	106-93-4	
Dibromomethane	**<17.4**	ug/kg	58.9	17.4	1	10/21/21 08:15	10/22/21 14:28	74-95-3	
1,2-Dichlorobenzene	**<18.3**	ug/kg	58.9	18.3	1	10/21/21 08:15	10/22/21 14:28	95-50-1	
1,3-Dichlorobenzene	**<16.1**	ug/kg	58.9	16.1	1	10/21/21 08:15	10/22/21 14:28	541-73-1	
1,4-Dichlorobenzene	**<16.1**	ug/kg	58.9	16.1	1	10/21/21 08:15	10/22/21 14:28	106-46-7	
Dichlorodifluoromethane	**<25.3**	ug/kg	58.9	25.3	1	10/21/21 08:15	10/22/21 14:28	75-71-8	
1,1-Dichloroethane	**<15.1**	ug/kg	58.9	15.1	1	10/21/21 08:15	10/22/21 14:28	75-34-3	
1,2-Dichloroethane	**<13.5**	ug/kg	58.9	13.5	1	10/21/21 08:15	10/22/21 14:28	107-06-2	
1,1-Dichloroethene	**<19.5**	ug/kg	58.9	19.5	1	10/21/21 08:15	10/22/21 14:28	75-35-4	
cis-1,2-Dichloroethene	**<12.6**	ug/kg	58.9	12.6	1	10/21/21 08:15	10/22/21 14:28	156-59-2	
trans-1,2-Dichloroethene	**<12.7**	ug/kg	58.9	12.7	1	10/21/21 08:15	10/22/21 14:28	156-60-5	
1,2-Dichloropropane	**<14.0**	ug/kg	58.9	14.0	1	10/21/21 08:15	10/22/21 14:28	78-87-5	
1,3-Dichloropropane	**<12.8**	ug/kg	58.9	12.8	1	10/21/21 08:15	10/22/21 14:28	142-28-9	
2,2-Dichloropropane	**<15.9**	ug/kg	58.9	15.9	1	10/21/21 08:15	10/22/21 14:28	594-20-7	
1,1-Dichloropropene	**<19.1**	ug/kg	58.9	19.1	1	10/21/21 08:15	10/22/21 14:28	563-58-6	
cis-1,3-Dichloropropene	**<38.9**	ug/kg	294	38.9	1	10/21/21 08:15	10/22/21 14:28	10061-01-5	
trans-1,3-Dichloropropene	**<168**	ug/kg	294	168	1	10/21/21 08:15	10/22/21 14:28	10061-02-6	
Diisopropyl ether	**<14.6**	ug/kg	58.9	14.6	1	10/21/21 08:15	10/22/21 14:28	108-20-3	
Ethylbenzene	**<14.0**	ug/kg	58.9	14.0	1	10/21/21 08:15	10/22/21 14:28	100-41-4	
Hexachloro-1,3-butadiene	**<117**	ug/kg	294	117	1	10/21/21 08:15	10/22/21 14:28	87-68-3	
Isopropylbenzene (Cumene)	**<15.9**	ug/kg	58.9	15.9	1	10/21/21 08:15	10/22/21 14:28	98-82-8	
p-Isopropyltoluene	**<17.9**	ug/kg	58.9	17.9	1	10/21/21 08:15	10/22/21 14:28	99-87-6	
Methylene Chloride	**<16.4**	ug/kg	58.9	16.4	1	10/21/21 08:15	10/22/21 14:28	75-09-2	
Methyl-tert-butyl ether	**<17.3**	ug/kg	58.9	17.3	1	10/21/21 08:15	10/22/21 14:28	1634-04-4	
Naphthalene	**819**	ug/kg	294	18.4	1	10/21/21 08:15	10/22/21 14:28	91-20-3	
n-Propylbenzene	**<14.1**	ug/kg	58.9	14.1	1	10/21/21 08:15	10/22/21 14:28	103-65-1	
Styrene	**32.8J**	ug/kg	58.9	15.1	1	10/21/21 08:15	10/22/21 14:28	100-42-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-6 (2-4) **Lab ID: 40235057008** Collected: 10/13/21 12:20 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
1,1,1,2-Tetrachloroethane	**<14.1**	ug/kg	58.9	14.1	1	10/21/21 08:15	10/22/21 14:28	630-20-6	
1,1,2,2-Tetrachloroethane	**<21.3**	ug/kg	58.9	21.3	1	10/21/21 08:15	10/22/21 14:28	79-34-5	
Tetrachloroethene	**<22.8**	ug/kg	58.9	22.8	1	10/21/21 08:15	10/22/21 14:28	127-18-4	
Toluene	**95.9**	ug/kg	58.9	14.8	1	10/21/21 08:15	10/22/21 14:28	108-88-3	
1,2,3-Trichlorobenzene	**<65.6**	ug/kg	294	65.6	1	10/21/21 08:15	10/22/21 14:28	87-61-6	
1,2,4-Trichlorobenzene	**<48.5**	ug/kg	294	48.5	1	10/21/21 08:15	10/22/21 14:28	120-82-1	
1,1,1-Trichloroethane	**<15.1**	ug/kg	58.9	15.1	1	10/21/21 08:15	10/22/21 14:28	71-55-6	
1,1,2-Trichloroethane	**<21.4**	ug/kg	58.9	21.4	1	10/21/21 08:15	10/22/21 14:28	79-00-5	
Trichloroethene	**<22.0**	ug/kg	58.9	22.0	1	10/21/21 08:15	10/22/21 14:28	79-01-6	
Trichlorofluoromethane	**<17.1**	ug/kg	58.9	17.1	1	10/21/21 08:15	10/22/21 14:28	75-69-4	
1,2,3-Trichloropropane	**<28.6**	ug/kg	58.9	28.6	1	10/21/21 08:15	10/22/21 14:28	96-18-4	
1,2,4-Trimethylbenzene	**<17.5**	ug/kg	58.9	17.5	1	10/21/21 08:15	10/22/21 14:28	95-63-6	
1,3,5-Trimethylbenzene	**<19.0**	ug/kg	58.9	19.0	1	10/21/21 08:15	10/22/21 14:28	108-67-8	
Vinyl chloride	**<11.9**	ug/kg	58.9	11.9	1	10/21/21 08:15	10/22/21 14:28	75-01-4	
m&p-Xylene	**46.7J**	ug/kg	118	24.8	1	10/21/21 08:15	10/22/21 14:28	179601-23-1	
o-Xylene	**19.4J**	ug/kg	58.9	17.7	1	10/21/21 08:15	10/22/21 14:28	95-47-6	
Surrogates									
Toluene-d8 (S)	127	%	67-159		1	10/21/21 08:15	10/22/21 14:28	2037-26-5	
4-Bromofluorobenzene (S)	130	%	66-153		1	10/21/21 08:15	10/22/21 14:28	460-00-4	
1,2-Dichlorobenzene-d4 (S)	122	%	82-158		1	10/21/21 08:15	10/22/21 14:28	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**8.2**	%	0.10	0.10	1		10/14/21 13:24		
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**9.4**	mg/kg	0.85	0.28	1	10/21/21 12:15	10/21/21 15:07	57-12-5	

Sample: GP-7 (2-4) **Lab ID: 40235057009** Collected: 10/13/21 12:35 Received: 10/13/21 16:40 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
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	12674-11-2	
PCB-1221 (Aroclor 1221)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	11104-28-2	
PCB-1232 (Aroclor 1232)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	11141-16-5	
PCB-1242 (Aroclor 1242)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	53469-21-9	
PCB-1248 (Aroclor 1248)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	12672-29-6	
PCB-1254 (Aroclor 1254)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	11097-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-7 (2-4) **Lab ID: 40235057009** Collected: 10/13/21 12:35 Received: 10/13/21 16:40 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
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1260 (Aroclor 1260)	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	11096-82-5	
PCB, Total	**<16.3**	ug/kg	53.6	16.3	1	10/14/21 16:03	10/16/21 01:17	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	97	%	67-102		1	10/14/21 16:03	10/16/21 01:17	877-09-8	
Decachlorobiphenyl (S)	90	%	47-114		1	10/14/21 16:03	10/16/21 01:17	2051-24-3	
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**2.7**	mg/kg	2.7	1.6	1	10/19/21 06:21	10/19/21 21:57	7440-38-2	
Lead	**4.6**	mg/kg	2.1	0.64	1	10/19/21 06:21	10/19/21 21:57	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**<2.3**	ug/kg	17.9	2.3	1	10/20/21 06:47	10/20/21 17:29	83-32-9	
Acenaphthylene	**3.0J**	ug/kg	17.9	2.3	1	10/20/21 06:47	10/20/21 17:29	208-96-8	
Anthracene	**3.2J**	ug/kg	17.9	2.2	1	10/20/21 06:47	10/20/21 17:29	120-12-7	
Benzo(a)anthracene	**18.5**	ug/kg	17.9	2.3	1	10/20/21 06:47	10/20/21 17:29	56-55-3	
Benzo(a)pyrene	**25.1**	ug/kg	17.9	2.0	1	10/20/21 06:47	10/20/21 17:29	50-32-8	
Benzo(b)fluoranthene	**37.5**	ug/kg	17.9	2.5	1	10/20/21 06:47	10/20/21 17:29	205-99-2	
Benzo(g,h,i)perylene	**15.7J**	ug/kg	17.9	3.1	1	10/20/21 06:47	10/20/21 17:29	191-24-2	
Benzo(k)fluoranthene	**14.4J**	ug/kg	17.9	2.3	1	10/20/21 06:47	10/20/21 17:29	207-08-9	
Chrysene	**30.7**	ug/kg	17.9	3.4	1	10/20/21 06:47	10/20/21 17:29	218-01-9	
Dibenz(a,h)anthracene	**4.6J**	ug/kg	17.9	2.5	1	10/20/21 06:47	10/20/21 17:29	53-70-3	
Fluoranthene	**43.1**	ug/kg	17.9	2.1	1	10/20/21 06:47	10/20/21 17:29	206-44-0	
Fluorene	**<2.1**	ug/kg	17.9	2.1	1	10/20/21 06:47	10/20/21 17:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**10.4J**	ug/kg	17.9	3.7	1	10/20/21 06:47	10/20/21 17:29	193-39-5	
1-Methylnaphthalene	**<2.6**	ug/kg	17.9	2.6	1	10/20/21 06:47	10/20/21 17:29	90-12-0	
2-Methylnaphthalene	**<2.6**	ug/kg	17.9	2.6	1	10/20/21 06:47	10/20/21 17:29	91-57-6	
Naphthalene	**1.9J**	ug/kg	17.9	1.7	1	10/20/21 06:47	10/20/21 17:29	91-20-3	
Phenanthrene	**13.0J**	ug/kg	17.9	2.0	1	10/20/21 06:47	10/20/21 17:29	85-01-8	
Pyrene	**35.1**	ug/kg	17.9	2.6	1	10/20/21 06:47	10/20/21 17:29	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	68	%	36-86		1	10/20/21 06:47	10/20/21 17:29	321-60-8	
Terphenyl-d14 (S)	79	%	41-97		1	10/20/21 06:47	10/20/21 17:29	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<13.6**	ug/kg	22.8	13.6	1	10/21/21 08:15	10/22/21 09:15	71-43-2	
Bromobenzene	**<22.2**	ug/kg	57.0	22.2	1	10/21/21 08:15	10/22/21 09:15	108-86-1	
Bromochloromethane	**<15.6**	ug/kg	57.0	15.6	1	10/21/21 08:15	10/22/21 09:15	74-97-5	
Bromodichloromethane	**<13.6**	ug/kg	57.0	13.6	1	10/21/21 08:15	10/22/21 09:15	75-27-4	
Bromoform	**<251**	ug/kg	285	251	1	10/21/21 08:15	10/22/21 09:15	75-25-2	
Bromomethane	**<79.9**	ug/kg	285	79.9	1	10/21/21 08:15	10/22/21 09:15	74-83-9	
n-Butylbenzene	**<26.1**	ug/kg	57.0	26.1	1	10/21/21 08:15	10/22/21 09:15	104-51-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-7 (2-4) **Lab ID: 40235057009** Collected: 10/13/21 12:35 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
sec-Butylbenzene	**<13.9**	ug/kg	57.0	13.9	1	10/21/21 08:15	10/22/21 09:15	135-98-8	
tert-Butylbenzene	**<17.9**	ug/kg	57.0	17.9	1	10/21/21 08:15	10/22/21 09:15	98-06-6	
Carbon tetrachloride	**<12.5**	ug/kg	57.0	12.5	1	10/21/21 08:15	10/22/21 09:15	56-23-5	
Chlorobenzene	**<6.8**	ug/kg	57.0	6.8	1	10/21/21 08:15	10/22/21 09:15	108-90-7	
Chloroethane	**<24.1**	ug/kg	285	24.1	1	10/21/21 08:15	10/22/21 09:15	75-00-3	
Chloroform	**<40.8**	ug/kg	285	40.8	1	10/21/21 08:15	10/22/21 09:15	67-66-3	
Chloromethane	**<21.7**	ug/kg	57.0	21.7	1	10/21/21 08:15	10/22/21 09:15	74-87-3	
2-Chlorotoluene	**<18.5**	ug/kg	57.0	18.5	1	10/21/21 08:15	10/22/21 09:15	95-49-8	
4-Chlorotoluene	**<21.7**	ug/kg	57.0	21.7	1	10/21/21 08:15	10/22/21 09:15	106-43-4	
1,2-Dibromo-3-chloropropane	**<44.2**	ug/kg	285	44.2	1	10/21/21 08:15	10/22/21 09:15	96-12-8	
Dibromochloromethane	**<195**	ug/kg	285	195	1	10/21/21 08:15	10/22/21 09:15	124-48-1	
1,2-Dibromoethane (EDB)	**<15.6**	ug/kg	57.0	15.6	1	10/21/21 08:15	10/22/21 09:15	106-93-4	
Dibromomethane	**<16.9**	ug/kg	57.0	16.9	1	10/21/21 08:15	10/22/21 09:15	74-95-3	
1,2-Dichlorobenzene	**<17.7**	ug/kg	57.0	17.7	1	10/21/21 08:15	10/22/21 09:15	95-50-1	
1,3-Dichlorobenzene	**<15.6**	ug/kg	57.0	15.6	1	10/21/21 08:15	10/22/21 09:15	541-73-1	
1,4-Dichlorobenzene	**<15.6**	ug/kg	57.0	15.6	1	10/21/21 08:15	10/22/21 09:15	106-46-7	
Dichlorodifluoromethane	**<24.5**	ug/kg	57.0	24.5	1	10/21/21 08:15	10/22/21 09:15	75-71-8	
1,1-Dichloroethane	**<14.6**	ug/kg	57.0	14.6	1	10/21/21 08:15	10/22/21 09:15	75-34-3	
1,2-Dichloroethane	**<13.1**	ug/kg	57.0	13.1	1	10/21/21 08:15	10/22/21 09:15	107-06-2	
1,1-Dichloroethene	**<18.9**	ug/kg	57.0	18.9	1	10/21/21 08:15	10/22/21 09:15	75-35-4	
cis-1,2-Dichloroethene	**<12.2**	ug/kg	57.0	12.2	1	10/21/21 08:15	10/22/21 09:15	156-59-2	
trans-1,2-Dichloroethene	**<12.3**	ug/kg	57.0	12.3	1	10/21/21 08:15	10/22/21 09:15	156-60-5	
1,2-Dichloropropane	**<13.6**	ug/kg	57.0	13.6	1	10/21/21 08:15	10/22/21 09:15	78-87-5	
1,3-Dichloropropane	**<12.4**	ug/kg	57.0	12.4	1	10/21/21 08:15	10/22/21 09:15	142-28-9	
2,2-Dichloropropane	**<15.4**	ug/kg	57.0	15.4	1	10/21/21 08:15	10/22/21 09:15	594-20-7	
1,1-Dichloropropene	**<18.5**	ug/kg	57.0	18.5	1	10/21/21 08:15	10/22/21 09:15	563-58-6	
cis-1,3-Dichloropropene	**<37.6**	ug/kg	285	37.6	1	10/21/21 08:15	10/22/21 09:15	10061-01-5	
trans-1,3-Dichloropropene	**<163**	ug/kg	285	163	1	10/21/21 08:15	10/22/21 09:15	10061-02-6	
Diisopropyl ether	**<14.1**	ug/kg	57.0	14.1	1	10/21/21 08:15	10/22/21 09:15	108-20-3	
Ethylbenzene	**<13.6**	ug/kg	57.0	13.6	1	10/21/21 08:15	10/22/21 09:15	100-41-4	
Hexachloro-1,3-butadiene	**<113**	ug/kg	285	113	1	10/21/21 08:15	10/22/21 09:15	87-68-3	
Isopropylbenzene (Cumene)	**<15.4**	ug/kg	57.0	15.4	1	10/21/21 08:15	10/22/21 09:15	98-82-8	
p-Isopropyltoluene	**<17.3**	ug/kg	57.0	17.3	1	10/21/21 08:15	10/22/21 09:15	99-87-6	
Methylene Chloride	**<15.8**	ug/kg	57.0	15.8	1	10/21/21 08:15	10/22/21 09:15	75-09-2	
Methyl-tert-butyl ether	**<16.8**	ug/kg	57.0	16.8	1	10/21/21 08:15	10/22/21 09:15	1634-04-4	
Naphthalene	**<17.8**	ug/kg	285	17.8	1	10/21/21 08:15	10/22/21 09:15	91-20-3	
n-Propylbenzene	**<13.7**	ug/kg	57.0	13.7	1	10/21/21 08:15	10/22/21 09:15	103-65-1	
Styrene	**<14.6**	ug/kg	57.0	14.6	1	10/21/21 08:15	10/22/21 09:15	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.7**	ug/kg	57.0	13.7	1	10/21/21 08:15	10/22/21 09:15	630-20-6	
1,1,2,2-Tetrachloroethane	**<20.6**	ug/kg	57.0	20.6	1	10/21/21 08:15	10/22/21 09:15	79-34-5	
Tetrachloroethene	**<22.1**	ug/kg	57.0	22.1	1	10/21/21 08:15	10/22/21 09:15	127-18-4	
Toluene	**<14.4**	ug/kg	57.0	14.4	1	10/21/21 08:15	10/22/21 09:15	108-88-3	
1,2,3-Trichlorobenzene	**<63.5**	ug/kg	285	63.5	1	10/21/21 08:15	10/22/21 09:15	87-61-6	
1,2,4-Trichlorobenzene	**<47.0**	ug/kg	285	47.0	1	10/21/21 08:15	10/22/21 09:15	120-82-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-7 (2-4) **Lab ID: 40235057009** Collected: 10/13/21 12:35 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
1,1,1-Trichloroethane	**<14.6**	ug/kg	57.0	14.6	1	10/21/21 08:15	10/22/21 09:15	71-55-6	
1,1,2-Trichloroethane	**<20.8**	ug/kg	57.0	20.8	1	10/21/21 08:15	10/22/21 09:15	79-00-5	
Trichloroethene	**<21.3**	ug/kg	57.0	21.3	1	10/21/21 08:15	10/22/21 09:15	79-01-6	
Trichlorofluoromethane	**<16.5**	ug/kg	57.0	16.5	1	10/21/21 08:15	10/22/21 09:15	75-69-4	
1,2,3-Trichloropropane	**<27.7**	ug/kg	57.0	27.7	1	10/21/21 08:15	10/22/21 09:15	96-18-4	
1,2,4-Trimethylbenzene	**<17.0**	ug/kg	57.0	17.0	1	10/21/21 08:15	10/22/21 09:15	95-63-6	
1,3,5-Trimethylbenzene	**<18.4**	ug/kg	57.0	18.4	1	10/21/21 08:15	10/22/21 09:15	108-67-8	
Vinyl chloride	**<11.5**	ug/kg	57.0	11.5	1	10/21/21 08:15	10/22/21 09:15	75-01-4	
m&p-Xylene	**<24.1**	ug/kg	114	24.1	1	10/21/21 08:15	10/22/21 09:15	179601-23-1	
o-Xylene	**<17.1**	ug/kg	57.0	17.1	1	10/21/21 08:15	10/22/21 09:15	95-47-6	
Surrogates									
Toluene-d8 (S)	113	%	67-159		1	10/21/21 08:15	10/22/21 09:15	2037-26-5	
4-Bromofluorobenzene (S)	116	%	66-153		1	10/21/21 08:15	10/22/21 09:15	460-00-4	
1,2-Dichlorobenzene-d4 (S)	111	%	82-158		1	10/21/21 08:15	10/22/21 09:15	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**6.5**	%	0.10	0.10	1		10/14/21 13:24		
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**<0.18**	mg/kg	0.53	0.18	1	10/21/21 12:15	10/21/21 15:07	57-12-5	

Sample: GP-8 (2-4) **Lab ID: 40235057010** Collected: 10/13/21 13:05 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**6.3**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 22:04	7440-38-2	
Lead	**104**	mg/kg	2.1	0.63	1	10/19/21 06:21	10/19/21 22:04	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**58.5J**	ug/kg	356	46.2	20	10/20/21 06:47	10/20/21 17:46	83-32-9	
Acenaphthylene	**339J**	ug/kg	356	44.9	20	10/20/21 06:47	10/20/21 17:46	208-96-8	
Anthracene	**352J**	ug/kg	356	44.2	20	10/20/21 06:47	10/20/21 17:46	120-12-7	
Benzo(a)anthracene	**1680**	ug/kg	356	46.0	20	10/20/21 06:47	10/20/21 17:46	56-55-3	
Benzo(a)pyrene	**1790**	ug/kg	356	40.4	20	10/20/21 06:47	10/20/21 17:46	50-32-8	
Benzo(b)fluoranthene	**2420**	ug/kg	356	49.4	20	10/20/21 06:47	10/20/21 17:46	205-99-2	
Benzo(g,h,i)perylene	**949**	ug/kg	356	62.5	20	10/20/21 06:47	10/20/21 17:46	191-24-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-8 (2-4) **Lab ID: 40235057010** Collected: 10/13/21 13:05 Received: 10/13/21 16:40 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
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Benzo(k)fluoranthene	**1210**	ug/kg	356	45.5	20	10/20/21 06:47	10/20/21 17:46	207-08-9	
Chrysene	**1770**	ug/kg	356	67.1	20	10/20/21 06:47	10/20/21 17:46	218-01-9	
Dibenz(a,h)anthracene	**292J**	ug/kg	356	49.3	20	10/20/21 06:47	10/20/21 17:46	53-70-3	
Fluoranthene	**3350**	ug/kg	356	42.1	20	10/20/21 06:47	10/20/21 17:46	206-44-0	
Fluorene	**117J**	ug/kg	356	42.7	20	10/20/21 06:47	10/20/21 17:46	86-73-7	
Indeno(1,2,3-cd)pyrene	**858**	ug/kg	356	74.2	20	10/20/21 06:47	10/20/21 17:46	193-39-5	
1-Methylnaphthalene	**54.3J**	ug/kg	356	52.0	20	10/20/21 06:47	10/20/21 17:46	90-12-0	
2-Methylnaphthalene	**75.2J**	ug/kg	356	52.1	20	10/20/21 06:47	10/20/21 17:46	91-57-6	
Naphthalene	**111J**	ug/kg	356	34.7	20	10/20/21 06:47	10/20/21 17:46	91-20-3	
Phenanthrene	**1040**	ug/kg	356	40.8	20	10/20/21 06:47	10/20/21 17:46	85-01-8	
Pyrene	**2760**	ug/kg	356	52.3	20	10/20/21 06:47	10/20/21 17:46	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	61	%	36-86		20	10/20/21 06:47	10/20/21 17:46	321-60-8	
Terphenyl-d14 (S)	71	%	41-97		20	10/20/21 06:47	10/20/21 17:46	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<13.5**	ug/kg	22.7	13.5	1	10/21/21 08:15	10/22/21 15:46	71-43-2	
Bromobenzene	**<22.1**	ug/kg	56.7	22.1	1	10/21/21 08:15	10/22/21 15:46	108-86-1	
Bromochloromethane	**<15.5**	ug/kg	56.7	15.5	1	10/21/21 08:15	10/22/21 15:46	74-97-5	
Bromodichloromethane	**<13.5**	ug/kg	56.7	13.5	1	10/21/21 08:15	10/22/21 15:46	75-27-4	
Bromoform	**<249**	ug/kg	283	249	1	10/21/21 08:15	10/22/21 15:46	75-25-2	
Bromomethane	**<79.5**	ug/kg	283	79.5	1	10/21/21 08:15	10/22/21 15:46	74-83-9	
n-Butylbenzene	**<26.0**	ug/kg	56.7	26.0	1	10/21/21 08:15	10/22/21 15:46	104-51-8	
sec-Butylbenzene	**<13.8**	ug/kg	56.7	13.8	1	10/21/21 08:15	10/22/21 15:46	135-98-8	
tert-Butylbenzene	**<17.8**	ug/kg	56.7	17.8	1	10/21/21 08:15	10/22/21 15:46	98-06-6	
Carbon tetrachloride	**<12.5**	ug/kg	56.7	12.5	1	10/21/21 08:15	10/22/21 15:46	56-23-5	
Chlorobenzene	**<6.8**	ug/kg	56.7	6.8	1	10/21/21 08:15	10/22/21 15:46	108-90-7	
Chloroethane	**<23.9**	ug/kg	283	23.9	1	10/21/21 08:15	10/22/21 15:46	75-00-3	
Chloroform	**<40.6**	ug/kg	283	40.6	1	10/21/21 08:15	10/22/21 15:46	67-66-3	
Chloromethane	**<21.5**	ug/kg	56.7	21.5	1	10/21/21 08:15	10/22/21 15:46	74-87-3	
2-Chlorotoluene	**<18.4**	ug/kg	56.7	18.4	1	10/21/21 08:15	10/22/21 15:46	95-49-8	
4-Chlorotoluene	**<21.5**	ug/kg	56.7	21.5	1	10/21/21 08:15	10/22/21 15:46	106-43-4	
1,2-Dibromo-3-chloropropane	**<44.0**	ug/kg	283	44.0	1	10/21/21 08:15	10/22/21 15:46	96-12-8	
Dibromochloromethane	**<194**	ug/kg	283	194	1	10/21/21 08:15	10/22/21 15:46	124-48-1	
1,2-Dibromoethane (EDB)	**<15.5**	ug/kg	56.7	15.5	1	10/21/21 08:15	10/22/21 15:46	106-93-4	
Dibromomethane	**<16.8**	ug/kg	56.7	16.8	1	10/21/21 08:15	10/22/21 15:46	74-95-3	
1,2-Dichlorobenzene	**<17.6**	ug/kg	56.7	17.6	1	10/21/21 08:15	10/22/21 15:46	95-50-1	
1,3-Dichlorobenzene	**<15.5**	ug/kg	56.7	15.5	1	10/21/21 08:15	10/22/21 15:46	541-73-1	
1,4-Dichlorobenzene	**<15.5**	ug/kg	56.7	15.5	1	10/21/21 08:15	10/22/21 15:46	106-46-7	
Dichlorodifluoromethane	**<24.4**	ug/kg	56.7	24.4	1	10/21/21 08:15	10/22/21 15:46	75-71-8	
1,1-Dichloroethane	**<14.5**	ug/kg	56.7	14.5	1	10/21/21 08:15	10/22/21 15:46	75-34-3	
1,2-Dichloroethane	**<13.0**	ug/kg	56.7	13.0	1	10/21/21 08:15	10/22/21 15:46	107-06-2	
1,1-Dichloroethene	**<18.8**	ug/kg	56.7	18.8	1	10/21/21 08:15	10/22/21 15:46	75-35-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-8 (2-4) **Lab ID: 40235057010** Collected: 10/13/21 13:05 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
cis-1,2-Dichloroethene	**<12.1**	ug/kg	56.7	12.1	1	10/21/21 08:15	10/22/21 15:46	156-59-2	
trans-1,2-Dichloroethene	**<12.2**	ug/kg	56.7	12.2	1	10/21/21 08:15	10/22/21 15:46	156-60-5	
1,2-Dichloropropane	**<13.5**	ug/kg	56.7	13.5	1	10/21/21 08:15	10/22/21 15:46	78-87-5	
1,3-Dichloropropane	**<12.4**	ug/kg	56.7	12.4	1	10/21/21 08:15	10/22/21 15:46	142-28-9	
2,2-Dichloropropane	**<15.3**	ug/kg	56.7	15.3	1	10/21/21 08:15	10/22/21 15:46	594-20-7	
1,1-Dichloropropene	**<18.4**	ug/kg	56.7	18.4	1	10/21/21 08:15	10/22/21 15:46	563-58-6	
cis-1,3-Dichloropropene	**<37.4**	ug/kg	283	37.4	1	10/21/21 08:15	10/22/21 15:46	10061-01-5	
trans-1,3-Dichloropropene	**<162**	ug/kg	283	162	1	10/21/21 08:15	10/22/21 15:46	10061-02-6	
Diisopropyl ether	**<14.1**	ug/kg	56.7	14.1	1	10/21/21 08:15	10/22/21 15:46	108-20-3	
Ethylbenzene	**<13.5**	ug/kg	56.7	13.5	1	10/21/21 08:15	10/22/21 15:46	100-41-4	
Hexachloro-1,3-butadiene	**<113**	ug/kg	283	113	1	10/21/21 08:15	10/22/21 15:46	87-68-3	
Isopropylbenzene (Cumene)	**<15.3**	ug/kg	56.7	15.3	1	10/21/21 08:15	10/22/21 15:46	98-82-8	
p-Isopropyltoluene	**<17.2**	ug/kg	56.7	17.2	1	10/21/21 08:15	10/22/21 15:46	99-87-6	
Methylene Chloride	**<15.8**	ug/kg	56.7	15.8	1	10/21/21 08:15	10/22/21 15:46	75-09-2	
Methyl-tert-butyl ether	**<16.7**	ug/kg	56.7	16.7	1	10/21/21 08:15	10/22/21 15:46	1634-04-4	
Naphthalene	**<17.7**	ug/kg	283	17.7	1	10/21/21 08:15	10/22/21 15:46	91-20-3	
n-Propylbenzene	**<13.6**	ug/kg	56.7	13.6	1	10/21/21 08:15	10/22/21 15:46	103-65-1	
Styrene	**<14.5**	ug/kg	56.7	14.5	1	10/21/21 08:15	10/22/21 15:46	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.6**	ug/kg	56.7	13.6	1	10/21/21 08:15	10/22/21 15:46	630-20-6	
1,1,2,2-Tetrachloroethane	**<20.5**	ug/kg	56.7	20.5	1	10/21/21 08:15	10/22/21 15:46	79-34-5	
Tetrachloroethene	**<22.0**	ug/kg	56.7	22.0	1	10/21/21 08:15	10/22/21 15:46	127-18-4	
Toluene	**<14.3**	ug/kg	56.7	14.3	1	10/21/21 08:15	10/22/21 15:46	108-88-3	
1,2,3-Trichlorobenzene	**<63.1**	ug/kg	283	63.1	1	10/21/21 08:15	10/22/21 15:46	87-61-6	
1,2,4-Trichlorobenzene	**<46.7**	ug/kg	283	46.7	1	10/21/21 08:15	10/22/21 15:46	120-82-1	
1,1,1-Trichloroethane	**<14.5**	ug/kg	56.7	14.5	1	10/21/21 08:15	10/22/21 15:46	71-55-6	
1,1,2-Trichloroethane	**<20.6**	ug/kg	56.7	20.6	1	10/21/21 08:15	10/22/21 15:46	79-00-5	
Trichloroethene	**<21.2**	ug/kg	56.7	21.2	1	10/21/21 08:15	10/22/21 15:46	79-01-6	
Trichlorofluoromethane	**<16.4**	ug/kg	56.7	16.4	1	10/21/21 08:15	10/22/21 15:46	75-69-4	
1,2,3-Trichloropropane	**<27.5**	ug/kg	56.7	27.5	1	10/21/21 08:15	10/22/21 15:46	96-18-4	
1,2,4-Trimethylbenzene	**<16.9**	ug/kg	56.7	16.9	1	10/21/21 08:15	10/22/21 15:46	95-63-6	
1,3,5-Trimethylbenzene	**<18.2**	ug/kg	56.7	18.2	1	10/21/21 08:15	10/22/21 15:46	108-67-8	
Vinyl chloride	**<11.4**	ug/kg	56.7	11.4	1	10/21/21 08:15	10/22/21 15:46	75-01-4	
m&p-Xylene	**<23.9**	ug/kg	113	23.9	1	10/21/21 08:15	10/22/21 15:46	179601-23-1	
o-Xylene	**<17.0**	ug/kg	56.7	17.0	1	10/21/21 08:15	10/22/21 15:46	95-47-6	
Surrogates									
Toluene-d8 (S)	112	%	67-159		1	10/21/21 08:15	10/22/21 15:46	2037-26-5	
4-Bromofluorobenzene (S)	117	%	66-153		1	10/21/21 08:15	10/22/21 15:46	460-00-4	
1,2-Dichlorobenzene-d4 (S)	112	%	82-158		1	10/21/21 08:15	10/22/21 15:46	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**6.3**	%	0.10	0.10	1		10/14/21 13:24		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-8 (7-8) **Lab ID: 40235057011** Collected: 10/13/21 13:10 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**287**	mg/kg	6.8	4.0	2	10/19/21 06:21	10/21/21 06:28	7440-38-2	
Lead	**353**	mg/kg	5.4	1.6	2	10/19/21 06:21	10/21/21 06:28	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**555**	ug/kg	476	61.7	20	10/20/21 06:47	10/20/21 18:03	83-32-9	
Acenaphthylene	**748**	ug/kg	476	60.0	20	10/20/21 06:47	10/20/21 18:03	208-96-8	
Anthracene	**458J**	ug/kg	476	59.1	20	10/20/21 06:47	10/20/21 18:03	120-12-7	
Benzo(a)anthracene	**655**	ug/kg	476	61.5	20	10/20/21 06:47	10/20/21 18:03	56-55-3	
Benzo(a)pyrene	**368J**	ug/kg	476	54.1	20	10/20/21 06:47	10/20/21 18:03	50-32-8	
Benzo(b)fluoranthene	**541**	ug/kg	476	66.1	20	10/20/21 06:47	10/20/21 18:03	205-99-2	
Benzo(g,h,i)perylene	**146J**	ug/kg	476	83.5	20	10/20/21 06:47	10/20/21 18:03	191-24-2	
Benzo(k)fluoranthene	**183J**	ug/kg	476	60.8	20	10/20/21 06:47	10/20/21 18:03	207-08-9	
Chrysene	**587**	ug/kg	476	89.8	20	10/20/21 06:47	10/20/21 18:03	218-01-9	
Dibenz(a,h)anthracene	**<65.9**	ug/kg	476	65.9	20	10/20/21 06:47	10/20/21 18:03	53-70-3	
Fluoranthene	**1250**	ug/kg	476	56.3	20	10/20/21 06:47	10/20/21 18:03	206-44-0	
Fluorene	**937**	ug/kg	476	57.1	20	10/20/21 06:47	10/20/21 18:03	86-73-7	
Indeno(1,2,3-cd)pyrene	**123J**	ug/kg	476	99.2	20	10/20/21 06:47	10/20/21 18:03	193-39-5	
1-Methylnaphthalene	**8580**	ug/kg	476	69.5	20	10/20/21 06:47	10/20/21 18:03	90-12-0	
2-Methylnaphthalene	**13000**	ug/kg	476	69.6	20	10/20/21 06:47	10/20/21 18:03	91-57-6	
Naphthalene	**14400**	ug/kg	476	46.4	20	10/20/21 06:47	10/20/21 18:03	91-20-3	
Phenanthrene	**2140**	ug/kg	476	54.5	20	10/20/21 06:47	10/20/21 18:03	85-01-8	
Pyrene	**1470**	ug/kg	476	69.9	20	10/20/21 06:47	10/20/21 18:03	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	56	%	36-86		20	10/20/21 06:47	10/20/21 18:03	321-60-8	
Terphenyl-d14 (S)	70	%	41-97		20	10/20/21 06:47	10/20/21 18:03	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**45.8**	ug/kg	37.0	22.0	1	10/21/21 08:15	10/22/21 16:05	71-43-2	
Bromobenzene	**<36.0**	ug/kg	92.4	36.0	1	10/21/21 08:15	10/22/21 16:05	108-86-1	
Bromochloromethane	**<25.3**	ug/kg	92.4	25.3	1	10/21/21 08:15	10/22/21 16:05	74-97-5	
Bromodichloromethane	**<22.0**	ug/kg	92.4	22.0	1	10/21/21 08:15	10/22/21 16:05	75-27-4	
Bromoform	**<407**	ug/kg	462	407	1	10/21/21 08:15	10/22/21 16:05	75-25-2	
Bromomethane	**<130**	ug/kg	462	130	1	10/21/21 08:15	10/22/21 16:05	74-83-9	
n-Butylbenzene	**1010**	ug/kg	92.4	42.3	1	10/21/21 08:15	10/22/21 16:05	104-51-8	
sec-Butylbenzene	**198**	ug/kg	92.4	22.5	1	10/21/21 08:15	10/22/21 16:05	135-98-8	
tert-Butylbenzene	**34.8J**	ug/kg	92.4	29.0	1	10/21/21 08:15	10/22/21 16:05	98-06-6	
Carbon tetrachloride	**<20.3**	ug/kg	92.4	20.3	1	10/21/21 08:15	10/22/21 16:05	56-23-5	
Chlorobenzene	**23.0J**	ug/kg	92.4	11.1	1	10/21/21 08:15	10/22/21 16:05	108-90-7	
Chloroethane	**<39.0**	ug/kg	462	39.0	1	10/21/21 08:15	10/22/21 16:05	75-00-3	
Chloroform	**<66.2**	ug/kg	462	66.2	1	10/21/21 08:15	10/22/21 16:05	67-66-3	
Chloromethane	**<35.1**	ug/kg	92.4	35.1	1	10/21/21 08:15	10/22/21 16:05	74-87-3	
2-Chlorotoluene	**<29.9**	ug/kg	92.4	29.9	1	10/21/21 08:15	10/22/21 16:05	95-49-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-8 (7-8) **Lab ID: 40235057011** Collected: 10/13/21 13:10 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
4-Chlorotoluene	**<35.1**	ug/kg	92.4	35.1	1	10/21/21 08:15	10/22/21 16:05	106-43-4	
1,2-Dibromo-3-chloropropane	**<71.7**	ug/kg	462	71.7	1	10/21/21 08:15	10/22/21 16:05	96-12-8	
Dibromochloromethane	**<316**	ug/kg	462	316	1	10/21/21 08:15	10/22/21 16:05	124-48-1	
1,2-Dibromoethane (EDB)	**<25.3**	ug/kg	92.4	25.3	1	10/21/21 08:15	10/22/21 16:05	106-93-4	
Dibromomethane	**<27.4**	ug/kg	92.4	27.4	1	10/21/21 08:15	10/22/21 16:05	74-95-3	
1,2-Dichlorobenzene	**<28.6**	ug/kg	92.4	28.6	1	10/21/21 08:15	10/22/21 16:05	95-50-1	
1,3-Dichlorobenzene	**<25.3**	ug/kg	92.4	25.3	1	10/21/21 08:15	10/22/21 16:05	541-73-1	
1,4-Dichlorobenzene	**<25.3**	ug/kg	92.4	25.3	1	10/21/21 08:15	10/22/21 16:05	106-46-7	
Dichlorodifluoromethane	**<39.7**	ug/kg	92.4	39.7	1	10/21/21 08:15	10/22/21 16:05	75-71-8	
1,1-Dichloroethane	**<23.7**	ug/kg	92.4	23.7	1	10/21/21 08:15	10/22/21 16:05	75-34-3	
1,2-Dichloroethane	**<21.3**	ug/kg	92.4	21.3	1	10/21/21 08:15	10/22/21 16:05	107-06-2	
1,1-Dichloroethene	**<30.7**	ug/kg	92.4	30.7	1	10/21/21 08:15	10/22/21 16:05	75-35-4	
cis-1,2-Dichloroethene	**<19.8**	ug/kg	92.4	19.8	1	10/21/21 08:15	10/22/21 16:05	156-59-2	
trans-1,2-Dichloroethene	**<20.0**	ug/kg	92.4	20.0	1	10/21/21 08:15	10/22/21 16:05	156-60-5	
1,2-Dichloropropane	**<22.0**	ug/kg	92.4	22.0	1	10/21/21 08:15	10/22/21 16:05	78-87-5	
1,3-Dichloropropane	**<20.1**	ug/kg	92.4	20.1	1	10/21/21 08:15	10/22/21 16:05	142-28-9	
2,2-Dichloropropane	**<25.0**	ug/kg	92.4	25.0	1	10/21/21 08:15	10/22/21 16:05	594-20-7	
1,1-Dichloropropene	**<29.9**	ug/kg	92.4	29.9	1	10/21/21 08:15	10/22/21 16:05	563-58-6	
cis-1,3-Dichloropropene	**<61.0**	ug/kg	462	61.0	1	10/21/21 08:15	10/22/21 16:05	10061-01-5	
trans-1,3-Dichloropropene	**<264**	ug/kg	462	264	1	10/21/21 08:15	10/22/21 16:05	10061-02-6	
Diisopropyl ether	**<22.9**	ug/kg	92.4	22.9	1	10/21/21 08:15	10/22/21 16:05	108-20-3	
Ethylbenzene	**110**	ug/kg	92.4	22.0	1	10/21/21 08:15	10/22/21 16:05	100-41-4	
Hexachloro-1,3-butadiene	**<184**	ug/kg	462	184	1	10/21/21 08:15	10/22/21 16:05	87-68-3	
Isopropylbenzene (Cumene)	**379**	ug/kg	92.4	25.0	1	10/21/21 08:15	10/22/21 16:05	98-82-8	
p-Isopropyltoluene	**164**	ug/kg	92.4	28.1	1	10/21/21 08:15	10/22/21 16:05	99-87-6	
Methylene Chloride	**<25.7**	ug/kg	92.4	25.7	1	10/21/21 08:15	10/22/21 16:05	75-09-2	
Methyl-tert-butyl ether	**<27.2**	ug/kg	92.4	27.2	1	10/21/21 08:15	10/22/21 16:05	1634-04-4	
Naphthalene	**4840**	ug/kg	462	28.8	1	10/21/21 08:15	10/22/21 16:05	91-20-3	
n-Propylbenzene	**137**	ug/kg	92.4	22.2	1	10/21/21 08:15	10/22/21 16:05	103-65-1	
Styrene	**<23.7**	ug/kg	92.4	23.7	1	10/21/21 08:15	10/22/21 16:05	100-42-5	
1,1,1,2-Tetrachloroethane	**<22.2**	ug/kg	92.4	22.2	1	10/21/21 08:15	10/22/21 16:05	630-20-6	
1,1,2,2-Tetrachloroethane	**<33.5**	ug/kg	92.4	33.5	1	10/21/21 08:15	10/22/21 16:05	79-34-5	
Tetrachloroethene	**<35.9**	ug/kg	92.4	35.9	1	10/21/21 08:15	10/22/21 16:05	127-18-4	
Toluene	**146**	ug/kg	92.4	23.3	1	10/21/21 08:15	10/22/21 16:05	108-88-3	
1,2,3-Trichlorobenzene	**<103**	ug/kg	462	103	1	10/21/21 08:15	10/22/21 16:05	87-61-6	
1,2,4-Trichlorobenzene	**<76.1**	ug/kg	462	76.1	1	10/21/21 08:15	10/22/21 16:05	120-82-1	
1,1,1-Trichloroethane	**<23.7**	ug/kg	92.4	23.7	1	10/21/21 08:15	10/22/21 16:05	71-55-6	
1,1,2-Trichloroethane	**<33.6**	ug/kg	92.4	33.6	1	10/21/21 08:15	10/22/21 16:05	79-00-5	
Trichloroethene	**<34.6**	ug/kg	92.4	34.6	1	10/21/21 08:15	10/22/21 16:05	79-01-6	
Trichlorofluoromethane	**<26.8**	ug/kg	92.4	26.8	1	10/21/21 08:15	10/22/21 16:05	75-69-4	
1,2,3-Trichloropropane	**<44.9**	ug/kg	92.4	44.9	1	10/21/21 08:15	10/22/21 16:05	96-18-4	
1,2,4-Trimethylbenzene	**306**	ug/kg	92.4	27.5	1	10/21/21 08:15	10/22/21 16:05	95-63-6	
1,3,5-Trimethylbenzene	**180**	ug/kg	92.4	29.8	1	10/21/21 08:15	10/22/21 16:05	108-67-8	
Vinyl chloride	**<18.7**	ug/kg	92.4	18.7	1	10/21/21 08:15	10/22/21 16:05	75-01-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-8 (7-8) **Lab ID: 40235057011** Collected: 10/13/21 13:10 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
m&p-Xylene	**71.6J**	ug/kg	185	39.0	1	10/21/21 08:15	10/22/21 16:05	179601-23-1	
o-Xylene	**68.2J**	ug/kg	92.4	27.7	1	10/21/21 08:15	10/22/21 16:05	95-47-6	
Surrogates									
Toluene-d8 (S)	132	%	67-159		1	10/21/21 08:15	10/22/21 16:05	2037-26-5	
4-Bromofluorobenzene (S)	141	%	66-153		1	10/21/21 08:15	10/22/21 16:05	460-00-4	
1,2-Dichlorobenzene-d4 (S)	140	%	82-158		1	10/21/21 08:15	10/22/21 16:05	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**29.8**	%	0.10	0.10	1		10/14/21 13:24		

Sample: GP-9 (1.5-3.5) **Lab ID: 40235057012** Collected: 10/13/21 14:05 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**3.6**	mg/kg	2.4	1.4	1	10/19/21 06:21	10/19/21 22:09	7440-38-2	
Lead	**57.5**	mg/kg	1.9	0.58	1	10/19/21 06:21	10/19/21 22:09	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**17000**	ug/kg	8760	1140	500	10/20/21 06:47	10/20/21 18:20	83-32-9	
Acenaphthylene	**2610J**	ug/kg	8760	1100	500	10/20/21 06:47	10/20/21 18:20	208-96-8	
Anthracene	**63600**	ug/kg	8760	1090	500	10/20/21 06:47	10/20/21 18:20	120-12-7	
Benzo(a)anthracene	**59300**	ug/kg	8760	1130	500	10/20/21 06:47	10/20/21 18:20	56-55-3	
Benzo(a)pyrene	**49600**	ug/kg	8760	995	500	10/20/21 06:47	10/20/21 18:20	50-32-8	
Benzo(b)fluoranthene	**58500**	ug/kg	8760	1220	500	10/20/21 06:47	10/20/21 18:20	205-99-2	
Benzo(g,h,i)perylene	**20900**	ug/kg	8760	1540	500	10/20/21 06:47	10/20/21 18:20	191-24-2	
Benzo(k)fluoranthene	**33200**	ug/kg	8760	1120	500	10/20/21 06:47	10/20/21 18:20	207-08-9	
Chrysene	**56400**	ug/kg	8760	1650	500	10/20/21 06:47	10/20/21 18:20	218-01-9	
Dibenz(a,h)anthracene	**6400J**	ug/kg	8760	1210	500	10/20/21 06:47	10/20/21 18:20	53-70-3	
Fluoranthene	**191000**	ug/kg	8760	1040	500	10/20/21 06:47	10/20/21 18:20	206-44-0	
Fluorene	**35900**	ug/kg	8760	1050	500	10/20/21 06:47	10/20/21 18:20	86-73-7	
Indeno(1,2,3-cd)pyrene	**19100**	ug/kg	8760	1820	500	10/20/21 06:47	10/20/21 18:20	193-39-5	
1-Methylnaphthalene	**8520J**	ug/kg	8760	1280	500	10/20/21 06:47	10/20/21 18:20	90-12-0	
2-Methylnaphthalene	**12300**	ug/kg	8760	1280	500	10/20/21 06:47	10/20/21 18:20	91-57-6	
Naphthalene	**34100**	ug/kg	8760	853	500	10/20/21 06:47	10/20/21 18:20	91-20-3	
Phenanthrene	**184000**	ug/kg	8760	1000	500	10/20/21 06:47	10/20/21 18:20	85-01-8	
Pyrene	**117000**	ug/kg	8760	1290	500	10/20/21 06:47	10/20/21 18:20	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	0	%	36-86		500	10/20/21 06:47	10/20/21 18:20	321-60-8	S4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-9 (1.5-3.5) **Lab ID: 40235057012** Collected: 10/13/21 14:05 Received: 10/13/21 16:40 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
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Surrogates									
Terphenyl-d14 (S)	0	%	41-97		500	10/20/21 06:47	10/20/21 18:20	1718-51-0	S4
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<13.1**	ug/kg	22.0	13.1	1	10/21/21 08:15	10/22/21 18:57	71-43-2	
Bromobenzene	**<21.4**	ug/kg	54.9	21.4	1	10/21/21 08:15	10/22/21 18:57	108-86-1	
Bromochloromethane	**<15.0**	ug/kg	54.9	15.0	1	10/21/21 08:15	10/22/21 18:57	74-97-5	
Bromodichloromethane	**<13.1**	ug/kg	54.9	13.1	1	10/21/21 08:15	10/22/21 18:57	75-27-4	
Bromoform	**<242**	ug/kg	274	242	1	10/21/21 08:15	10/22/21 18:57	75-25-2	
Bromomethane	**<77.0**	ug/kg	274	77.0	1	10/21/21 08:15	10/22/21 18:57	74-83-9	
n-Butylbenzene	**<25.1**	ug/kg	54.9	25.1	1	10/21/21 08:15	10/22/21 18:57	104-51-8	
sec-Butylbenzene	**<13.4**	ug/kg	54.9	13.4	1	10/21/21 08:15	10/22/21 18:57	135-98-8	
tert-Butylbenzene	**<17.2**	ug/kg	54.9	17.2	1	10/21/21 08:15	10/22/21 18:57	98-06-6	
Carbon tetrachloride	**<12.1**	ug/kg	54.9	12.1	1	10/21/21 08:15	10/22/21 18:57	56-23-5	
Chlorobenzene	**<6.6**	ug/kg	54.9	6.6	1	10/21/21 08:15	10/22/21 18:57	108-90-7	
Chloroethane	**<23.2**	ug/kg	274	23.2	1	10/21/21 08:15	10/22/21 18:57	75-00-3	
Chloroform	**<39.3**	ug/kg	274	39.3	1	10/21/21 08:15	10/22/21 18:57	67-66-3	
Chloromethane	**<20.9**	ug/kg	54.9	20.9	1	10/21/21 08:15	10/22/21 18:57	74-87-3	
2-Chlorotoluene	**<17.8**	ug/kg	54.9	17.8	1	10/21/21 08:15	10/22/21 18:57	95-49-8	
4-Chlorotoluene	**<20.9**	ug/kg	54.9	20.9	1	10/21/21 08:15	10/22/21 18:57	106-43-4	
1,2-Dibromo-3-chloropropane	**<42.6**	ug/kg	274	42.6	1	10/21/21 08:15	10/22/21 18:57	96-12-8	
Dibromochloromethane	**<188**	ug/kg	274	188	1	10/21/21 08:15	10/22/21 18:57	124-48-1	
1,2-Dibromoethane (EDB)	**<15.0**	ug/kg	54.9	15.0	1	10/21/21 08:15	10/22/21 18:57	106-93-4	
Dibromomethane	**<16.2**	ug/kg	54.9	16.2	1	10/21/21 08:15	10/22/21 18:57	74-95-3	
1,2-Dichlorobenzene	**<17.0**	ug/kg	54.9	17.0	1	10/21/21 08:15	10/22/21 18:57	95-50-1	
1,3-Dichlorobenzene	**<15.0**	ug/kg	54.9	15.0	1	10/21/21 08:15	10/22/21 18:57	541-73-1	
1,4-Dichlorobenzene	**<15.0**	ug/kg	54.9	15.0	1	10/21/21 08:15	10/22/21 18:57	106-46-7	
Dichlorodifluoromethane	**<23.6**	ug/kg	54.9	23.6	1	10/21/21 08:15	10/22/21 18:57	75-71-8	
1,1-Dichloroethane	**<14.1**	ug/kg	54.9	14.1	1	10/21/21 08:15	10/22/21 18:57	75-34-3	
1,2-Dichloroethane	**<12.6**	ug/kg	54.9	12.6	1	10/21/21 08:15	10/22/21 18:57	107-06-2	
1,1-Dichloroethene	**<18.2**	ug/kg	54.9	18.2	1	10/21/21 08:15	10/22/21 18:57	75-35-4	
cis-1,2-Dichloroethene	**<11.7**	ug/kg	54.9	11.7	1	10/21/21 08:15	10/22/21 18:57	156-59-2	
trans-1,2-Dichloroethene	**<11.9**	ug/kg	54.9	11.9	1	10/21/21 08:15	10/22/21 18:57	156-60-5	
1,2-Dichloropropane	**<13.1**	ug/kg	54.9	13.1	1	10/21/21 08:15	10/22/21 18:57	78-87-5	
1,3-Dichloropropane	**<12.0**	ug/kg	54.9	12.0	1	10/21/21 08:15	10/22/21 18:57	142-28-9	
2,2-Dichloropropane	**<14.8**	ug/kg	54.9	14.8	1	10/21/21 08:15	10/22/21 18:57	594-20-7	
1,1-Dichloropropene	**<17.8**	ug/kg	54.9	17.8	1	10/21/21 08:15	10/22/21 18:57	563-58-6	
cis-1,3-Dichloropropene	**<36.2**	ug/kg	274	36.2	1	10/21/21 08:15	10/22/21 18:57	10061-01-5	
trans-1,3-Dichloropropene	**<157**	ug/kg	274	157	1	10/21/21 08:15	10/22/21 18:57	10061-02-6	
Diisopropyl ether	**<13.6**	ug/kg	54.9	13.6	1	10/21/21 08:15	10/22/21 18:57	108-20-3	
Ethylbenzene	**<13.1**	ug/kg	54.9	13.1	1	10/21/21 08:15	10/22/21 18:57	100-41-4	
Hexachloro-1,3-butadiene	**<109**	ug/kg	274	109	1	10/21/21 08:15	10/22/21 18:57	87-68-3	
Isopropylbenzene (Cumene)	**<14.8**	ug/kg	54.9	14.8	1	10/21/21 08:15	10/22/21 18:57	98-82-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-9 (1.5-3.5) **Lab ID: 40235057012** Collected: 10/13/21 14:05 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
p-Isopropyltoluene	**<16.7**	ug/kg	54.9	16.7	1	10/21/21 08:15	10/22/21 18:57	99-87-6	
Methylene Chloride	**<15.3**	ug/kg	54.9	15.3	1	10/21/21 08:15	10/22/21 18:57	75-09-2	
Methyl-tert-butyl ether	**<16.1**	ug/kg	54.9	16.1	1	10/21/21 08:15	10/22/21 18:57	1634-04-4	
Naphthalene	**611**	ug/kg	274	17.1	1	10/21/21 08:15	10/22/21 18:57	91-20-3	
n-Propylbenzene	**<13.2**	ug/kg	54.9	13.2	1	10/21/21 08:15	10/22/21 18:57	103-65-1	
Styrene	**<14.1**	ug/kg	54.9	14.1	1	10/21/21 08:15	10/22/21 18:57	100-42-5	
1,1,1,2-Tetrachloroethane	**<13.2**	ug/kg	54.9	13.2	1	10/21/21 08:15	10/22/21 18:57	630-20-6	
1,1,2,2-Tetrachloroethane	**<19.9**	ug/kg	54.9	19.9	1	10/21/21 08:15	10/22/21 18:57	79-34-5	
Tetrachloroethene	**<21.3**	ug/kg	54.9	21.3	1	10/21/21 08:15	10/22/21 18:57	127-18-4	
Toluene	**<13.8**	ug/kg	54.9	13.8	1	10/21/21 08:15	10/22/21 18:57	108-88-3	
1,2,3-Trichlorobenzene	**<61.2**	ug/kg	274	61.2	1	10/21/21 08:15	10/22/21 18:57	87-61-6	
1,2,4-Trichlorobenzene	**<45.2**	ug/kg	274	45.2	1	10/21/21 08:15	10/22/21 18:57	120-82-1	
1,1,1-Trichloroethane	**<14.1**	ug/kg	54.9	14.1	1	10/21/21 08:15	10/22/21 18:57	71-55-6	
1,1,2-Trichloroethane	**<20.0**	ug/kg	54.9	20.0	1	10/21/21 08:15	10/22/21 18:57	79-00-5	
Trichloroethene	**<20.5**	ug/kg	54.9	20.5	1	10/21/21 08:15	10/22/21 18:57	79-01-6	
Trichlorofluoromethane	**<15.9**	ug/kg	54.9	15.9	1	10/21/21 08:15	10/22/21 18:57	75-69-4	
1,2,3-Trichloropropane	**<26.7**	ug/kg	54.9	26.7	1	10/21/21 08:15	10/22/21 18:57	96-18-4	
1,2,4-Trimethylbenzene	**<16.4**	ug/kg	54.9	16.4	1	10/21/21 08:15	10/22/21 18:57	95-63-6	
1,3,5-Trimethylbenzene	**<17.7**	ug/kg	54.9	17.7	1	10/21/21 08:15	10/22/21 18:57	108-67-8	
Vinyl chloride	**<11.1**	ug/kg	54.9	11.1	1	10/21/21 08:15	10/22/21 18:57	75-01-4	
m&p-Xylene	**<23.2**	ug/kg	110	23.2	1	10/21/21 08:15	10/22/21 18:57	179601-23-1	
o-Xylene	**<16.5**	ug/kg	54.9	16.5	1	10/21/21 08:15	10/22/21 18:57	95-47-6	
Surrogates									
Toluene-d8 (S)	109	%	67-159		1	10/21/21 08:15	10/22/21 18:57	2037-26-5	
4-Bromofluorobenzene (S)	115	%	66-153		1	10/21/21 08:15	10/22/21 18:57	460-00-4	
1,2-Dichlorobenzene-d4 (S)	108	%	82-158		1	10/21/21 08:15	10/22/21 18:57	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.7**	%	0.10	0.10	1		10/14/21 13:25		

Sample: GP-9 (5.5-7.5) **Lab ID: 40235057013** Collected: 10/13/21 14:10 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**3.4**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 22:11	7440-38-2	
Lead	**56.5**	mg/kg	2.1	0.62	1	10/19/21 06:21	10/19/21 22:11	7439-92-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-9 (5.5-7.5) **Lab ID: 40235057013** Collected: 10/13/21 14:10 Received: 10/13/21 16:40 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
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**154J**	ug/kg	361	46.8	20	10/20/21 06:47	10/20/21 18:37	83-32-9	
Acenaphthylene	**122J**	ug/kg	361	45.5	20	10/20/21 06:47	10/20/21 18:37	208-96-8	
Anthracene	**301J**	ug/kg	361	44.8	20	10/20/21 06:47	10/20/21 18:37	120-12-7	
Benzo(a)anthracene	**861**	ug/kg	361	46.6	20	10/20/21 06:47	10/20/21 18:37	56-55-3	
Benzo(a)pyrene	**773**	ug/kg	361	41.0	20	10/20/21 06:47	10/20/21 18:37	50-32-8	
Benzo(b)fluoranthene	**977**	ug/kg	361	50.1	20	10/20/21 06:47	10/20/21 18:37	205-99-2	
Benzo(g,h,i)perylene	**469**	ug/kg	361	63.3	20	10/20/21 06:47	10/20/21 18:37	191-24-2	
Benzo(k)fluoranthene	**324J**	ug/kg	361	46.1	20	10/20/21 06:47	10/20/21 18:37	207-08-9	
Chrysene	**926**	ug/kg	361	68.0	20	10/20/21 06:47	10/20/21 18:37	218-01-9	
Dibenz(a,h)anthracene	**100J**	ug/kg	361	49.9	20	10/20/21 06:47	10/20/21 18:37	53-70-3	
Fluoranthene	**1390**	ug/kg	361	42.7	20	10/20/21 06:47	10/20/21 18:37	206-44-0	
Fluorene	**236J**	ug/kg	361	43.2	20	10/20/21 06:47	10/20/21 18:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**345J**	ug/kg	361	75.2	20	10/20/21 06:47	10/20/21 18:37	193-39-5	
1-Methylnaphthalene	**124J**	ug/kg	361	52.7	20	10/20/21 06:47	10/20/21 18:37	90-12-0	
2-Methylnaphthalene	**150J**	ug/kg	361	52.8	20	10/20/21 06:47	10/20/21 18:37	91-57-6	
Naphthalene	**118J**	ug/kg	361	35.1	20	10/20/21 06:47	10/20/21 18:37	91-20-3	
Phenanthrene	**1800**	ug/kg	361	41.3	20	10/20/21 06:47	10/20/21 18:37	85-01-8	
Pyrene	**3890**	ug/kg	361	53.0	20	10/20/21 06:47	10/20/21 18:37	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	53	%	36-86		20	10/20/21 06:47	10/20/21 18:37	321-60-8	
Terphenyl-d14 (S)	59	%	41-97		20	10/20/21 06:47	10/20/21 18:37	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**14.9J**	ug/kg	23.3	13.8	1	10/21/21 08:15	10/22/21 08:56	71-43-2	
Bromobenzene	**<22.7**	ug/kg	58.2	22.7	1	10/21/21 08:15	10/22/21 08:56	108-86-1	
Bromochloromethane	**<15.9**	ug/kg	58.2	15.9	1	10/21/21 08:15	10/22/21 08:56	74-97-5	
Bromodichloromethane	**<13.8**	ug/kg	58.2	13.8	1	10/21/21 08:15	10/22/21 08:56	75-27-4	
Bromoform	**<256**	ug/kg	291	256	1	10/21/21 08:15	10/22/21 08:56	75-25-2	
Bromomethane	**<81.6**	ug/kg	291	81.6	1	10/21/21 08:15	10/22/21 08:56	74-83-9	
n-Butylbenzene	**<26.7**	ug/kg	58.2	26.7	1	10/21/21 08:15	10/22/21 08:56	104-51-8	
sec-Butylbenzene	**<14.2**	ug/kg	58.2	14.2	1	10/21/21 08:15	10/22/21 08:56	135-98-8	
tert-Butylbenzene	**<18.3**	ug/kg	58.2	18.3	1	10/21/21 08:15	10/22/21 08:56	98-06-6	
Carbon tetrachloride	**<12.8**	ug/kg	58.2	12.8	1	10/21/21 08:15	10/22/21 08:56	56-23-5	
Chlorobenzene	**<7.0**	ug/kg	58.2	7.0	1	10/21/21 08:15	10/22/21 08:56	108-90-7	
Chloroethane	**<24.6**	ug/kg	291	24.6	1	10/21/21 08:15	10/22/21 08:56	75-00-3	
Chloroform	**<41.7**	ug/kg	291	41.7	1	10/21/21 08:15	10/22/21 08:56	67-66-3	
Chloromethane	**<22.1**	ug/kg	58.2	22.1	1	10/21/21 08:15	10/22/21 08:56	74-87-3	
2-Chlorotoluene	**<18.9**	ug/kg	58.2	18.9	1	10/21/21 08:15	10/22/21 08:56	95-49-8	
4-Chlorotoluene	**<22.1**	ug/kg	58.2	22.1	1	10/21/21 08:15	10/22/21 08:56	106-43-4	
1,2-Dibromo-3-chloropropane	**<45.2**	ug/kg	291	45.2	1	10/21/21 08:15	10/22/21 08:56	96-12-8	
Dibromochloromethane	**<199**	ug/kg	291	199	1	10/21/21 08:15	10/22/21 08:56	124-48-1	
1,2-Dibromoethane (EDB)	**<15.9**	ug/kg	58.2	15.9	1	10/21/21 08:15	10/22/21 08:56	106-93-4	
Dibromomethane	**<17.2**	ug/kg	58.2	17.2	1	10/21/21 08:15	10/22/21 08:56	74-95-3	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-9 (5.5-7.5) **Lab ID: 40235057013** Collected: 10/13/21 14:10 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
1,2-Dichlorobenzene	**<18.0**	ug/kg	58.2	18.0	1	10/21/21 08:15	10/22/21 08:56	95-50-1	
1,3-Dichlorobenzene	**<15.9**	ug/kg	58.2	15.9	1	10/21/21 08:15	10/22/21 08:56	541-73-1	
1,4-Dichlorobenzene	**<15.9**	ug/kg	58.2	15.9	1	10/21/21 08:15	10/22/21 08:56	106-46-7	
Dichlorodifluoromethane	**<25.0**	ug/kg	58.2	25.0	1	10/21/21 08:15	10/22/21 08:56	75-71-8	
1,1-Dichloroethane	**<14.9**	ug/kg	58.2	14.9	1	10/21/21 08:15	10/22/21 08:56	75-34-3	
1,2-Dichloroethane	**<13.4**	ug/kg	58.2	13.4	1	10/21/21 08:15	10/22/21 08:56	107-06-2	
1,1-Dichloroethene	**<19.3**	ug/kg	58.2	19.3	1	10/21/21 08:15	10/22/21 08:56	75-35-4	
cis-1,2-Dichloroethene	**<12.5**	ug/kg	58.2	12.5	1	10/21/21 08:15	10/22/21 08:56	156-59-2	
trans-1,2-Dichloroethene	**<12.6**	ug/kg	58.2	12.6	1	10/21/21 08:15	10/22/21 08:56	156-60-5	
1,2-Dichloropropane	**<13.8**	ug/kg	58.2	13.8	1	10/21/21 08:15	10/22/21 08:56	78-87-5	
1,3-Dichloropropane	**<12.7**	ug/kg	58.2	12.7	1	10/21/21 08:15	10/22/21 08:56	142-28-9	
2,2-Dichloropropane	**<15.7**	ug/kg	58.2	15.7	1	10/21/21 08:15	10/22/21 08:56	594-20-7	
1,1-Dichloropropene	**<18.9**	ug/kg	58.2	18.9	1	10/21/21 08:15	10/22/21 08:56	563-58-6	
cis-1,3-Dichloropropene	**<38.4**	ug/kg	291	38.4	1	10/21/21 08:15	10/22/21 08:56	10061-01-5	
trans-1,3-Dichloropropene	**<166**	ug/kg	291	166	1	10/21/21 08:15	10/22/21 08:56	10061-02-6	
Diisopropyl ether	**<14.4**	ug/kg	58.2	14.4	1	10/21/21 08:15	10/22/21 08:56	108-20-3	
Ethylbenzene	**<13.8**	ug/kg	58.2	13.8	1	10/21/21 08:15	10/22/21 08:56	100-41-4	
Hexachloro-1,3-butadiene	**<116**	ug/kg	291	116	1	10/21/21 08:15	10/22/21 08:56	87-68-3	
Isopropylbenzene (Cumene)	**<15.7**	ug/kg	58.2	15.7	1	10/21/21 08:15	10/22/21 08:56	98-82-8	
p-Isopropyltoluene	**<17.7**	ug/kg	58.2	17.7	1	10/21/21 08:15	10/22/21 08:56	99-87-6	
Methylene Chloride	**<16.2**	ug/kg	58.2	16.2	1	10/21/21 08:15	10/22/21 08:56	75-09-2	
Methyl-tert-butyl ether	**<17.1**	ug/kg	58.2	17.1	1	10/21/21 08:15	10/22/21 08:56	1634-04-4	
Naphthalene	**136J**	ug/kg	291	18.2	1	10/21/21 08:15	10/22/21 08:56	91-20-3	
n-Propylbenzene	**<14.0**	ug/kg	58.2	14.0	1	10/21/21 08:15	10/22/21 08:56	103-65-1	
Styrene	**<14.9**	ug/kg	58.2	14.9	1	10/21/21 08:15	10/22/21 08:56	100-42-5	
1,1,1,2-Tetrachloroethane	**<14.0**	ug/kg	58.2	14.0	1	10/21/21 08:15	10/22/21 08:56	630-20-6	
1,1,2,2-Tetrachloroethane	**<21.1**	ug/kg	58.2	21.1	1	10/21/21 08:15	10/22/21 08:56	79-34-5	
Tetrachloroethene	**<22.6**	ug/kg	58.2	22.6	1	10/21/21 08:15	10/22/21 08:56	127-18-4	
Toluene	**34.8J**	ug/kg	58.2	14.7	1	10/21/21 08:15	10/22/21 08:56	108-88-3	
1,2,3-Trichlorobenzene	**<64.8**	ug/kg	291	64.8	1	10/21/21 08:15	10/22/21 08:56	87-61-6	
1,2,4-Trichlorobenzene	**<47.9**	ug/kg	291	47.9	1	10/21/21 08:15	10/22/21 08:56	120-82-1	
1,1,1-Trichloroethane	**<14.9**	ug/kg	58.2	14.9	1	10/21/21 08:15	10/22/21 08:56	71-55-6	
1,1,2-Trichloroethane	**<21.2**	ug/kg	58.2	21.2	1	10/21/21 08:15	10/22/21 08:56	79-00-5	
Trichloroethene	**<21.8**	ug/kg	58.2	21.8	1	10/21/21 08:15	10/22/21 08:56	79-01-6	
Trichlorofluoromethane	**<16.9**	ug/kg	58.2	16.9	1	10/21/21 08:15	10/22/21 08:56	75-69-4	
1,2,3-Trichloropropane	**<28.3**	ug/kg	58.2	28.3	1	10/21/21 08:15	10/22/21 08:56	96-18-4	
1,2,4-Trimethylbenzene	**21.0J**	ug/kg	58.2	17.3	1	10/21/21 08:15	10/22/21 08:56	95-63-6	
1,3,5-Trimethylbenzene	**<18.7**	ug/kg	58.2	18.7	1	10/21/21 08:15	10/22/21 08:56	108-67-8	
Vinyl chloride	**<11.8**	ug/kg	58.2	11.8	1	10/21/21 08:15	10/22/21 08:56	75-01-4	
m&p-Xylene	**27.7J**	ug/kg	116	24.6	1	10/21/21 08:15	10/22/21 08:56	179601-23-1	
o-Xylene	**<17.5**	ug/kg	58.2	17.5	1	10/21/21 08:15	10/22/21 08:56	95-47-6	
Surrogates									
Toluene-d8 (S)	118	%	67-159		1	10/21/21 08:15	10/22/21 08:56	2037-26-5	
4-Bromofluorobenzene (S)	134	%	66-153		1	10/21/21 08:15	10/22/21 08:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-9 (5.5-7.5) **Lab ID: 40235057013** Collected: 10/13/21 14:10 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Surrogates									
1,2-Dichlorobenzene-d4 (S)	124	%	82-158		1	10/21/21 08:15	10/22/21 08:56	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**7.6**	%	0.10	0.10	1		10/14/21 13:25		

Sample: GP-10 (2-4) **Lab ID: 40235057014** Collected: 10/13/21 14:40 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**14.0**	mg/kg	3.4	2.0	1	10/19/21 06:21	10/19/21 22:14	7440-38-2	
Lead	**211**	mg/kg	2.7	0.81	1	10/19/21 06:21	10/19/21 22:14	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**2930J**	ug/kg	9660	1250	400	10/20/21 06:47	10/20/21 18:54	83-32-9	
Acenaphthylene	**3570J**	ug/kg	9660	1220	400	10/20/21 06:47	10/20/21 18:54	208-96-8	
Anthracene	**14300**	ug/kg	9660	1200	400	10/20/21 06:47	10/20/21 18:54	120-12-7	
Benzo(a)anthracene	**26100**	ug/kg	9660	1250	400	10/20/21 06:47	10/20/21 18:54	56-55-3	
Benzo(a)pyrene	**19700**	ug/kg	9660	1100	400	10/20/21 06:47	10/20/21 18:54	50-32-8	
Benzo(b)fluoranthene	**29300**	ug/kg	9660	1340	400	10/20/21 06:47	10/20/21 18:54	205-99-2	
Benzo(g,h,i)perylene	**7530J**	ug/kg	9660	1700	400	10/20/21 06:47	10/20/21 18:54	191-24-2	
Benzo(k)fluoranthene	**14300**	ug/kg	9660	1230	400	10/20/21 06:47	10/20/21 18:54	207-08-9	
Chrysene	**28600**	ug/kg	9660	1820	400	10/20/21 06:47	10/20/21 18:54	218-01-9	
Dibenz(a,h)anthracene	**2910J**	ug/kg	9660	1340	400	10/20/21 06:47	10/20/21 18:54	53-70-3	
Fluoranthene	**65400**	ug/kg	9660	1140	400	10/20/21 06:47	10/20/21 18:54	206-44-0	
Fluorene	**13200**	ug/kg	9660	1160	400	10/20/21 06:47	10/20/21 18:54	86-73-7	
Indeno(1,2,3-cd)pyrene	**7440J**	ug/kg	9660	2010	400	10/20/21 06:47	10/20/21 18:54	193-39-5	
1-Methylnaphthalene	**2360J**	ug/kg	9660	1410	400	10/20/21 06:47	10/20/21 18:54	90-12-0	
2-Methylnaphthalene	**3090J**	ug/kg	9660	1410	400	10/20/21 06:47	10/20/21 18:54	91-57-6	
Naphthalene	**5310J**	ug/kg	9660	941	400	10/20/21 06:47	10/20/21 18:54	91-20-3	
Phenanthrene	**71600**	ug/kg	9660	1110	400	10/20/21 06:47	10/20/21 18:54	85-01-8	
Pyrene	**41500**	ug/kg	9660	1420	400	10/20/21 06:47	10/20/21 18:54	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	0	%	36-86		400	10/20/21 06:47	10/20/21 18:54	321-60-8	S4
Terphenyl-d14 (S)	0	%	41-97		400	10/20/21 06:47	10/20/21 18:54	1718-51-0	S4

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-10 (2-4) **Lab ID: 40235057014** Collected: 10/13/21 14:40 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<22.8**	ug/kg	38.3	22.8	1	10/21/21 08:15	10/22/21 18:37	71-43-2	
Bromobenzene	**<37.4**	ug/kg	95.9	37.4	1	10/21/21 08:15	10/22/21 18:37	108-86-1	
Bromochloromethane	**<26.3**	ug/kg	95.9	26.3	1	10/21/21 08:15	10/22/21 18:37	74-97-5	
Bromodichloromethane	**<22.8**	ug/kg	95.9	22.8	1	10/21/21 08:15	10/22/21 18:37	75-27-4	
Bromoform	**<422**	ug/kg	479	422	1	10/21/21 08:15	10/22/21 18:37	75-25-2	
Bromomethane	**<134**	ug/kg	479	134	1	10/21/21 08:15	10/22/21 18:37	74-83-9	
n-Butylbenzene	**<43.9**	ug/kg	95.9	43.9	1	10/21/21 08:15	10/22/21 18:37	104-51-8	
sec-Butylbenzene	**<23.4**	ug/kg	95.9	23.4	1	10/21/21 08:15	10/22/21 18:37	135-98-8	
tert-Butylbenzene	**<30.1**	ug/kg	95.9	30.1	1	10/21/21 08:15	10/22/21 18:37	98-06-6	
Carbon tetrachloride	**<21.1**	ug/kg	95.9	21.1	1	10/21/21 08:15	10/22/21 18:37	56-23-5	
Chlorobenzene	**<11.5**	ug/kg	95.9	11.5	1	10/21/21 08:15	10/22/21 18:37	108-90-7	
Chloroethane	**<40.5**	ug/kg	479	40.5	1	10/21/21 08:15	10/22/21 18:37	75-00-3	
Chloroform	**<68.6**	ug/kg	479	68.6	1	10/21/21 08:15	10/22/21 18:37	67-66-3	
Chloromethane	**<36.4**	ug/kg	95.9	36.4	1	10/21/21 08:15	10/22/21 18:37	74-87-3	
2-Chlorotoluene	**<31.1**	ug/kg	95.9	31.1	1	10/21/21 08:15	10/22/21 18:37	95-49-8	
4-Chlorotoluene	**<36.4**	ug/kg	95.9	36.4	1	10/21/21 08:15	10/22/21 18:37	106-43-4	
1,2-Dibromo-3-chloropropane	**<74.4**	ug/kg	479	74.4	1	10/21/21 08:15	10/22/21 18:37	96-12-8	
Dibromochloromethane	**<328**	ug/kg	479	328	1	10/21/21 08:15	10/22/21 18:37	124-48-1	
1,2-Dibromoethane (EDB)	**<26.3**	ug/kg	95.9	26.3	1	10/21/21 08:15	10/22/21 18:37	106-93-4	
Dibromomethane	**<28.4**	ug/kg	95.9	28.4	1	10/21/21 08:15	10/22/21 18:37	74-95-3	
1,2-Dichlorobenzene	**<29.7**	ug/kg	95.9	29.7	1	10/21/21 08:15	10/22/21 18:37	95-50-1	
1,3-Dichlorobenzene	**<26.3**	ug/kg	95.9	26.3	1	10/21/21 08:15	10/22/21 18:37	541-73-1	
1,4-Dichlorobenzene	**<26.3**	ug/kg	95.9	26.3	1	10/21/21 08:15	10/22/21 18:37	106-46-7	
Dichlorodifluoromethane	**<41.2**	ug/kg	95.9	41.2	1	10/21/21 08:15	10/22/21 18:37	75-71-8	
1,1-Dichloroethane	**<24.5**	ug/kg	95.9	24.5	1	10/21/21 08:15	10/22/21 18:37	75-34-3	
1,2-Dichloroethane	**<22.0**	ug/kg	95.9	22.0	1	10/21/21 08:15	10/22/21 18:37	107-06-2	
1,1-Dichloroethene	**<31.8**	ug/kg	95.9	31.8	1	10/21/21 08:15	10/22/21 18:37	75-35-4	
cis-1,2-Dichloroethene	**<20.5**	ug/kg	95.9	20.5	1	10/21/21 08:15	10/22/21 18:37	156-59-2	
trans-1,2-Dichloroethene	**<20.7**	ug/kg	95.9	20.7	1	10/21/21 08:15	10/22/21 18:37	156-60-5	
1,2-Dichloropropane	**<22.8**	ug/kg	95.9	22.8	1	10/21/21 08:15	10/22/21 18:37	78-87-5	
1,3-Dichloropropane	**<20.9**	ug/kg	95.9	20.9	1	10/21/21 08:15	10/22/21 18:37	142-28-9	
2,2-Dichloropropane	**<25.9**	ug/kg	95.9	25.9	1	10/21/21 08:15	10/22/21 18:37	594-20-7	
1,1-Dichloropropene	**<31.1**	ug/kg	95.9	31.1	1	10/21/21 08:15	10/22/21 18:37	563-58-6	
cis-1,3-Dichloropropene	**<63.3**	ug/kg	479	63.3	1	10/21/21 08:15	10/22/21 18:37	10061-01-5	
trans-1,3-Dichloropropene	**<274**	ug/kg	479	274	1	10/21/21 08:15	10/22/21 18:37	10061-02-6	
Diisopropyl ether	**<23.8**	ug/kg	95.9	23.8	1	10/21/21 08:15	10/22/21 18:37	108-20-3	
Ethylbenzene	**28.8J**	ug/kg	95.9	22.8	1	10/21/21 08:15	10/22/21 18:37	100-41-4	
Hexachloro-1,3-butadiene	**<191**	ug/kg	479	191	1	10/21/21 08:15	10/22/21 18:37	87-68-3	
Isopropylbenzene (Cumene)	**<25.9**	ug/kg	95.9	25.9	1	10/21/21 08:15	10/22/21 18:37	98-82-8	
p-Isopropyltoluene	**<29.1**	ug/kg	95.9	29.1	1	10/21/21 08:15	10/22/21 18:37	99-87-6	
Methylene Chloride	**<26.6**	ug/kg	95.9	26.6	1	10/21/21 08:15	10/22/21 18:37	75-09-2	
Methyl-tert-butyl ether	**<28.2**	ug/kg	95.9	28.2	1	10/21/21 08:15	10/22/21 18:37	1634-04-4	
Naphthalene	**66.6J**	ug/kg	479	29.9	1	10/21/21 08:15	10/22/21 18:37	91-20-3	
n-Propylbenzene	**<23.0**	ug/kg	95.9	23.0	1	10/21/21 08:15	10/22/21 18:37	103-65-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-10 (2-4) **Lab ID: 40235057014** Collected: 10/13/21 14:40 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Styrene	**<24.5**	ug/kg	95.9	24.5	1	10/21/21 08:15	10/22/21 18:37	100-42-5	
1,1,1,2-Tetrachloroethane	**<23.0**	ug/kg	95.9	23.0	1	10/21/21 08:15	10/22/21 18:37	630-20-6	
1,1,2,2-Tetrachloroethane	**<34.7**	ug/kg	95.9	34.7	1	10/21/21 08:15	10/22/21 18:37	79-34-5	
Tetrachloroethene	**<37.2**	ug/kg	95.9	37.2	1	10/21/21 08:15	10/22/21 18:37	127-18-4	
Toluene	**36.6J**	ug/kg	95.9	24.2	1	10/21/21 08:15	10/22/21 18:37	108-88-3	
1,2,3-Trichlorobenzene	**<107**	ug/kg	479	107	1	10/21/21 08:15	10/22/21 18:37	87-61-6	
1,2,4-Trichlorobenzene	**<79.0**	ug/kg	479	79.0	1	10/21/21 08:15	10/22/21 18:37	120-82-1	
1,1,1-Trichloroethane	**<24.5**	ug/kg	95.9	24.5	1	10/21/21 08:15	10/22/21 18:37	71-55-6	
1,1,2-Trichloroethane	**<34.9**	ug/kg	95.9	34.9	1	10/21/21 08:15	10/22/21 18:37	79-00-5	
Trichloroethene	**<35.9**	ug/kg	95.9	35.9	1	10/21/21 08:15	10/22/21 18:37	79-01-6	
Trichlorofluoromethane	**<27.8**	ug/kg	95.9	27.8	1	10/21/21 08:15	10/22/21 18:37	75-69-4	
1,2,3-Trichloropropane	**<46.6**	ug/kg	95.9	46.6	1	10/21/21 08:15	10/22/21 18:37	96-18-4	
1,2,4-Trimethylbenzene	**<28.6**	ug/kg	95.9	28.6	1	10/21/21 08:15	10/22/21 18:37	95-63-6	
1,3,5-Trimethylbenzene	**<30.9**	ug/kg	95.9	30.9	1	10/21/21 08:15	10/22/21 18:37	108-67-8	
Vinyl chloride	**<19.4**	ug/kg	95.9	19.4	1	10/21/21 08:15	10/22/21 18:37	75-01-4	
m&p-Xylene	**239**	ug/kg	192	40.5	1	10/21/21 08:15	10/22/21 18:37	179601-23-1	
o-Xylene	**48.7J**	ug/kg	95.9	28.8	1	10/21/21 08:15	10/22/21 18:37	95-47-6	
Surrogates									
Toluene-d8 (S)	105	%	67-159		1	10/21/21 08:15	10/22/21 18:37	2037-26-5	
4-Bromofluorobenzene (S)	106	%	66-153		1	10/21/21 08:15	10/22/21 18:37	460-00-4	
1,2-Dichlorobenzene-d4 (S)	99	%	82-158		1	10/21/21 08:15	10/22/21 18:37	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**30.7**	%	0.10	0.10	1		10/14/21 07:39		

Sample: GP-10 (6.5-8) **Lab ID: 40235057015** Collected: 10/13/21 14:45 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**1.7J**	mg/kg	2.8	1.6	1	10/19/21 06:21	10/19/21 22:16	7440-38-2	
Lead	**2.9**	mg/kg	2.2	0.67	1	10/19/21 06:21	10/19/21 22:16	7439-92-1	
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Acenaphthene	**<2.6**	ug/kg	20.1	2.6	1	10/20/21 06:47	10/20/21 11:28	83-32-9	
Acenaphthylene	**<2.5**	ug/kg	20.1	2.5	1	10/20/21 06:47	10/20/21 11:28	208-96-8	
Anthracene	**<2.5**	ug/kg	20.1	2.5	1	10/20/21 06:47	10/20/21 11:28	120-12-7	
Benzo(a)anthracene	**4.5J**	ug/kg	20.1	2.6	1	10/20/21 06:47	10/20/21 11:28	56-55-3	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-10 (6.5-8) **Lab ID: 40235057015** Collected: 10/13/21 14:45 Received: 10/13/21 16:40 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
8270E MSSV PAH by SIM	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3546 Pace Analytical Services - Green Bay								
Benzo(a)pyrene	**2.6J**	ug/kg	20.1	2.3	1	10/20/21 06:47	10/20/21 11:28	50-32-8	
Benzo(b)fluoranthene	**3.6J**	ug/kg	20.1	2.8	1	10/20/21 06:47	10/20/21 11:28	205-99-2	
Benzo(g,h,i)perylene	**<3.5**	ug/kg	20.1	3.5	1	10/20/21 06:47	10/20/21 11:28	191-24-2	
Benzo(k)fluoranthene	**<2.6**	ug/kg	20.1	2.6	1	10/20/21 06:47	10/20/21 11:28	207-08-9	
Chrysene	**<3.8**	ug/kg	20.1	3.8	1	10/20/21 06:47	10/20/21 11:28	218-01-9	
Dibenz(a,h)anthracene	**<2.8**	ug/kg	20.1	2.8	1	10/20/21 06:47	10/20/21 11:28	53-70-3	
Fluoranthene	**7.2J**	ug/kg	20.1	2.4	1	10/20/21 06:47	10/20/21 11:28	206-44-0	
Fluorene	**<2.4**	ug/kg	20.1	2.4	1	10/20/21 06:47	10/20/21 11:28	86-73-7	
Indeno(1,2,3-cd)pyrene	**<4.2**	ug/kg	20.1	4.2	1	10/20/21 06:47	10/20/21 11:28	193-39-5	
1-Methylnaphthalene	**<2.9**	ug/kg	20.1	2.9	1	10/20/21 06:47	10/20/21 11:28	90-12-0	
2-Methylnaphthalene	**<2.9**	ug/kg	20.1	2.9	1	10/20/21 06:47	10/20/21 11:28	91-57-6	
Naphthalene	**<2.0**	ug/kg	20.1	2.0	1	10/20/21 06:47	10/20/21 11:28	91-20-3	
Phenanthrene	**6.1J**	ug/kg	20.1	2.3	1	10/20/21 06:47	10/20/21 11:28	85-01-8	
Pyrene	**4.5J**	ug/kg	20.1	3.0	1	10/20/21 06:47	10/20/21 11:28	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	70	%	36-86		1	10/20/21 06:47	10/20/21 11:28	321-60-8	
Terphenyl-d14 (S)	65	%	41-97		1	10/20/21 06:47	10/20/21 11:28	1718-51-0	
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
Benzene	**<16.7**	ug/kg	28.1	16.7	1	10/21/21 08:15	10/22/21 11:12	71-43-2	
Bromobenzene	**<27.4**	ug/kg	70.3	27.4	1	10/21/21 08:15	10/22/21 11:12	108-86-1	
Bromochloromethane	**<19.3**	ug/kg	70.3	19.3	1	10/21/21 08:15	10/22/21 11:12	74-97-5	
Bromodichloromethane	**<16.7**	ug/kg	70.3	16.7	1	10/21/21 08:15	10/22/21 11:12	75-27-4	
Bromoform	**<309**	ug/kg	352	309	1	10/21/21 08:15	10/22/21 11:12	75-25-2	
Bromomethane	**<98.6**	ug/kg	352	98.6	1	10/21/21 08:15	10/22/21 11:12	74-83-9	
n-Butylbenzene	**<32.2**	ug/kg	70.3	32.2	1	10/21/21 08:15	10/22/21 11:12	104-51-8	
sec-Butylbenzene	**<17.2**	ug/kg	70.3	17.2	1	10/21/21 08:15	10/22/21 11:12	135-98-8	
tert-Butylbenzene	**<22.1**	ug/kg	70.3	22.1	1	10/21/21 08:15	10/22/21 11:12	98-06-6	
Carbon tetrachloride	**<15.5**	ug/kg	70.3	15.5	1	10/21/21 08:15	10/22/21 11:12	56-23-5	
Chlorobenzene	**<8.4**	ug/kg	70.3	8.4	1	10/21/21 08:15	10/22/21 11:12	108-90-7	
Chloroethane	**<29.7**	ug/kg	352	29.7	1	10/21/21 08:15	10/22/21 11:12	75-00-3	
Chloroform	**<50.4**	ug/kg	352	50.4	1	10/21/21 08:15	10/22/21 11:12	67-66-3	
Chloromethane	**<26.7**	ug/kg	70.3	26.7	1	10/21/21 08:15	10/22/21 11:12	74-87-3	
2-Chlorotoluene	**<22.8**	ug/kg	70.3	22.8	1	10/21/21 08:15	10/22/21 11:12	95-49-8	
4-Chlorotoluene	**<26.7**	ug/kg	70.3	26.7	1	10/21/21 08:15	10/22/21 11:12	106-43-4	
1,2-Dibromo-3-chloropropane	**<54.6**	ug/kg	352	54.6	1	10/21/21 08:15	10/22/21 11:12	96-12-8	
Dibromochloromethane	**<240**	ug/kg	352	240	1	10/21/21 08:15	10/22/21 11:12	124-48-1	
1,2-Dibromoethane (EDB)	**<19.3**	ug/kg	70.3	19.3	1	10/21/21 08:15	10/22/21 11:12	106-93-4	
Dibromomethane	**<20.8**	ug/kg	70.3	20.8	1	10/21/21 08:15	10/22/21 11:12	74-95-3	
1,2-Dichlorobenzene	**<21.8**	ug/kg	70.3	21.8	1	10/21/21 08:15	10/22/21 11:12	95-50-1	
1,3-Dichlorobenzene	**<19.3**	ug/kg	70.3	19.3	1	10/21/21 08:15	10/22/21 11:12	541-73-1	
1,4-Dichlorobenzene	**<19.3**	ug/kg	70.3	19.3	1	10/21/21 08:15	10/22/21 11:12	106-46-7	
Dichlorodifluoromethane	**<30.2**	ug/kg	70.3	30.2	1	10/21/21 08:15	10/22/21 11:12	75-71-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-10 (6.5-8) **Lab ID: 40235057015** Collected: 10/13/21 14:45 Received: 10/13/21 16:40 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
8260 MSV Med Level Normal List	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B Pace Analytical Services - Green Bay								
1,1-Dichloroethane	**<18.0**	ug/kg	70.3	18.0	1	10/21/21 08:15	10/22/21 11:12	75-34-3	
1,2-Dichloroethane	**<16.2**	ug/kg	70.3	16.2	1	10/21/21 08:15	10/22/21 11:12	107-06-2	
1,1-Dichloroethene	**<23.3**	ug/kg	70.3	23.3	1	10/21/21 08:15	10/22/21 11:12	75-35-4	
cis-1,2-Dichloroethene	**<15.1**	ug/kg	70.3	15.1	1	10/21/21 08:15	10/22/21 11:12	156-59-2	
trans-1,2-Dichloroethene	**<15.2**	ug/kg	70.3	15.2	1	10/21/21 08:15	10/22/21 11:12	156-60-5	
1,2-Dichloropropane	**<16.7**	ug/kg	70.3	16.7	1	10/21/21 08:15	10/22/21 11:12	78-87-5	
1,3-Dichloropropane	**<15.3**	ug/kg	70.3	15.3	1	10/21/21 08:15	10/22/21 11:12	142-28-9	
2,2-Dichloropropane	**<19.0**	ug/kg	70.3	19.0	1	10/21/21 08:15	10/22/21 11:12	594-20-7	
1,1-Dichloropropene	**<22.8**	ug/kg	70.3	22.8	1	10/21/21 08:15	10/22/21 11:12	563-58-6	
cis-1,3-Dichloropropene	**<46.4**	ug/kg	352	46.4	1	10/21/21 08:15	10/22/21 11:12	10061-01-5	
trans-1,3-Dichloropropene	**<201**	ug/kg	352	201	1	10/21/21 08:15	10/22/21 11:12	10061-02-6	
Diisopropyl ether	**<17.4**	ug/kg	70.3	17.4	1	10/21/21 08:15	10/22/21 11:12	108-20-3	
Ethylbenzene	**<16.7**	ug/kg	70.3	16.7	1	10/21/21 08:15	10/22/21 11:12	100-41-4	
Hexachloro-1,3-butadiene	**<140**	ug/kg	352	140	1	10/21/21 08:15	10/22/21 11:12	87-68-3	
Isopropylbenzene (Cumene)	**<19.0**	ug/kg	70.3	19.0	1	10/21/21 08:15	10/22/21 11:12	98-82-8	
p-Isopropyltoluene	**<21.4**	ug/kg	70.3	21.4	1	10/21/21 08:15	10/22/21 11:12	99-87-6	
Methylene Chloride	**<19.6**	ug/kg	70.3	19.6	1	10/21/21 08:15	10/22/21 11:12	75-09-2	
Methyl-tert-butyl ether	**<20.7**	ug/kg	70.3	20.7	1	10/21/21 08:15	10/22/21 11:12	1634-04-4	
Naphthalene	**<21.9**	ug/kg	352	21.9	1	10/21/21 08:15	10/22/21 11:12	91-20-3	
n-Propylbenzene	**<16.9**	ug/kg	70.3	16.9	1	10/21/21 08:15	10/22/21 11:12	103-65-1	
Styrene	**<18.0**	ug/kg	70.3	18.0	1	10/21/21 08:15	10/22/21 11:12	100-42-5	
1,1,1,2-Tetrachloroethane	**<16.9**	ug/kg	70.3	16.9	1	10/21/21 08:15	10/22/21 11:12	630-20-6	
1,1,2,2-Tetrachloroethane	**<25.5**	ug/kg	70.3	25.5	1	10/21/21 08:15	10/22/21 11:12	79-34-5	
Tetrachloroethene	**<27.3**	ug/kg	70.3	27.3	1	10/21/21 08:15	10/22/21 11:12	127-18-4	
Toluene	**<17.7**	ug/kg	70.3	17.7	1	10/21/21 08:15	10/22/21 11:12	108-88-3	
1,2,3-Trichlorobenzene	**<78.3**	ug/kg	352	78.3	1	10/21/21 08:15	10/22/21 11:12	87-61-6	
1,2,4-Trichlorobenzene	**<57.9**	ug/kg	352	57.9	1	10/21/21 08:15	10/22/21 11:12	120-82-1	
1,1,1-Trichloroethane	**<18.0**	ug/kg	70.3	18.0	1	10/21/21 08:15	10/22/21 11:12	71-55-6	
1,1,2-Trichloroethane	**<25.6**	ug/kg	70.3	25.6	1	10/21/21 08:15	10/22/21 11:12	79-00-5	
Trichloroethene	**<26.3**	ug/kg	70.3	26.3	1	10/21/21 08:15	10/22/21 11:12	79-01-6	
Trichlorofluoromethane	**<20.4**	ug/kg	70.3	20.4	1	10/21/21 08:15	10/22/21 11:12	75-69-4	
1,2,3-Trichloropropane	**<34.2**	ug/kg	70.3	34.2	1	10/21/21 08:15	10/22/21 11:12	96-18-4	
1,2,4-Trimethylbenzene	**<21.0**	ug/kg	70.3	21.0	1	10/21/21 08:15	10/22/21 11:12	95-63-6	
1,3,5-Trimethylbenzene	**<22.6**	ug/kg	70.3	22.6	1	10/21/21 08:15	10/22/21 11:12	108-67-8	
Vinyl chloride	**<14.2**	ug/kg	70.3	14.2	1	10/21/21 08:15	10/22/21 11:12	75-01-4	
m&p-Xylene	**<29.7**	ug/kg	141	29.7	1	10/21/21 08:15	10/22/21 11:12	179601-23-1	
o-Xylene	**<21.1**	ug/kg	70.3	21.1	1	10/21/21 08:15	10/22/21 11:12	95-47-6	
Surrogates									
Toluene-d8 (S)	123	%	67-159		1	10/21/21 08:15	10/22/21 11:12	2037-26-5	
4-Bromofluorobenzene (S)	128	%	66-153		1	10/21/21 08:15	10/22/21 11:12	460-00-4	
1,2-Dichlorobenzene-d4 (S)	119	%	82-158		1	10/21/21 08:15	10/22/21 11:12	2199-69-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON
Pace Project No.: 40235057

Sample: GP-10 (6.5-8) **Lab ID: 40235057015** Collected: 10/13/21 14:45 Received: 10/13/21 16:40 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
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**16.9**	%	0.10	0.10	1		10/14/21 07:39		

Sample: GP-4 (1.5-2.5) **Lab ID: 40235057016** Collected: 10/13/21 11:15 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**3.5**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 22:19	7440-38-2	
Lead	**42.4**	mg/kg	2.1	0.62	1	10/19/21 06:21	10/19/21 22:19	7439-92-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.5**	%	0.10	0.10	1		10/14/21 07:39		

Sample: GP-4 (8-10) **Lab ID: 40235057017** Collected: 10/13/21 11:20 Received: 10/13/21 16:40 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
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**1.8J**	mg/kg	2.6	1.5	1	10/19/21 06:21	10/19/21 22:21	7440-38-2	
Lead	**6.2**	mg/kg	2.0	0.61	1	10/19/21 06:21	10/19/21 22:21	7439-92-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.0**	%	0.10	0.10	1		10/14/21 07:39		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 398513
QC Batch Method: EPA 3050B
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057005, 40235057006, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015, 40235057016, 40235057017

METHOD BLANK: 2300481 Matrix: Solid
Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057005, 40235057006, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015, 40235057016, 40235057017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	<1.5	2.5	10/19/21 21:19	
Lead	mg/kg	<0.60	2.0	10/19/21 21:19	

LABORATORY CONTROL SAMPLE: 2300482

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	25	24.2	97	80-120	
Lead	mg/kg	25	25.8	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2300483 2300484

Parameter	Units	40235057001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	2.4J	25.6	25.6	28.6	27.9	102	99	75-125	2	20	
Lead	mg/kg	1.0J	25.6	25.6	26.6	27.9	100	105	75-125	5	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 399239
QC Batch Method: EPA 5035/5030B
Analysis Method: EPA 8260
Analysis Description: 8260 MSV Med Level Normal List
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015

METHOD BLANK: 2305064
Matrix: Solid
Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<12.0	50.0	10/22/21 08:36	
1,1,1-Trichloroethane	ug/kg	<12.8	50.0	10/22/21 08:36	
1,1,2,2-Tetrachloroethane	ug/kg	<18.1	50.0	10/22/21 08:36	
1,1,2-Trichloroethane	ug/kg	<18.2	50.0	10/22/21 08:36	
1,1-Dichloroethane	ug/kg	<12.8	50.0	10/22/21 08:36	
1,1-Dichloroethene	ug/kg	<16.6	50.0	10/22/21 08:36	
1,1-Dichloropropene	ug/kg	<16.2	50.0	10/22/21 08:36	
1,2,3-Trichlorobenzene	ug/kg	<55.7	250	10/22/21 08:36	
1,2,3-Trichloropropane	ug/kg	<24.3	50.0	10/22/21 08:36	
1,2,4-Trichlorobenzene	ug/kg	<41.2	250	10/22/21 08:36	
1,2,4-Trimethylbenzene	ug/kg	<14.9	50.0	10/22/21 08:36	
1,2-Dibromo-3-chloropropane	ug/kg	<38.8	250	10/22/21 08:36	
1,2-Dibromoethane (EDB)	ug/kg	<13.7	50.0	10/22/21 08:36	
1,2-Dichlorobenzene	ug/kg	<15.5	50.0	10/22/21 08:36	
1,2-Dichloroethane	ug/kg	<11.5	50.0	10/22/21 08:36	
1,2-Dichloropropane	ug/kg	<11.9	50.0	10/22/21 08:36	
1,3,5-Trimethylbenzene	ug/kg	<16.1	50.0	10/22/21 08:36	
1,3-Dichlorobenzene	ug/kg	<13.7	50.0	10/22/21 08:36	
1,3-Dichloropropane	ug/kg	<10.9	50.0	10/22/21 08:36	
1,4-Dichlorobenzene	ug/kg	<13.7	50.0	10/22/21 08:36	
2,2-Dichloropropane	ug/kg	<13.5	50.0	10/22/21 08:36	
2-Chlorotoluene	ug/kg	<16.2	50.0	10/22/21 08:36	
4-Chlorotoluene	ug/kg	<19.0	50.0	10/22/21 08:36	
Benzene	ug/kg	<11.9	20.0	10/22/21 08:36	
Bromobenzene	ug/kg	<19.5	50.0	10/22/21 08:36	
Bromochloromethane	ug/kg	<13.7	50.0	10/22/21 08:36	
Bromodichloromethane	ug/kg	<11.9	50.0	10/22/21 08:36	
Bromoform	ug/kg	<220	250	10/22/21 08:36	
Bromomethane	ug/kg	<70.1	250	10/22/21 08:36	
Carbon tetrachloride	ug/kg	<11.0	50.0	10/22/21 08:36	
Chlorobenzene	ug/kg	<6.0	50.0	10/22/21 08:36	
Chloroethane	ug/kg	<21.1	250	10/22/21 08:36	
Chloroform	ug/kg	<35.8	250	10/22/21 08:36	
Chloromethane	ug/kg	<19.0	50.0	10/22/21 08:36	
cis-1,2-Dichloroethene	ug/kg	<10.7	50.0	10/22/21 08:36	
cis-1,3-Dichloropropene	ug/kg	<33.0	250	10/22/21 08:36	
Dibromochloromethane	ug/kg	<171	250	10/22/21 08:36	
Dibromomethane	ug/kg	<14.8	50.0	10/22/21 08:36	
Dichlorodifluoromethane	ug/kg	<21.5	50.0	10/22/21 08:36	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

METHOD BLANK: 2305064 Matrix: Solid

Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/kg	<12.4	50.0	10/22/21 08:36	
Ethylbenzene	ug/kg	<11.9	50.0	10/22/21 08:36	
Hexachloro-1,3-butadiene	ug/kg	<99.4	250	10/22/21 08:36	
Isopropylbenzene (Cumene)	ug/kg	<13.5	50.0	10/22/21 08:36	
m&p-Xylene	ug/kg	<21.1	100	10/22/21 08:36	
Methyl-tert-butyl ether	ug/kg	<14.7	50.0	10/22/21 08:36	
Methylene Chloride	ug/kg	<13.9	50.0	10/22/21 08:36	
n-Butylbenzene	ug/kg	<22.9	50.0	10/22/21 08:36	
n-Propylbenzene	ug/kg	<12.0	50.0	10/22/21 08:36	
Naphthalene	ug/kg	<15.6	250	10/22/21 08:36	
o-Xylene	ug/kg	<15.0	50.0	10/22/21 08:36	
p-Isopropyltoluene	ug/kg	<15.2	50.0	10/22/21 08:36	
sec-Butylbenzene	ug/kg	<12.2	50.0	10/22/21 08:36	
Styrene	ug/kg	<12.8	50.0	10/22/21 08:36	
tert-Butylbenzene	ug/kg	<15.7	50.0	10/22/21 08:36	
Tetrachloroethene	ug/kg	<19.4	50.0	10/22/21 08:36	
Toluene	ug/kg	<12.6	50.0	10/22/21 08:36	
trans-1,2-Dichloroethene	ug/kg	<10.8	50.0	10/22/21 08:36	
trans-1,3-Dichloropropene	ug/kg	<143	250	10/22/21 08:36	
Trichloroethene	ug/kg	<18.7	50.0	10/22/21 08:36	
Trichlorofluoromethane	ug/kg	<14.5	50.0	10/22/21 08:36	
Vinyl chloride	ug/kg	<10.1	50.0	10/22/21 08:36	
1,2-Dichlorobenzene-d4 (S)	%	102	82-158	10/22/21 08:36	
4-Bromofluorobenzene (S)	%	111	66-153	10/22/21 08:36	
Toluene-d8 (S)	%	101	67-159	10/22/21 08:36	

LABORATORY CONTROL SAMPLE: 2305065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	2500	2450	98	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	2500	2360	94	65-129	
1,1,2-Trichloroethane	ug/kg	2500	2320	93	70-130	
1,1-Dichloroethane	ug/kg	2500	2250	90	70-130	
1,1-Dichloroethene	ug/kg	2500	2220	89	67-120	
1,2,4-Trichlorobenzene	ug/kg	2500	2230	89	64-130	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2380	95	57-119	
1,2-Dibromoethane (EDB)	ug/kg	2500	2290	92	70-130	
1,2-Dichlorobenzene	ug/kg	2500	2270	91	70-130	
1,2-Dichloroethane	ug/kg	2500	2530	101	70-130	
1,2-Dichloropropane	ug/kg	2500	2270	91	72-118	
1,3-Dichlorobenzene	ug/kg	2500	2230	89	70-130	
1,4-Dichlorobenzene	ug/kg	2500	2200	88	70-130	
Benzene	ug/kg	2500	2290	92	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

LABORATORY CONTROL SAMPLE: 2305065

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromodichloromethane	ug/kg	2500	2430	97	70-130	
Bromoform	ug/kg	2500	2000	80	66-130	
Bromomethane	ug/kg	2500	2000	80	13-153	
Carbon tetrachloride	ug/kg	2500	2390	96	73-134	
Chlorobenzene	ug/kg	2500	2350	94	70-130	
Chloroethane	ug/kg	2500	1830	73	19-170	
Chloroform	ug/kg	2500	2470	99	79-120	
Chloromethane	ug/kg	2500	1200	48	45-117	
cis-1,2-Dichloroethene	ug/kg	2500	2220	89	70-130	
cis-1,3-Dichloropropene	ug/kg	2500	2280	91	68-130	
Dibromochloromethane	ug/kg	2500	2190	87	70-130	
Dichlorodifluoromethane	ug/kg	2500	789	32	15-135	
Ethylbenzene	ug/kg	2500	2340	94	78-120	
Isopropylbenzene (Cumene)	ug/kg	2500	2300	92	70-130	
m&p-Xylene	ug/kg	5000	4420	88	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2160	86	65-130	
Methylene Chloride	ug/kg	2500	2290	92	70-130	
o-Xylene	ug/kg	2500	2220	89	70-130	
Styrene	ug/kg	2500	2290	91	70-130	
Tetrachloroethene	ug/kg	2500	2370	95	70-130	
Toluene	ug/kg	2500	2240	89	76-120	
trans-1,2-Dichloroethene	ug/kg	2500	2310	92	70-130	
trans-1,3-Dichloropropene	ug/kg	2500	2150	86	70-130	
Trichloroethene	ug/kg	2500	2440	98	70-130	
Trichlorofluoromethane	ug/kg	2500	1860	74	49-153	
Vinyl chloride	ug/kg	2500	1690	68	58-121	
1,2-Dichlorobenzene-d4 (S)	%			106	82-158	
4-Bromofluorobenzene (S)	%			117	66-153	
Toluene-d8 (S)	%			105	67-159	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2305066 2305067

Parameter	Units	40235057015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/kg	<18.0	1410	1410	1320	1380	94	98	70-130	5	20	
1,1,2,2-Tetrachloroethane	ug/kg	<25.5	1410	1410	1540	1510	109	107	65-129	2	20	
1,1,2-Trichloroethane	ug/kg	<25.6	1410	1410	1490	1470	106	105	70-130	1	20	
1,1-Dichloroethane	ug/kg	<18.0	1410	1410	1340	1390	95	99	70-130	4	20	
1,1-Dichloroethene	ug/kg	<23.3	1410	1410	1300	1370	93	97	64-120	5	20	
1,2,4-Trichlorobenzene	ug/kg	<57.9	1410	1410	1570	1500	112	107	64-130	5	20	
1,2-Dibromo-3-chloropropane	ug/kg	<54.6	1410	1410	1490	1530	106	109	57-130	3	21	
1,2-Dibromoethane (EDB)	ug/kg	<19.3	1410	1410	1500	1480	107	105	70-130	1	20	
1,2-Dichlorobenzene	ug/kg	<21.8	1410	1410	1490	1530	106	109	70-130	2	20	
1,2-Dichloroethane	ug/kg	<16.2	1410	1410	1570	1460	112	104	70-130	8	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2305066 2305067

Parameter	Units	40235057015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dichloropropane	ug/kg	<16.7	1410	1410	1370	1330	97	95	72-122	2	20	
1,3-Dichlorobenzene	ug/kg	<19.3	1410	1410	1470	1500	105	107	70-130	2	20	
1,4-Dichlorobenzene	ug/kg	<19.3	1410	1410	1450	1500	103	106	70-130	3	20	
Benzene	ug/kg	<16.7	1410	1410	1360	1370	97	98	70-130	1	20	
Bromodichloromethane	ug/kg	<16.7	1410	1410	1430	1380	101	98	70-130	4	20	
Bromoform	ug/kg	<309	1410	1410	1430	1370	102	97	66-130	4	20	
Bromomethane	ug/kg	<98.6	1410	1410	1460	1450	104	103	13-153	1	20	
Carbon tetrachloride	ug/kg	<15.5	1410	1410	1300	1390	92	99	67-134	7	20	
Chlorobenzene	ug/kg	<8.4	1410	1410	1430	1480	101	105	70-130	4	20	
Chloroethane	ug/kg	<29.7	1410	1410	1370	1400	97	99	11-195	2	20	
Chloroform	ug/kg	<50.4	1410	1410	1480	1440	105	103	79-120	3	20	
Chloromethane	ug/kg	<26.7	1410	1410	1080	1120	76	79	30-136	4	20	
cis-1,2-Dichloroethene	ug/kg	<15.1	1410	1410	1340	1320	95	94	70-130	2	20	
cis-1,3-Dichloropropene	ug/kg	<46.4	1410	1410	1320	1320	94	94	68-130	0	20	
Dibromochloromethane	ug/kg	<240	1410	1410	1360	1360	97	97	70-130	0	20	
Dichlorodifluoromethane	ug/kg	<30.2	1410	1410	1040	1110	74	79	10-158	7	25	
Ethylbenzene	ug/kg	<16.7	1410	1410	1380	1400	98	99	78-120	2	20	
Isopropylbenzene (Cumene)	ug/kg	<19.0	1410	1410	1320	1370	94	98	70-130	4	20	
m&p-Xylene	ug/kg	<29.7	2820	2820	2650	2720	94	97	70-130	2	20	
Methyl-tert-butyl ether	ug/kg	<20.7	1410	1410	1280	1210	91	86	65-130	6	20	
Methylene Chloride	ug/kg	<19.6	1410	1410	1440	1480	102	105	70-130	2	20	
o-Xylene	ug/kg	<21.1	1410	1410	1350	1380	96	98	70-130	2	20	
Styrene	ug/kg	<18.0	1410	1410	1370	1430	98	102	70-130	4	20	
Tetrachloroethene	ug/kg	<27.3	1410	1410	1340	1360	95	97	70-130	2	20	
Toluene	ug/kg	<17.7	1410	1410	1380	1360	98	97	76-120	1	20	
trans-1,2-Dichloroethene	ug/kg	<15.2	1410	1410	1350	1400	96	99	70-130	3	20	
trans-1,3-Dichloropropene	ug/kg	<201	1410	1410	1270	1260	90	90	70-130	0	20	
Trichloroethene	ug/kg	<26.3	1410	1410	1430	1480	102	105	70-130	4	20	
Trichlorofluoromethane	ug/kg	<20.4	1410	1410	1120	1240	80	89	42-159	10	21	
Vinyl chloride	ug/kg	<14.2	1410	1410	1270	1330	90	95	43-137	5	20	
1,2-Dichlorobenzene-d4 (S)	%						117	119	82-158			
4-Bromofluorobenzene (S)	%						130	134	66-153			
Toluene-d8 (S)	%						120	120	67-159			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 398540
QC Batch Method: EPA 3541
Analysis Method: EPA 8082
Analysis Description: 8082 GCS PCB
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057007, 40235057008, 40235057009

METHOD BLANK: 2300671 Matrix: Solid
Associated Lab Samples: 40235057007, 40235057008, 40235057009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1221 (Aroclor 1221)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1232 (Aroclor 1232)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1242 (Aroclor 1242)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1248 (Aroclor 1248)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1254 (Aroclor 1254)	ug/kg	<15.2	50.0	10/15/21 23:07	
PCB-1260 (Aroclor 1260)	ug/kg	<15.2	50.0	10/15/21 23:07	
Decachlorobiphenyl (S)	%	101	47-114	10/15/21 23:07	
Tetrachloro-m-xylene (S)	%	95	67-102	10/15/21 23:07	

LABORATORY CONTROL SAMPLE: 2300672

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/kg		<15.2			
PCB-1221 (Aroclor 1221)	ug/kg		<15.2			
PCB-1232 (Aroclor 1232)	ug/kg		<15.2			
PCB-1242 (Aroclor 1242)	ug/kg		<15.2			
PCB-1248 (Aroclor 1248)	ug/kg		<15.2			
PCB-1254 (Aroclor 1254)	ug/kg		<15.2			
PCB-1260 (Aroclor 1260)	ug/kg	500	445	89	69-115	
Decachlorobiphenyl (S)	%			98	47-114	
Tetrachloro-m-xylene (S)	%			93	67-102	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2300673 2300674

Parameter	Units	40234892004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	
PCB-1221 (Aroclor 1221)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	
PCB-1232 (Aroclor 1232)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	
PCB-1242 (Aroclor 1242)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	
PCB-1248 (Aroclor 1248)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	
PCB-1254 (Aroclor 1254)	ug/kg	<0.018 mg/kg			<18.3	<18.4					20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2300673 2300674

Parameter	Units	40234892004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1260 (Aroclor 1260)	ug/kg	<0.018 mg/kg	602	605	547	539	91	89	45-120	1	20	
Decachlorobiphenyl (S)	%						97	95	47-114			
Tetrachloro-m-xylene (S)	%						96	94	67-102			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 399013
QC Batch Method: EPA 3546
Analysis Method: EPA 8270E by SIM
Analysis Description: 8270E/3546 MSSV PAH by SIM
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015

METHOD BLANK: 2303909 Matrix: Solid
Associated Lab Samples: 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013, 40235057014, 40235057015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	<2.4	16.7	10/20/21 09:27	
2-Methylnaphthalene	ug/kg	<2.4	16.7	10/20/21 09:27	
Acenaphthene	ug/kg	<2.2	16.7	10/20/21 09:27	
Acenaphthylene	ug/kg	<2.1	16.7	10/20/21 09:27	
Anthracene	ug/kg	<2.1	16.7	10/20/21 09:27	
Benzo(a)anthracene	ug/kg	<2.2	16.7	10/20/21 09:27	
Benzo(a)pyrene	ug/kg	<1.9	16.7	10/20/21 09:27	
Benzo(b)fluoranthene	ug/kg	<2.3	16.7	10/20/21 09:27	
Benzo(g,h,i)perylene	ug/kg	<2.9	16.7	10/20/21 09:27	
Benzo(k)fluoranthene	ug/kg	<2.1	16.7	10/20/21 09:27	
Chrysene	ug/kg	<3.2	16.7	10/20/21 09:27	
Dibenz(a,h)anthracene	ug/kg	<2.3	16.7	10/20/21 09:27	
Fluoranthene	ug/kg	<2.0	16.7	10/20/21 09:27	
Fluorene	ug/kg	<2.0	16.7	10/20/21 09:27	
Indeno(1,2,3-cd)pyrene	ug/kg	<3.5	16.7	10/20/21 09:27	
Naphthalene	ug/kg	<1.6	16.7	10/20/21 09:27	
Phenanthrene	ug/kg	<1.9	16.7	10/20/21 09:27	
Pyrene	ug/kg	<2.5	16.7	10/20/21 09:27	
2-Fluorobiphenyl (S)	%	82	36-86	10/20/21 09:27	
Terphenyl-d14 (S)	%	108	41-97	10/20/21 09:27	S3

LABORATORY CONTROL SAMPLE: 2303910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	333	264	79	53-100	
2-Methylnaphthalene	ug/kg	333	264	79	51-97	
Acenaphthene	ug/kg	333	290	87	62-120	
Acenaphthylene	ug/kg	333	266	80	61-120	
Anthracene	ug/kg	333	334	100	62-111	
Benzo(a)anthracene	ug/kg	333	323	97	61-120	
Benzo(a)pyrene	ug/kg	333	325	98	65-120	
Benzo(b)fluoranthene	ug/kg	333	302	91	64-108	
Benzo(g,h,i)perylene	ug/kg	333	304	91	71-120	
Benzo(k)fluoranthene	ug/kg	333	293	88	76-120	
Chrysene	ug/kg	333	333	100	74-120	
Dibenz(a,h)anthracene	ug/kg	333	304	91	71-120	
Fluoranthene	ug/kg	333	344	103	67-112	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

LABORATORY CONTROL SAMPLE: 2303910

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluorene	ug/kg	333	278	83	65-120	
Indeno(1,2,3-cd)pyrene	ug/kg	333	314	94	74-120	
Naphthalene	ug/kg	333	261	78	53-120	
Phenanthrene	ug/kg	333	323	97	67-120	
Pyrene	ug/kg	333	305	92	60-103	
2-Fluorobiphenyl (S)	%			66	36-86	
Terphenyl-d14 (S)	%			85	41-97	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2303911 2303912

Parameter	Units	40235072004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/kg	22.7J	484	484	405	386	79	75	41-100	5	29	
2-Methylnaphthalene	ug/kg	27.6	484	484	427	400	83	77	42-97	7	21	
Acenaphthene	ug/kg	5.7J	484	484	364	376	74	77	43-120	3	27	
Acenaphthylene	ug/kg	6.7J	484	484	407	380	83	77	51-120	7	26	
Anthracene	ug/kg	23.5J	484	484	449	437	88	85	46-111	3	29	
Benzo(a)anthracene	ug/kg	83.2	484	484	492	446	84	75	48-120	10	23	
Benzo(a)pyrene	ug/kg	81.0	484	484	506	450	88	76	46-108	12	30	
Benzo(b)fluoranthene	ug/kg	117	484	484	582	455	96	70	45-108	24	30	
Benzo(g,h,i)perylene	ug/kg	57.2	484	484	475	431	86	77	39-120	10	37	
Benzo(k)fluoranthene	ug/kg	41.9	484	484	481	449	91	84	47-120	7	31	
Chrysene	ug/kg	95.6	484	484	517	450	87	73	54-120	14	21	
Dibenz(a,h)anthracene	ug/kg	17.0J	484	484	450	375	89	74	46-120	18	34	
Fluoranthene	ug/kg	195	484	484	631	552	90	74	53-112	13	27	
Fluorene	ug/kg	8.8J	484	484	434	443	88	90	48-120	2	29	
Indeno(1,2,3-cd)pyrene	ug/kg	49.2	484	484	488	403	91	73	40-120	19	34	
Naphthalene	ug/kg	33.9	484	484	382	413	72	78	47-120	8	25	
Phenanthrene	ug/kg	111	484	484	524	472	85	75	49-120	10	28	
Pyrene	ug/kg	145	484	484	535	546	81	83	43-103	2	31	
2-Fluorobiphenyl (S)	%						71	72	36-86			
Terphenyl-d14 (S)	%						74	82	41-97			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 399201
QC Batch Method: EPA 3546
Analysis Method: EPA 8270E by SIM
Analysis Description: 8270E/3546 MSSV PAH by SIM
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057007

METHOD BLANK: 2304907 Matrix: Solid
Associated Lab Samples: 40235057007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/kg	<2.4	16.7	10/21/21 10:16	
2-Methylnaphthalene	ug/kg	<2.4	16.7	10/21/21 10:16	
Acenaphthene	ug/kg	<2.2	16.7	10/21/21 10:16	
Acenaphthylene	ug/kg	<2.1	16.7	10/21/21 10:16	
Anthracene	ug/kg	<2.1	16.7	10/21/21 10:16	
Benzo(a)anthracene	ug/kg	<2.2	16.7	10/21/21 10:16	
Benzo(a)pyrene	ug/kg	<1.9	16.7	10/21/21 10:16	
Benzo(b)fluoranthene	ug/kg	<2.3	16.7	10/21/21 10:16	
Benzo(g,h,i)perylene	ug/kg	<2.9	16.7	10/21/21 10:16	
Benzo(k)fluoranthene	ug/kg	<2.1	16.7	10/21/21 10:16	
Chrysene	ug/kg	<3.2	16.7	10/21/21 10:16	
Dibenz(a,h)anthracene	ug/kg	<2.3	16.7	10/21/21 10:16	
Fluoranthene	ug/kg	<2.0	16.7	10/21/21 10:16	
Fluorene	ug/kg	<2.0	16.7	10/21/21 10:16	
Indeno(1,2,3-cd)pyrene	ug/kg	<3.5	16.7	10/21/21 10:16	
Naphthalene	ug/kg	<1.6	16.7	10/21/21 10:16	
Phenanthrene	ug/kg	<1.9	16.7	10/21/21 10:16	
Pyrene	ug/kg	<2.5	16.7	10/21/21 10:16	
2-Fluorobiphenyl (S)	%	70	36-86	10/21/21 10:16	
Terphenyl-d14 (S)	%	80	41-97	10/21/21 10:16	

LABORATORY CONTROL SAMPLE: 2304908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/kg	333	230	69	53-100	
2-Methylnaphthalene	ug/kg	333	233	70	51-97	
Acenaphthene	ug/kg	333	239	72	62-120	
Acenaphthylene	ug/kg	333	240	72	61-120	
Anthracene	ug/kg	333	272	82	62-111	
Benzo(a)anthracene	ug/kg	333	266	80	61-120	
Benzo(a)pyrene	ug/kg	333	274	82	65-120	
Benzo(b)fluoranthene	ug/kg	333	250	75	64-108	
Benzo(g,h,i)perylene	ug/kg	333	280	84	71-120	
Benzo(k)fluoranthene	ug/kg	333	274	82	76-120	
Chrysene	ug/kg	333	271	82	74-120	
Dibenz(a,h)anthracene	ug/kg	333	282	85	71-120	
Fluoranthene	ug/kg	333	239	72	67-112	
Fluorene	ug/kg	333	247	74	65-120	
Indeno(1,2,3-cd)pyrene	ug/kg	333	286	86	74-120	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

LABORATORY CONTROL SAMPLE: 2304908

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/kg	333	226	68	53-120	
Phenanthrene	ug/kg	333	264	79	67-120	
Pyrene	ug/kg	333	269	81	60-103	
2-Fluorobiphenyl (S)	%			68	36-86	
Terphenyl-d14 (S)	%			80	41-97	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2304909 2304910

Parameter	Units	40235427005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/kg	<2.9	399	399	171	202	43	50	41-100	17	29	
2-Methylnaphthalene	ug/kg	<2.9	399	399	168	202	42	51	42-97	19	21	
Acenaphthene	ug/kg	<2.6	399	399	211	236	53	59	43-120	11	27	
Acenaphthylene	ug/kg	<2.5	399	399	211	241	53	60	51-120	14	26	
Anthracene	ug/kg	<2.5	399	399	229	242	57	60	46-111	5	29	
Benzo(a)anthracene	ug/kg	10.2J	399	399	236	266	57	64	48-120	12	23	
Benzo(a)pyrene	ug/kg	7.8J	399	399	239	283	58	69	46-108	17	30	
Benzo(b)fluoranthene	ug/kg	11.5J	399	399	255	270	61	65	45-108	6	30	
Benzo(g,h,i)perylene	ug/kg	7.7J	399	399	224	244	54	59	39-120	8	37	
Benzo(k)fluoranthene	ug/kg	5.7J	399	399	229	268	56	66	47-120	16	31	
Chrysene	ug/kg	12.9J	399	399	237	257	56	61	54-120	8	21	
Dibenz(a,h)anthracene	ug/kg	<2.8	399	399	219	259	54	64	46-120	17	34	
Fluoranthene	ug/kg	28.0	399	399	278	291	63	66	53-112	5	27	
Fluorene	ug/kg	<2.4	399	399	211	240	53	60	48-120	13	29	
Indeno(1,2,3-cd)pyrene	ug/kg	5.8J	399	399	228	266	56	65	40-120	16	34	
Naphthalene	ug/kg	2.0J	399	399	197	221	49	55	47-120	12	25	
Phenanthrene	ug/kg	13.8J	399	399	245	254	58	60	49-120	4	28	
Pyrene	ug/kg	23.6	399	399	241	286	55	66	43-103	17	31	
2-Fluorobiphenyl (S)	%						61	56	36-86			
Terphenyl-d14 (S)	%						52	56	41-97			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 398475
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057014, 40235057015, 40235057016, 40235057017

SAMPLE DUPLICATE: 2300226

Parameter	Units	40235057017 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.0	3.8	5	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 398541
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057001, 40235057002, 40235057003, 40235057004, 40235057005, 40235057006, 40235057007, 40235057008, 40235057009, 40235057010, 40235057011, 40235057012, 40235057013

SAMPLE DUPLICATE: 2300681

Parameter	Units	40235057001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.9	2.7	4	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LUDINGTON
Pace Project No.: 40235057

QC Batch: 399216
QC Batch Method: EPA 9012B
Analysis Method: EPA 9012B
Analysis Description: 9012 Cyanide
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235057007, 40235057008, 40235057009

METHOD BLANK: 2304950 Matrix: Solid
Associated Lab Samples: 40235057007, 40235057008, 40235057009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/kg	<0.31	0.92	10/21/21 14:53	

LABORATORY CONTROL SAMPLE: 2304951

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	3	3.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2304952 2304953

Parameter	Units	10583322002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	ND	4.9	4.9	2.7	3.2	53	64	80-120	18	20	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2304954 2304955

Parameter	Units	40235236001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	<0.35	3.5	3.7	3.6	3.5	99	94	80-120	2	20	

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REPORT OF LABORATORY ANALYSIS

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(920)469-2436

QUALIFIERS

Project: LUDINGTON
Pace Project No.: 40235057

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.

Pace Analytical Services, LLC
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(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LUDINGTON
Pace Project No.: 40235057

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40235057007	GP-5 (1.5-2.5)	EPA 3541	398540	EPA 8082	398576
40235057008	GP-6 (2-4)	EPA 3541	398540	EPA 8082	398576
40235057009	GP-7 (2-4)	EPA 3541	398540	EPA 8082	398576
40235057001	GP-1 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057002	GP-1 (9-11)	EPA 3050B	398513	EPA 6010D	398994
40235057003	GP-2 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057004	GP-2 (9-11)	EPA 3050B	398513	EPA 6010D	398994
40235057005	GP-3 (1.5-2.5)	EPA 3050B	398513	EPA 6010D	398994
40235057006	GP-3 (8-10)	EPA 3050B	398513	EPA 6010D	398994
40235057007	GP-5 (1.5-2.5)	EPA 3050B	398513	EPA 6010D	398994
40235057008	GP-6 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057009	GP-7 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057010	GP-8 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057011	GP-8 (7-8)	EPA 3050B	398513	EPA 6010D	398994
40235057012	GP-9 (1.5-3.5)	EPA 3050B	398513	EPA 6010D	398994
40235057013	GP-9 (5.5-7.5)	EPA 3050B	398513	EPA 6010D	398994
40235057014	GP-10 (2-4)	EPA 3050B	398513	EPA 6010D	398994
40235057015	GP-10 (6.5-8)	EPA 3050B	398513	EPA 6010D	398994
40235057016	GP-4 (1.5-2.5)	EPA 3050B	398513	EPA 6010D	398994
40235057017	GP-4 (8-10)	EPA 3050B	398513	EPA 6010D	398994
40235057007	GP-5 (1.5-2.5)	EPA 3546	399201	EPA 8270E by SIM	399265
40235057008	GP-6 (2-4)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057009	GP-7 (2-4)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057010	GP-8 (2-4)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057011	GP-8 (7-8)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057012	GP-9 (1.5-3.5)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057013	GP-9 (5.5-7.5)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057014	GP-10 (2-4)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057015	GP-10 (6.5-8)	EPA 3546	399013	EPA 8270E by SIM	399089
40235057001	GP-1 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057002	GP-1 (9-11)	EPA 5035/5030B	399239	EPA 8260	399243
40235057003	GP-2 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057004	GP-2 (9-11)	EPA 5035/5030B	399239	EPA 8260	399243
40235057007	GP-5 (1.5-2.5)	EPA 5035/5030B	399239	EPA 8260	399243
40235057008	GP-6 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057009	GP-7 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057010	GP-8 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057011	GP-8 (7-8)	EPA 5035/5030B	399239	EPA 8260	399243
40235057012	GP-9 (1.5-3.5)	EPA 5035/5030B	399239	EPA 8260	399243
40235057013	GP-9 (5.5-7.5)	EPA 5035/5030B	399239	EPA 8260	399243
40235057014	GP-10 (2-4)	EPA 5035/5030B	399239	EPA 8260	399243
40235057015	GP-10 (6.5-8)	EPA 5035/5030B	399239	EPA 8260	399243
40235057001	GP-1 (2-4)	ASTM D2974-87	398541		
40235057002	GP-1 (9-11)	ASTM D2974-87	398541		
40235057003	GP-2 (2-4)	ASTM D2974-87	398541		
40235057004	GP-2 (9-11)	ASTM D2974-87	398541		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LUDINGTON
Pace Project No.: 40235057

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40235057005	**GP-3 (1.5-2.5)**	ASTM D2974-87	398541		
40235057006	**GP-3 (8-10)**	ASTM D2974-87	398541		
40235057007	**GP-5 (1.5-2.5)**	ASTM D2974-87	398541		
40235057008	**GP-6 (2-4)**	ASTM D2974-87	398541		
40235057009	**GP-7 (2-4)**	ASTM D2974-87	398541		
40235057010	**GP-8 (2-4)**	ASTM D2974-87	398541		
40235057011	**GP-8 (7-8)**	ASTM D2974-87	398541		
40235057012	**GP-9 (1.5-3.5)**	ASTM D2974-87	398541		
40235057013	**GP-9 (5.5-7.5)**	ASTM D2974-87	398541		
40235057014	**GP-10 (2-4)**	ASTM D2974-87	398475		
40235057015	**GP-10 (6.5-8)**	ASTM D2974-87	398475		
40235057016	**GP-4 (1.5-2.5)**	ASTM D2974-87	398475		
40235057017	**GP-4 (8-10)**	ASTM D2974-87	398475		
40235057007	**GP-5 (1.5-2.5)**	EPA 9012B	399216	EPA 9012B	399286
40235057008	**GP-6 (2-4)**	EPA 9012B	399216	EPA 9012B	399286
40235057009	**GP-7 (2-4)**	EPA 9012B	399216	EPA 9012B	399286

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

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CHAIN OF CUSTODY

4023505 7

*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

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@ayresassociates.com
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, SI = Sludge, WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	As + Pb	PFAS	VOCs	PAHs	Asbestos	As, Pb, + Cyanide	PAHs + PCBs	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	Analyses Requested								F							
001	GP-1 (2-4)	10-13-21	9:35	S			1		1							
002	GP-1 (9-11)	10-13-21	9:45	S			1		1							
003	GP-2 (2-4)	10-13-21	10:15	S			1		1							
004	GP-2 (9-11)	10-13-21	10:20	S			1		1							
005	GP-3 (1.5-2.5)	10-13-21	10:45	S			1									
006	GP-3 (8-10)	10-13-21	10:50	S			1									
007	GP-5 (1.5-2.5)	10-13-21	12:00	S					1			1	1			
008	GP-6 (2-4)	10-13-21	12:20	S					1			1	1			
009	GP-7 (2-4)	10-13-21	12:35	S					1			1	1			
010	GP-8 (2-4)	10-13-21	13:05	S			1	1	1	1	1					
011	GP-8 (7-8)	10-13-21	13:10	S			1	X	1	1	1			No PFAS sample		
012	GP-9 (1.5-3.5)	10-13-21	14:05	S			1	1	1	1	1					
013	GP-9 (5.5-7.5)	10-13-21	14:10	S			1	1	1	1	1					

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:
William Honea	10/13/21 1640	[illegible]	10/10/21 1640
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. 4023505 7
Receipt Temp = 3 °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06
C019a(27Jun2006)
ORIGINAL

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

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CHAIN OF CUSTODY

4035057

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@ayresassociates.com
Invoice To Phone:	

*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

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested: As+Pb	PFAS	VOCs	PAHs	Asbestos
									F		
04	GP-10 (2-4)	10-13-21	14:40	S			1	1	1	1	1
05	GP-10 ~~(4-6)~~ (6.5-8)	10-13-21	14:45	S			1		1	1	1
06	GP-4 (1.5-2.5)	10-~~13~~ 13-21	11:15	S			1				
07	GP-4 (8-10)	10-13-21	11:20	S			1				

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:
William Honea	10/13/21 16:40		
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.

Receipt Temp = 3 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / ~~Not Present~~
Intact / ~~Not Intact~~

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

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

Sample Preservation Receipt Form

Client Name: Ayres Project # 40235057

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

Initial when completed: Date/ Time:

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

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	Vials: VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																		\					\									2.5 / 5 / 10
002																		\					\									2.5 / 5 / 10
003																		\					\									2.5 / 5 / 10
004																		\					\									2.5 / 5 / 10
005																							\									2.5 / 5 / 10
006																							\									2.5 / 5 / 10
007																		\	\	\			\									2.5 / 5 / 10
008																		\	\	\			\									2.5 / 5 / 10
009																		\	\	\			1									2.5 / 5 / 10
010										1								\	\	\			2									2.5 / 5 / 10
011																		\	\	\			2									2.5 / 5 / 10
012										1								\	\	\			2									2.5 / 5 / 10
013										1								\	\	\			2									2.5 / 5 / 10
014										1								\	\	\			2									2.5 / 5 / 10
015																		\	\	\			2									2.5 / 5 / 10
016																		10/13/21		\			1									2.5 / 5 / 10
017																			AN				1									2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																																2.5 / 5 / 10

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40235057

40235057

Client Name: Ayres

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 - 110 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 3 /Corr: 3

Person examining contents:

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

Date: 10/13/21 /Initials: CH

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Labeled By Initials: AZJ

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. proj #, mail CH 10/13/21
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD:	☐Yes ☑No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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 logi

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Client Services
PACE Wisconsin
1241 Bellevue Street
Green Bay WI 54302

REPORT OF LABORATORY ANALYSIS FOR PFAAs

Report Information:

Pace Project #: 10583480
Sample Receipt Date: 10/15/2021
Client Project #: 40235057 AYRES & ASSOCIA
Client Sub PO #: N/A
State Cert #: 999407970

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Ashley Williams, your Pace Project Manager.

This report has been reviewed by:

November 18, 2021

Kirsten Hogberg, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
kirsten.hogberg@pacelabs.com

Report Prepared Date:
November 11, 2021

Report of Laboratory Analysis

DISCUSSION

This report presents the results from the analyses performed on four samples, one matrix spike, and one matrix spike duplicate submitted by a representative of Pace Wisconsin. The samples were analyzed for thirty-three perfluorinated compounds using Wisconsin DNR Guidance for PFAS. Reporting limits were set to MDL.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. With the exception of 8:2 FTS in BLANK-94140, the results show the blanks were free of the target perfluorinated compounds at the reporting limits. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank levels were flagged B in the results tables and may be, at least partially, attributed to the background.

A laboratory spike sample and matrix spikes were also prepared with the sample batch using clean reference matrix and sample material in the project respectively that had been fortified with native standards. The recovery results were within the method limits. The RPDs (relative percent differences) between one designated matrix spike and its duplicate were within the method limits. These spikes indicate that extraction performed as expected. These spikes indicate that extraction performed as expected.

The four injection internal standards (13C4 PFOA, 13C4 PFOS, 13C2_PFDA, and 13C2_PFHxA) pass for each analysis in the batch verifying that the instrument detector is working as expected.

Values were flagged "I" where incorrect isotope ratios were obtained. Concentrations below the calibration range were flagged "J" and should be regarded as estimates.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

Internal Transfer Chain of Custody

Pace Analytical® www.pacelabs.com

[x] Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: [x] Yes [ ] No

Workorder: 40235057 **Workorder Name:** LUDINGTON **Owner Received xDate:** 10/13/2021 **Results Requested By:** 11/04/2021

Report To	Subcontract To
Dan Milewsky Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace Analytical Minnesota 1700 Elm Street SE Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: PFAS (WDNR 33 Targets)	LAB USE ONLY
1	GP-8 (2-4)	PS	10/13/2021 13:05	40235057010	Solid	1	X	0010
2	GP-9 (1.5-3.5)	PS	10/13/2021 14:05	40235057012	Solid	1	X	0012
3	GP-9 (5.5-7.5)	PS	10/13/2021 14:10	40235057013	Solid	1	X	RHL 0013
4	GP-10 (2-4)	PS	10/13/2021 14:40	40235057014	Solid	1	X	10-13-21 014
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	10/14/21 1700	Cf pace	10/15/21 0925
2				
3				

Comments:

Cooler Temperature on Receipt 1.9 °C **Custody Seal** (Y) or N **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 10583480

10583480

Report No.: 10583480_1633_DFR

Pace Analytical®	Document Name: **Sample Condition Upon Receipt (SCUR) - MN**	Document Revised: 14Apr2021 **Page 1 of 1**
	Document No.: **ENV-FRM-MIN4-0150 Rev.02**	Pace Analytical Services - **Minneapolis**

Sample Condition Upon Receipt **Client Name:** Pace Green Bay **Project #:**

WO#: 10583480

PM: AW1 **Due Date: 11/03/21**

CLIENT: PASI-WI

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☑ Commercial

Tracking Number: _____ See Exceptions ☐ ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☑ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ OS418-LS ☐ T4(0254) ☐ T5(0489) ☐ 160285052 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Did Samples Originate in West Virginia? ☐ Yes ☑ No **Were All Container Temps Taken?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.9 °C **Average Corrected Temp (no temp blank only):** _____ °C ☐ See Exceptions ENV-FRM-MIN4-0142 ☐ 1 Container

Correction Factor: IR#2 **Cooler Temp Corrected w/temp blank:** 1.9 °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** CJS1 10/19/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☐ Yes	☐ No	☑ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other_____
Rush Turn Around Time Requested?	☐ Yes	☐ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☐ Water ☐ Soil ☐ Oil ☑ Other_____	☑ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐ Yes	☐ No	☑ N/A	☐ NaOH ☐ HNO_3 ☐ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** **See Exception** ☐ ENV-FRM-MIN4-0142
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐ Yes	☐ No	☑ N/A	13. **See Exception** ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☑ N/A	
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Ashley Williams **Date:** 10/18/21

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: CJS1 (1)

(Please Print Clearly)

Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	

Regulatory Program:

Pace Analytical®
www.pacelabs.com

CHAIN OF CUSTODY

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

40235057

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

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@ayresassociates.com
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, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

FILTERED? (YES/NO) — Y/N
PRESERVATION (CODE)* — Pick Letter: VOCs: F

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	As + Pb	PFAS	VOCs	PAHs	Asbestos	As, Pb, + Cyanide	PAHs + PCBs		CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	GP-1 (2-4)	10-13-21	9:35	S	1		1								
002	GP-1 (9-11)	10-13-21	9:45	S	1		1								
003	GP-2 (2-4)	10-13-21	10:15	S	1		1								
004	GP-2 (9-11)	10-13-21	10:20	S	1		1								
005	GP-3 (1.5-2.5)	10-13-21	10:45	S	1										
006	GP-3 (8-10)	10-13-21	10:50	S	1										
007	GP-5 (1.5-2.5)	10-13-21	12:00	S			1			1	1				
008	GP-6 (2-4)	10-13-21	12:20	S			1			1	1				
009	GP-7 (2-4)	10-13-21	12:35	S			1			1	1				
010	GP-8 (2-4)	10-13-21	13:05	S	1	1	1	1	1				A'		
011	GP-8 (7-8)	10-13-21	13:10	S	1	X	1	1	1				No PFAS sample		
012	GP-9 (1.5-3.5)	10-13-21	14:05	S	1	1	1	1	1						
013	GP-9 (5.5-7.5)	10-13-21	14:10	S	1	1	1	1	1						

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:
William Honea	10/13/21 1640	[signature]	10/13/21 1640

PACE Project No. 40235057
Receipt Temp = 3 °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06
ORIGINAL

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

4035057

Pace Analytical®
www.pacelabs.com

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

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@ayresassociates.com
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 DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO)	PRESERVATION (CODE)*	Analyses Requested: As+Pb	PFAS	VOCs	PAHs	Asbestos	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					Y/N	Pick Letter			F					
04	GP-10 (2-4)	10-13-21	14:40	S			1	1	1	1	1			
05	GP-10 ~~(4-6)~~ (6.5-8)	10-13-21	14:45	S			1		1	1	1			
06	GP-4 (1.5-2.5)	10-~~13~~-21	11:15	S			1							
07	GP-4 (8-10)	10-13-21	11:20	S			1							

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:
William Honea	10/13/21 16:40		
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:

Received By: 10/13/21 1641

PACE Project No.

Receipt Temp = 3 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / ~~Not Present~~ Intact / Not Intact

Version 6.0 06/14/06

ORIGINAL

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

Sample Preservation Receipt Form

Client Name: Ayres Project # 40235057

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☐N/A Initial when completed: Date/ Time:

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

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	Vials: VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																																2.5 / 5 / 10
002																																2.5 / 5 / 10
003																																2.5 / 5 / 10
004																																2.5 / 5 / 10
005																																2.5 / 5 / 10
006																																2.5 / 5 / 10
007																																2.5 / 5 / 10
008																																2.5 / 5 / 10
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016																																2.5 / 5 / 10
017																																2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																																2.5 / 5 / 10

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40235057

40235057

Client Name: Ayres

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 - 110 **Type of Ice:** (Wet) Blue Dry None ☑ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 3 /Corr: 3

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

Person examining contents:
Date: 10/13/21 /Initials: CW

Labeled By Initials: AZL

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. proj #, mail CW 10/13/21
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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 logi

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057010-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_031	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 13:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Compound	Concentration (ng/Kg)	QL (ng/Kg)	RL (ng/Kg)	DL (ng/Kg)	Dil.	CAS No.	Qual.
PFBA	30 J	99	23	23	1	375-22-4	N2
PFPeA	70 J	99	26	26	1	2706-90-3	N2
HFPO-DA	ND	99	29	29	1	13252-13-6	N2
PFBS	ND	88	22	22	1	375-73-5	N2
PFHxA	ND	99	30	30	1	307-24-4	N2
4:2 FTS	ND	93	31	31	1	757124-72-4	N2
PFPeS	ND	93	18	18	1	2706-91-4	N2
PFHpA	ND	99	22	22	1	375-85-9	N2
DONA	ND	94	38	38	1	919005-14-4	N2
PFHxS	51 IJ	90	22	22	1	355-46-4	N2
PFOA	30 J	99	22	22	1	335-67-1	N2
6:2 FTS	68 J	94	32	32	1	27619-97-2	N2
PFHpS	ND	94	25	25	1	375-92-8	N2
PFNA	ND	99	28	28	1	375-95-1	N2
PFOSAm	ND	99	23	23	1	754-91-6	N2
PFOS	330	92	28	28	1	1763-23-1	N2
MeFOSA	ND	99	25	25	1	31506-32-8	N2
PFDA	ND	99	21	21	1	335-76-2	N2
EtFOSAm	ND	99	23	23	1	4151-50-2	N2
8:2 FTS	ND	95	26	26	1	39108-34-4	N2
9-Cl-PF3ON	ND	92	14	14	1	756426-58-1	N2
PFNS	ND	95	18	18	1	68259-12-1	N2
PFUnDA	ND	99	28	28	1	2058-94-8	N2
NMeFOSAA	ND	99	23	23	1	2355-31-9	N2
NEtFOSAA	77 J	99	24	24	1	2991-50-6	N2
PFDS	ND	96	25	25	1	335-77-3	N2
PFDOA	ND	99	26	26	1	307-55-1	N2
MeFOSE	ND	99	23	23	1	24448-09-7	N2
EtFOSE	ND	99	25	25	1	1691-99-2	N2
11-Cl-PF3OUdS	ND	93	16	16	1	763051-92-9	N2
PFTrDA	ND	99	21	21	1	72629-94-8	N2
PFDoS	ND	96	30	30	1	79780-39-5	N2
PFTDA	ND	99	32	32	1	376-06-7	N2

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057010-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_031	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 13:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	1000	103	50-150	
13C4_PFOA	990	1100	116	50-150	
13C2_PFDA	990	1100	112	50-150	
13C4_PFOS	950	990	105	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	760	76	25-150	
13C5_PFPeA	990	780	79	25-150	
13C3_PFBS	920	760	83	25-150	
13C2_4:2FTS	930	740	80	25-150	
13C5_PFHxA	990	810	82	25-150	
13C4_PFHpA	990	800	81	25-150	
13C3_PFHxS	940	810	86	25-150	
13C2_6:2FTS	940	810	86	25-150	
13C8_PFOA	990	810	82	25-150	
13C9_PFNA	990	870	88	25-150	
13C8_PFOS	950	810	85	25-150	
13C2_8:2FTS	950	1100	114	25-150	
13C6_PFDA	990	870	88	25-150	
d3-MeFOSAA	990	950	96	25-150	
13C8_PFOSA	990	620	62	25-150	
d5-EtFOSAA	990	1000	102	25-150	
13C7_PFUdA	990	950	96	25-150	
13C2_PFDoA	990	980	99	25-150	
13C2_PFTeDA	990	940	95	25-150	
13C3_HFPO-DA	990	770	78	25-150	
d7-N-MeFOSE	990	550	55	10-150	
d9-N-EtFOSE	990	520	52	10-150	
d3-N-MeFOSA	990	420	43	10-150	
d5-N-EtFOSA	990	430	43	10-150	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057010-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_031	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 13:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.91	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057010-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_031	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 13:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.91	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.60	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.70	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057010-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_031	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 13:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	J
PFPeA	N/A	N/A	4.54	4.54	J
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.000	0.340	0.00	5.29	
PFHxA	0.000	0.0560	5.12	5.12	
4:2 FTS	0.000	0.540	0.00	4.90	
PFPeS	0.000	0.350	0.00	5.84	
PFHpA	0.190	0.310	5.62	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.000	0.240	6.30	6.32	IJ
PFOA	0.400	0.390	6.06	6.06	J
6:2 FTS	0.540	0.480	5.83	5.83	J
PFHpS	0.000	0.260	0.00	6.78	
PFNA	0.130	0.200	6.48	6.49	
PFOSAm	N/A	N/A	8.67	8.66	
PFOS	0.150	0.210	7.21	7.17	
MeFOSA	0.000	0.920	0.00	10.34	
PFDA	0.000	0.0950	0.00	6.92	
EtFOSAm	0.000	0.720	0.00	11.03	
8:2 FTS	0.000	0.680	0.00	6.68	
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.230	7.69	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.500	0.00	6.86	
NEtFOSAA	0.510	0.570	7.05	7.10	J
PFDS	0.000	0.240	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0160	0.00	8.37	
PFTrDA	0.000	0.160	0.00	8.20	
PFDoS	0.000	0.230	8.82	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (1.5-3.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057012-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_033	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Compound	Concentration (ng/Kg)	QL (ng/Kg)	RL (ng/Kg)	DL (ng/Kg)	Dil.	CAS No.	Qual.
PFBA	30 J	99	23	23	1	375-22-4	N2
PFPeA	54 J	99	26	26	1	2706-90-3	N2
HFPO-DA	ND	99	29	29	1	13252-13-6	N2
PFBS	ND	88	22	22	1	375-73-5	N2
PFHxA	ND	99	30	30	1	307-24-4	N2
4:2 FTS	ND	93	31	31	1	757124-72-4	N2
PFPeS	ND	93	18	18	1	2706-91-4	N2
PFHpA	ND	99	22	22	1	375-85-9	N2
DONA	ND	94	38	38	1	919005-14-4	N2
PFHxS	67 IJ	90	22	22	1	355-46-4	N2
PFOA	34 J	99	22	22	1	335-67-1	N2
6:2 FTS	44 J	94	32	32	1	27619-97-2	N2
PFHpS	ND	94	25	25	1	375-92-8	N2
PFNA	ND	99	28	28	1	375-95-1	N2
PFOSAm	ND	99	23	23	1	754-91-6	N2
PFOS	310	92	28	28	1	1763-23-1	N2
MeFOSA	ND	99	25	25	1	31506-32-8	N2
PFDA	ND	99	21	21	1	335-76-2	N2
EtFOSAm	ND	99	23	23	1	4151-50-2	N2
8:2 FTS	ND	95	26	26	1	39108-34-4	N2
9-Cl-PF3ON	ND	92	14	14	1	756426-58-1	N2
PFNS	ND	95	18	18	1	68259-12-1	N2
PFUnDA	ND	99	28	28	1	2058-94-8	N2
NMeFOSAA	ND	99	23	23	1	2355-31-9	N2
NEtFOSAA	ND	99	24	24	1	2991-50-6	N2
PFDS	ND	96	25	25	1	335-77-3	N2
PFDOA	ND	99	26	26	1	307-55-1	N2
MeFOSE	ND	99	23	23	1	24448-09-7	N2
EtFOSE	ND	99	25	25	1	1691-99-2	N2
11-Cl-PF3OUdS	ND	93	16	16	1	763051-92-9	N2
PFTrDA	ND	99	21	21	1	72629-94-8	N2
PFDoS	ND	96	30	30	1	79780-39-5	N2
PFTDA	ND	99	32	32	1	376-06-7	N2

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (1.5-3.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057012-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_033	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	990	100	50-150	
13C4_PFOA	990	1000	104	50-150	
13C2_PFDA	990	1100	110	50-150	
13C4_PFOS	950	990	105	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	780	79	25-150	
13C5_PFPeA	990	830	83	25-150	
13C3_PFBS	920	800	87	25-150	
13C2_4:2FTS	930	750	81	25-150	
13C5_PFHxA	990	840	85	25-150	
13C4_PFHpA	990	870	88	25-150	
13C3_PFHxS	940	870	93	25-150	
13C2_6:2FTS	940	830	88	25-150	
13C8_PFOA	990	880	89	25-150	
13C9_PFNA	990	910	92	25-150	
13C8_PFOS	950	830	87	25-150	
13C2_8:2FTS	950	1100	112	25-150	
13C6_PFDA	990	920	93	25-150	
d3-MeFOSAA	990	1000	104	25-150	
13C8_PFOSA	990	700	70	25-150	
d5-EtFOSAA	990	990	100	25-150	
13C7_PFUdA	990	1100	110	25-150	
13C2_PFDoA	990	1100	112	25-150	
13C2_PFTeDA	990	980	99	25-150	
13C3_HFPO-DA	990	840	85	25-150	
d7-N-MeFOSE	990	620	62	10-150	
d9-N-EtFOSE	990	620	63	10-150	
d3-N-MeFOSA	990	500	51	10-150	
d5-N-EtFOSA	990	510	52	10-150	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (1.5-3.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057012-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_033	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (1.5-3.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057012-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_033	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.28	5.29	
13C2_4:2FTS	N/A	N/A	4.90	4.90	
13C5_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.47	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.65	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.08	10.14	
d9-N-EtFOSE	N/A	N/A	10.69	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	10.99	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (1.5-3.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057012-R2	Total Amount Extracted	5.05g
Lab File ID	A211102A_033	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:05	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	J
PFPeA	N/A	N/A	4.54	4.54	J
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.000	0.340	0.00	5.29	
PFHxA	0.000	0.0560	5.12	5.12	
4:2 FTS	0.000	0.540	0.00	4.90	
PFPeS	0.000	0.350	0.00	5.84	
PFHpA	0.160	0.310	5.61	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.000	0.240	6.34	6.32	IJ
PFOA	0.340	0.390	6.05	6.06	J
6:2 FTS	0.700	0.480	5.83	5.83	J
PFHpS	0.000	0.260	0.00	6.78	
PFNA	0.180	0.200	6.49	6.49	
PFOSAm	N/A	N/A	8.65	8.66	
PFOS	0.210	0.210	7.20	7.17	
MeFOSA	0.000	0.920	0.00	10.34	
PFDA	0.000	0.0950	0.00	6.92	
EtFOSAm	0.000	0.720	0.00	11.03	
8:2 FTS	0.000	0.680	0.00	6.68	
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.230	0.00	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.500	0.00	6.86	
NEtFOSAA	0.000	0.570	7.08	7.10	
PFDS	0.000	0.240	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0160	0.00	8.37	
PFTrDA	0.000	0.160	0.00	8.20	
PFDoS	0.000	0.230	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (5.5-7.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057013-R2	Total Amount Extracted	5.06g
Lab File ID	A211102A_034	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:10	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Compound	Concentration (ng/Kg)	QL (ng/Kg)	RL (ng/Kg)	DL (ng/Kg)	Dil.	CAS No.	Qual.
PFBA	68 J	99	23	23	1	375-22-4	N2
PFPeA	100	99	26	26	1	2706-90-3	N2
HFPO-DA	ND	99	29	29	1	13252-13-6	N2
PFBS	ND	87	22	22	1	375-73-5	N2
PFHxA	42 IJ	99	30	30	1	307-24-4	N2
4:2 FTS	ND	92	31	31	1	757124-72-4	N2
PFPeS	ND	93	18	18	1	2706-91-4	N2
PFHpA	44 J	99	22	22	1	375-85-9	N2
DONA	ND	93	38	38	1	919005-14-4	N2
PFHxS	290 I	90	22	22	1	355-46-4	N2
PFOA	57 J	99	22	22	1	335-67-1	N2
6:2 FTS	38 J	94	32	32	1	27619-97-2	N2
PFHpS	ND	94	25	25	1	375-92-8	N2
PFNA	ND	99	28	28	1	375-95-1	N2
PFOSAm	ND	99	23	23	1	754-91-6	N2
PFOS	380	91	27	27	1	1763-23-1	N2
MeFOSA	ND	99	25	25	1	31506-32-8	N2
PFDA	ND	99	21	21	1	335-76-2	N2
EtFOSAm	ND	99	23	23	1	4151-50-2	N2
8:2 FTS	ND	95	26	26	1	39108-34-4	N2
9-Cl-PF3ON	ND	92	14	14	1	756426-58-1	N2
PFNS	ND	95	18	18	1	68259-12-1	N2
PFUnDA	ND	99	28	28	1	2058-94-8	N2
NMeFOSAA	ND	99	23	23	1	2355-31-9	N2
NEtFOSAA	ND	99	24	24	1	2991-50-6	N2
PFDS	ND	95	25	25	1	335-77-3	N2
PFDOA	ND	99	26	26	1	307-55-1	N2
MeFOSE	ND	99	23	23	1	24448-09-7	N2
EtFOSE	ND	99	25	25	1	1691-99-2	N2
11-Cl-PF3OUdS	ND	93	16	16	1	763051-92-9	N2
PFTrDA	ND	99	21	21	1	72629-94-8	N2
PFDoS	ND	96	30	30	1	79780-39-5	N2
PFTDA	ND	99	32	32	1	376-06-7	N2

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (5.5-7.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057013-R2	Total Amount Extracted	5.06g
Lab File ID	A211102A_034	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:10	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	960	97	50-150	
13C4_PFOA	990	1100	107	50-150	
13C2_PFDA	990	1100	115	50-150	
13C4_PFOS	950	930	98	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	680	68	25-150	
13C5_PFPeA	990	720	73	25-150	
13C3_PFBS	920	690	75	25-150	
13C2_4:2FTS	920	710	77	25-150	
13C5_PFHxA	990	710	71	25-150	
13C4_PFHpA	990	730	74	25-150	
13C3_PFHxS	940	800	86	25-150	
13C2_6:2FTS	940	880	94	25-150	
13C8_PFOA	990	760	77	25-150	
13C9_PFNA	990	820	83	25-150	
13C8_PFOS	950	760	80	25-150	
13C2_8:2FTS	950	1000	106	25-150	
13C6_PFDA	990	870	88	25-150	
d3-MeFOSAA	990	910	92	25-150	
13C8_PFOSA	990	600	61	25-150	
d5-EtFOSAA	990	1100	108	25-150	
13C7_PFUdA	990	990	101	25-150	
13C2_PFDoA	990	1000	103	25-150	
13C2_PFTeDA	990	910	92	25-150	
13C3_HFPO-DA	990	690	70	25-150	
d7-N-MeFOSE	990	490	50	10-150	
d9-N-EtFOSE	990	480	48	10-150	
d3-N-MeFOSA	990	340	34	10-150	
d5-N-EtFOSA	990	350	35	10-150	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (5.5-7.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057013-R2	Total Amount Extracted	5.06g
Lab File ID	A211102A_034	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:10	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (5.5-7.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057013-R2	Total Amount Extracted	5.06g
Lab File ID	A211102A_034	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:10	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.08	10.14	
d9-N-EtFOSE	N/A	N/A	10.70	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-9 (5.5-7.5)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057013-R2	Total Amount Extracted	5.06g
Lab File ID	A211102A_034	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/13/2021 14:10	Ending CCal File	A211102A_041
Received	10/15/2021 09:25	Blank File	A211102A_027

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.70	3.70	J
PFPeA	N/A	N/A	4.54	4.54	
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.000	0.340	0.00	5.29	
PFHxA	0.000	0.0560	5.12	5.12	IJ
4:2 FTS	0.000	0.540	0.00	4.90	
PFPeS	0.000	0.350	0.00	5.84	
PFHpA	0.220	0.310	5.61	5.61	J
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.007	0.240	6.33	6.32	I
PFOA	0.400	0.390	6.05	6.06	J
6:2 FTS	0.440	0.480	5.83	5.83	J
PFHpS	0.000	0.260	0.00	6.78	
PFNA	0.340	0.200	6.48	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.170	0.210	7.21	7.17	
MeFOSA	0.000	0.920	0.00	10.34	
PFDA	0.000	0.0950	0.00	6.92	
EtFOSAm	0.000	0.720	0.00	11.03	
8:2 FTS	0.000	0.680	0.00	6.68	
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.230	7.65	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.500	0.00	6.86	
NEtFOSAA	0.000	0.570	0.00	7.10	
PFDS	0.000	0.240	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	10.14	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0160	0.00	8.37	
PFTrDA	0.000	0.160	0.00	8.20	
PFDoS	0.000	0.230	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057014-R2	Total Amount Extracted	5.07g
Lab File ID	A211109C_011	Ical ID	211103A03
Matrix	Soil	CCal File	A211109C_003
Collected	10/13/2021 14:40	Ending CCal File	A211109C_014
Received	10/15/2021 09:25	Blank File	A211102A_027

Compound	Concentration (ng/Kg)	QL (ng/Kg)	RL (ng/Kg)	DL (ng/Kg)	Dil.	CAS No.	Qual.
PFBA	51 J	99	23	23	1	375-22-4	N2
PFPeA	160	99	26	26	1	2706-90-3	N2
HFPO-DA	ND	99	29	29	1	13252-13-6	N2
PFBS	ND	87	22	22	1	375-73-5	N2
PFHxA	98 IJ	99	30	30	1	307-24-4	N2
4:2 FTS	ND	92	31	31	1	757124-72-4	N2
PFPeS	ND	93	18	18	1	2706-91-4	N2
PFHpA	70 J	99	22	22	1	375-85-9	N2
DONA	ND	93	38	38	1	919005-14-4	N2
PFHxS	27 IJ	90	22	22	1	355-46-4	N2
PFOA	220	99	22	22	1	335-67-1	N2
6:2 FTS	ND	94	32	32	1	27619-97-2	N2
PFHpS	63 IJ	94	25	25	1	375-92-8	N2
PFNA	170	99	28	28	1	375-95-1	N2
PFOSAm	ND	99	23	23	1	754-91-6	N2
PFOS	3200	91	27	27	1	1763-23-1	N2
MeFOSA	ND	99	25	25	1	31506-32-8	N2
PFDA	ND	99	21	21	1	335-76-2	N2
EtFOSAm	ND	99	23	23	1	4151-50-2	N2
8:2 FTS	ND	95	26	26	1	39108-34-4	N2
9-Cl-PF3ON	ND	92	14	14	1	756426-58-1	N2
PFNS	ND	95	18	18	1	68259-12-1	N2
PFUnDA	ND	99	28	28	1	2058-94-8	N2
NMeFOSAA	ND	99	23	23	1	2355-31-9	N2
NEtFOSAA	170	99	24	24	1	2991-50-6	N2
PFDS	ND	95	25	25	1	335-77-3	N2
PFDOA	ND	99	26	26	1	307-55-1	N2
MeFOSE	ND	99	23	23	1	24448-09-7	N2
EtFOSE	ND	99	25	25	1	1691-99-2	N2
11-Cl-PF3OUdS	ND	93	16	16	1	763051-92-9	N2
PFTrDA	68 IJ	99	21	21	1	72629-94-8	N2
PFDoS	ND	96	30	30	1	79780-39-5	N2
PFTDA	ND	99	32	32	1	376-06-7	N2

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057014-R2	Total Amount Extracted	5.07g
Lab File ID	A211109C_011	Ical ID	211103A03
Matrix	Soil	CCal File	A211109C_003
Collected	10/13/2021 14:40	Ending CCal File	A211109C_014
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	770	78	50-150	
13C4_PFOA	990	820	84	50-150	
13C2_PFDA	990	890	90	50-150	
13C4_PFOS	940	810	86	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	570	58	50-150	
13C5_PFPeA	990	610	62	50-150	
13C3_PFBS	920	600	65	50-150	
13C2_4:2FTS	920	640	70	50-150	
13C5_PFHxA	990	640	65	50-150	
13C4_PFHpA	990	620	63	50-150	
13C3_PFHxS	930	620	67	50-150	
13C2_6:2FTS	940	680	72	50-150	
13C8_PFOA	990	620	63	50-150	
13C9_PFNA	990	660	67	50-150	
13C8_PFOS	940	610	64	50-150	
13C2_8:2FTS	950	750	80	50-150	
13C6_PFDA	990	690	70	50-150	
d3-MeFOSAA	990	770	78	50-150	
13C8_PFOSA	990	560	57	50-150	
d5-EtFOSAA	990	800	81	50-150	
13C7_PFUdA	990	780	79	50-150	
13C2_PFDoA	990	700	71	50-150	
13C2_PFTeDA	990	740	74	50-150	
13C3_HFPO-DA	990	580	58	50-150	
d7-N-MeFOSE	990	390	39	10-150	
d9-N-EtFOSE	990	420	42	10-150	
d3-N-MeFOSA	990	140	15	10-150	
d5-N-EtFOSA	990	170	17	10-150	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057014-R2	Total Amount Extracted	5.07g
Lab File ID	A211109C_011	Ical ID	211103A03
Matrix	Soil	CCal File	A211109C_003
Collected	10/13/2021 14:40	Ending CCal File	A211109C_014
Received	10/15/2021 09:25	Blank File	A211102A_027

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.04	6.05	
13C2_PFDA	N/A	N/A	6.89	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057014-R2	Total Amount Extracted	5.07g
Lab File ID	A211109C_011	Ical ID	211103A03
Matrix	Soil	CCal File	A211109C_003
Collected	10/13/2021 14:40	Ending CCal File	A211109C_014
Received	10/15/2021 09:25	Blank File	A211102A_027

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.04	6.05	
13C9_PFNA	N/A	N/A	6.47	6.48	
13C8_PFOS	N/A	N/A	7.19	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.89	6.91	
d3-MeFOSAA	N/A	N/A	6.84	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.32	7.34	
13C2_PFDoA	N/A	N/A	7.74	7.77	
13C2_PFTeDA	N/A	N/A	8.58	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.09	
d9-N-EtFOSE	N/A	N/A	10.71	10.71	
d3-N-MeFOSA	N/A	N/A	10.33	10.33	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10 (2-4)	Extraction Date	10/28/2021 09:09
Lab Sample ID	40235057014-R2	Total Amount Extracted	5.07g
Lab File ID	A211109C_011	Ical ID	211103A03
Matrix	Soil	CCal File	A211109C_003
Collected	10/13/2021 14:40	Ending CCal File	A211109C_014
Received	10/15/2021 09:25	Blank File	A211102A_027

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	J
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.000	0.440	0.00	5.33	
PFBS	1.40	0.390	5.29	5.29	
PFHxA	0.110	0.0620	5.12	5.12	IJ
4:2 FTS	0.000	0.560	4.84	4.90	
PFPeS	0.000	0.260	5.83	5.84	
PFHpA	0.350	0.280	5.60	5.61	J
DONA	0.000	0.500	0.00	5.78	
PFHxS	0.360	0.230	6.31	6.32	IJ
PFOA	0.390	0.400	6.05	6.06	
6:2 FTS	0.000	0.570	0.00	5.83	
PFHpS	0.091	0.270	6.77	6.78	IJ
PFNA	0.200	0.190	6.47	6.49	
PFOSAm	N/A	N/A	8.67	8.66	
PFOS	0.220	0.260	7.20	7.17	
MeFOSA	0.000	0.840	0.00	10.34	
PFDA	0.000	0.0760	0.00	6.92	
EtFOSAm	0.000	0.710	0.00	11.03	
8:2 FTS	0.000	0.530	0.00	6.68	
9-Cl-PF3ON	0.000	0.0190	0.00	7.53	
PFNS	0.000	0.270	0.00	7.65	
PFUnDA	0.000	0.0830	0.00	7.35	
NMeFOSAA	0.000	0.540	0.00	6.86	
NEtFOSAA	0.760	0.750	7.04	7.10	
PFDS	0.000	0.270	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0200	0.00	8.37	
PFTrDA	0.000	0.140	8.07	8.20	IJ
PFDoS	0.000	0.240	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKC	Extraction Date	10/28/2021 09:09
Lab Sample ID	BLANK-94140	Total Amount Extracted	5.09g
Lab File ID	A211102A_027	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/27/2021 12:43	Ending CCal File	A211102A_041
Received	10/27/2021 12:43	Blank File	

Compound	Concentration (ng/Kg)	QL (ng/Kg)	RL (ng/Kg)	DL (ng/Kg)	Dil.	CAS No.	Qual.
PFBA	ND	98	23	23	1	375-22-4	N2
PFPeA	ND	98	26	26	1	2706-90-3	N2
HFPO-DA	ND	98	29	29	1	13252-13-6	N2
PFBS	ND	87	22	22	1	375-73-5	N2
PFHxA	ND	98	29	29	1	307-24-4	N2
4:2 FTS	ND	92	31	31	1	757124-72-4	N2
PFPeS	ND	92	18	18	1	2706-91-4	N2
PFHpA	ND	98	22	22	1	375-85-9	N2
DONA	ND	93	38	38	1	919005-14-4	N2
PFHxS	ND	89	22	22	1	355-46-4	N2
PFOA	ND	98	22	22	1	335-67-1	N2
6:2 FTS	ND	93	31	31	1	27619-97-2	N2
PFHpS	ND	93	25	25	1	375-92-8	N2
PFNA	ND	98	28	28	1	375-95-1	N2
PFOSAm	ND	98	23	23	1	754-91-6	N2
PFOS	ND	91	27	27	1	1763-23-1	N2
MeFOSA	ND	98	24	24	1	31506-32-8	N2
PFDA	ND	98	21	21	1	335-76-2	N2
EtFOSAm	ND	98	23	23	1	4151-50-2	N2
8:2 FTS	26 IJ	94	25	25	1	39108-34-4	N2
9-Cl-PF3ON	ND	92	14	14	1	756426-58-1	N2
PFNS	ND	94	18	18	1	68259-12-1	N2
PFUnDA	ND	98	28	28	1	2058-94-8	N2
NMeFOSAA	ND	98	23	23	1	2355-31-9	N2
NEtFOSAA	ND	98	24	24	1	2991-50-6	N2
PFDS	ND	95	25	25	1	335-77-3	N2
PFDOA	ND	98	26	26	1	307-55-1	N2
MeFOSE	ND	98	23	23	1	24448-09-7	N2
EtFOSE	ND	98	24	24	1	1691-99-2	N2
11-Cl-PF3OUdS	ND	92	16	16	1	763051-92-9	N2
PFTrDA	ND	98	21	21	1	72629-94-8	N2
PFDoS	ND	95	29	29	1	79780-39-5	N2
PFTDA	ND	98	32	32	1	376-06-7	N2

REPORT OF LABORATORY ANALYSIS

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKC	Extraction Date	10/28/2021 09:09
Lab Sample ID	BLANK-94140	Total Amount Extracted	5.09g
Lab File ID	A211102A_027	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/27/2021 12:43	Ending CCal File	A211102A_041
Received	10/27/2021 12:43	Blank File	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	980	1000	103	50-150	
13C4_PFOA	980	1000	105	50-150	
13C2_PFDA	980	980	100	50-150	
13C4_PFOS	940	950	101	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	980	830	85	50-150	
13C5_PFPeA	980	880	89	50-150	
13C3_PFBS	910	740	82	50-150	
13C2_4:2FTS	920	800	87	50-150	
13C5_PFHxA	980	840	86	50-150	
13C4_PFHpA	980	910	93	50-150	
13C3_PFHxS	930	830	89	50-150	
13C2_6:2FTS	930	860	93	50-150	
13C8_PFOA	980	820	83	50-150	
13C9_PFNA	980	880	90	50-150	
13C8_PFOS	940	790	84	50-150	
13C2_8:2FTS	940	920	97	50-150	
13C6_PFDA	980	850	87	50-150	
d3-MeFOSAA	980	880	89	50-150	
13C8_PFOSA	980	820	83	50-150	
d5-EtFOSAA	980	840	85	50-150	
13C7_PFUdA	980	840	86	50-150	
13C2_PFDoA	980	850	87	50-150	
13C2_PFTeDA	980	870	89	50-150	
13C3_HFPO-DA	980	830	85	50-150	
d7-N-MeFOSE	980	650	67	20-150	
d9-N-EtFOSE	980	620	63	20-150	
d3-N-MeFOSA	980	610	62	20-150	
d5-N-EtFOSA	980	590	60	20-150	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKC	Extraction Date	10/28/2021 09:09
Lab Sample ID	BLANK-94140	Total Amount Extracted	5.09g
Lab File ID	A211102A_027	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/27/2021 12:43	Ending CCal File	A211102A_041
Received	10/27/2021 12:43	Blank File	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKC	Extraction Date	10/28/2021 09:09
Lab Sample ID	BLANK-94140	Total Amount Extracted	5.09g
Lab File ID	A211102A_027	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/27/2021 12:43	Ending CCal File	A211102A_041
Received	10/27/2021 12:43	Blank File	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.28	5.29	
13C2_4:2FTS	N/A	N/A	4.90	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.65	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.60	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.08	10.14	
d9-N-EtFOSE	N/A	N/A	10.70	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKC	Extraction Date	10/28/2021 09:09
Lab Sample ID	BLANK-94140	Total Amount Extracted	5.09g
Lab File ID	A211102A_027	Ical ID	211026A03
Matrix	Soil	CCal File	A211102A_026
Collected	10/27/2021 12:43	Ending CCal File	A211102A_041
Received	10/27/2021 12:43	Blank File	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.68	3.70	
PFPeA	N/A	N/A	0.00	4.54	
HFPO-DA	0.000	0.470	0.00	5.33	
PFBS	0.000	0.340	0.00	5.29	
PFHxA	0.000	0.0560	5.12	5.12	
4:2 FTS	0.000	0.540	0.00	4.90	
PFPeS	0.000	0.350	0.00	5.84	
PFHpA	0.000	0.310	0.00	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.000	0.240	0.00	6.32	
PFOA	0.000	0.390	0.00	6.06	
6:2 FTS	0.000	0.480	0.00	5.83	
PFHpS	0.000	0.260	0.00	6.78	
PFNA	0.000	0.200	0.00	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.000	0.210	0.00	7.17	
MeFOSA	0.000	0.920	0.00	10.34	
PFDA	0.000	0.0950	0.00	6.92	
EtFOSAm	0.000	0.720	0.00	11.03	
8:2 FTS	0.000	0.680	6.44	6.68	IJ
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.230	0.00	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.500	0.00	6.86	
NEtFOSAA	0.000	0.570	0.00	7.10	
PFDS	0.000	0.240	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0160	0.00	8.37	
PFTrDA	0.000	0.160	0.00	8.20	
PFDoS	0.000	0.230	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94141	Instrument ID	10LCMS03
Run File Name	A211104A_007	Column ID	118AB10133
Analyzed	11/04/2021 10:52	Ical ID	211103A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	960	97	50-150	
13C4_PFOA	990	960	97	50-150	
13C2_PFDA	990	1000	103	50-150	
13C4_PFOS	950	880	92	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	830	84	50-150	
13C5_PFPeA	990	830	84	50-150	
13C3_PFBS	920	880	95	50-150	
13C2_4:2FTS	930	820	88	50-150	
13C5_PFHxA	990	850	86	50-150	
13C4_PFHpA	990	850	86	50-150	
13C3_PFHxS	940	800	85	50-150	
13C2_6:2FTS	940	790	84	50-150	
13C8_PFOA	990	890	89	50-150	
13C9_PFNA	990	870	88	50-150	
13C8_PFOS	950	800	84	50-150	
13C2_8:2FTS	950	1000	106	50-150	
13C6_PFDA	990	900	91	50-150	
d3-MeFOSAA	990	880	89	50-150	
13C8_PFOSA	990	830	83	50-150	
d5-EtFOSAA	990	900	91	50-150	
13C7_PFUdA	990	850	86	50-150	
13C2_PFDoA	990	880	89	50-150	
13C2_PFTeDA	990	840	85	50-150	
13C3_HFPO-DA	990	850	86	50-150	
d7-N-MeFOSE	990	640	64	20-150	
d9-N-EtFOSE	990	650	66	20-150	
d3-N-MeFOSA	990	680	68	20-150	
d5-N-EtFOSA	990	670	68	20-150	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94141	Instrument ID	10LCMS03
Run File Name	A211104A_007	Column ID	118AB10133
Analyzed	11/04/2021 10:52	Ical ID	211103A03
Injected By	NH	Level	L

Native Analytes

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	200	210	107	50-150		375-22-4
PFPeA	200	210	105	50-150		2706-90-3
HFPO-DA	200	200	103	50-150		13252-13-6
PFBS	180	180	104	50-150		375-73-5
PFHxA	200	210	107	50-150		307-24-4
4:2 FTS	190	220	117	50-150		757124-72-4
PFPeS	190	210	111	50-150		2706-91-4
PFHpA	200	220	110	50-150		375-85-9
DONA	190	210	114	50-150		919005-14-4
PFHxS	180	180	100	50-150		355-46-4
PFOA	200	210	106	50-150		335-67-1
6:2 FTS	190	210	112	50-150		27619-97-2
PFHpS	190	200	106	50-150		375-92-8
PFNA	200	210	105	50-150		375-95-1
PFOSAm	200	200	103	50-150		754-91-6
PFOS	180	200	109	50-150		1763-23-1
MeFOSA	200	210	108	50-150		31506-32-8
PFDA	200	210	103	50-150		335-76-2
EtFOSAm	200	220	109	50-150		4151-50-2
8:2 FTS	190	240	124	50-150	B	39108-34-4
9-Cl-PF3ON	180	200	108	50-150		756426-58-1
PFNS	190	200	105	50-150		68259-12-1
PFUnDA	200	220	109	50-150		2058-94-8
NMeFOSAA	200	220	111	50-150		2355-31-9
NEtFOSAA	200	220	113	50-150		2991-50-6
PFDS	190	200	104	50-150		335-77-3
PFDOA	200	220	111	50-150		307-55-1
MeFOSE	200	210	105	50-150		24448-09-7
EtFOSE	200	210	108	50-150		1691-99-2
11-Cl-PF3OUdS	190	210	112	50-150		763051-92-9
PFTrDA	200	220	110	50-150		72629-94-8
PFDoS	190	220	115	50-150		79780-39-5
PFTDA	200	200	102	50-150		376-06-7

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94141	Instrument ID	10LCMS03
Run File Name	A211104A_007	Column ID	118AB10133
Analyzed	11/04/2021 10:52	Ical ID	211103A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.61	5.61	
13C3_PFHxS	N/A	N/A	6.32	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.60	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94141	Instrument ID	10LCMS03
Run File Name	A211104A_007	Column ID	118AB10133
Analyzed	11/04/2021 10:52	Ical ID	211103A03
Injected By	NH	Level	L

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.48	0.47	5.33	5.33	
PFBS	0.34	0.34	5.30	5.29	
PFHxA	0.07	0.07	5.13	5.12	
4:2 FTS	0.52	0.56	4.91	4.90	
PFPeS	0.31	0.35	5.84	5.84	
PFHpA	0.29	0.28	5.61	5.61	
DONA	0.49	0.48	5.78	5.78	
PFHxS	0.29	0.28	6.32	6.32	
PFOA	0.36	0.32	6.06	6.06	
6:2 FTS	0.64	0.54	5.83	5.83	
PFHpS	0.26	0.24	6.77	6.78	
PFNA	0.20	0.20	6.49	6.49	
PFOSAm	N/A	N/A	8.67	8.66	
PFOS	0.22	0.23	7.21	7.17	
MeFOSA	0.84	0.90	10.35	10.34	
PFDA	0.10	0.09	6.91	6.92	
EtFOSAm	0.68	0.74	11.04	11.03	
8:2 FTS	0.52	0.64	6.67	6.68	B
9-Cl-PF3ON	0.02	0.01	7.52	7.53	
PFNS	0.23	0.22	7.64	7.65	
PFUnDA	0.09	0.08	7.34	7.35	
NMeFOSAA	0.48	0.57	6.86	6.86	
NEtFOSAA	0.71	0.57	7.06	7.10	
PFDS	0.24	0.23	8.06	8.07	
PFDOA	0.13	0.14	7.76	7.77	
MeFOSE	N/A	N/A	10.13	10.12	
EtFOSE	0.00	0.00	10.77	10.76	
11-Cl-PF3OUdS	0.01	0.01	8.36	8.37	
PFTrDA	0.15	0.16	8.18	8.20	
PFDoS	0.20	0.26	8.85	8.87	
PFTDA	0.15	0.17	8.60	8.61	

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MS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MS-R	Instrument ID	10LCMS03
Run File Name	A211102A_029	Column ID	118AB10133
Analyzed	11/02/2021 15:59	Ical ID	211026A03
Injected By	NH	Level	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	990	1000	104	50-150	
13C4_PFOA	990	1100	109	50-150	
13C2_PFDA	990	1200	126	50-150	
13C4_PFOS	950	1000	106	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	990	710	72	50-150	
13C5_PFPeA	990	740	75	50-150	
13C3_PFBS	920	760	83	50-150	
13C2_4:2FTS	920	720	78	50-150	
13C5_PFHxA	990	740	75	50-150	
13C4_PFHpA	990	820	83	50-150	
13C3_PFHxS	930	810	87	50-150	
13C2_6:2FTS	940	910	97	50-150	
13C8_PFOA	990	750	76	50-150	
13C9_PFNA	990	820	83	50-150	
13C8_PFOS	950	730	77	50-150	
13C2_8:2FTS	950	1100	115	50-150	
13C6_PFDA	990	890	90	50-150	
d3-MeFOSAA	990	1300	132	50-150	
13C8_PFOSA	990	690	70	50-150	
d5-EtFOSAA	990	1000	102	50-150	
13C7_PFUdA	990	1200	124	50-150	
13C2_PFDoA	990	1200	120	50-150	
13C2_PFTeDA	990	920	93	50-150	
13C3_HFPO-DA	990	720	73	50-150	
d7-N-MeFOSE	990	580	59	10-150	
d9-N-EtFOSE	990	550	55	10-150	
d3-N-MeFOSA	990	550	56	10-150	
d5-N-EtFOSA	990	520	53	10-150	

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MS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MS-R	Instrument ID	10LCMS03
Run File Name	A211102A_029	Column ID	118AB10133
Analyzed	11/02/2021 15:59	Ical ID	211026A03
Injected By	NH	Level	

Native Analytes

Compound	Sample Conc.	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	30	200	240	105	50-150		375-22-4
PFPeA	54	200	270	109	50-150		2706-90-3
HFPO-DA	0.00	200	200	101	50-150		13252-13-6
PFBS	0.00	170	190	109	50-150		375-73-5
PFHxA	0.00	200	230	115	50-150		307-24-4
4:2 FTS	0.00	180	180	100	50-150		757124-72-4
PFPeS	0.00	190	210	111	50-150		2706-91-4
PFHpA	0.00	200	210	107	50-150		375-85-9
DONA	0.00	190	200	105	50-150		919005-14-4
PFHxS	67	180	250	100	50-150		355-46-4
PFOA	34	200	270	118	50-150		335-67-1
6:2 FTS	44	190	210	87	50-150		27619-97-2
PFHpS	0.00	190	190	101	50-150		375-92-8
PFNA	0.00	200	200	104	50-150		375-95-1
PFOSAm	0.00	200	210	104	50-150		754-91-6
PFOS	310	180	430	69	50-150		1763-23-1
MeFOSA	0.00	200	210	104	50-150		31506-32-8
PFDA	0.00	200	190	97	50-150		335-76-2
EtFOSAm	0.00	200	190	94	50-150		4151-50-2
8:2 FTS	0.00	190	220	117	50-150	B	39108-34-4
9-Cl-PF3ON	0.00	180	180	96	50-150		756426-58-1
PFNS	0.00	180	200	107	50-150		68259-12-1
PFUnDA	0.00	200	210	108	50-150		2058-94-8
NMeFOSAA	0.00	200	180	92	50-150		2355-31-9
NEtFOSAA	0.00	200	210	108	50-150		2991-50-6
PFDS	0.00	190	190	99	50-150		335-77-3
PFDOA	0.00	200	210	106	50-150		307-55-1
MeFOSE	0.00	200	200	104	50-150		24448-09-7
EtFOSE	0.00	200	210	108	50-150		1691-99-2
11-Cl-PF3OUdS	0.00	190	170	92	50-150		763051-92-9
PFTrDA	0.00	200	200	103	50-150		72629-94-8
PFDoS	0.00	190	170	88	50-150		79780-39-5
PFTDA	0.00	200	200	101	50-150		376-06-7

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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MS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MS-R	Instrument ID	10LCMS03
Run File Name	A211102A_029	Column ID	118AB10133
Analyzed	11/02/2021 15:59	Ical ID	211026A03
Injected By	NH	Level	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.04	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.28	5.29	
13C2_4:2FTS	N/A	N/A	4.90	4.90	
13C5_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.04	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.84	6.86	
13C8_PFOSA	N/A	N/A	8.65	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.08	10.14	
d9-N-EtFOSE	N/A	N/A	10.69	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	10.99	11.01	

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MS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MS-R	Instrument ID	10LCMS03
Run File Name	A211102A_029	Column ID	118AB10133
Analyzed	11/02/2021 15:59	Ical ID	211026A03
Injected By	NH	Level	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.68	3.70	
PFPeA	N/A	N/A	4.54	4.54	
HFPO-DA	0.47	0.47	5.32	5.33	
PFBS	0.29	0.34	5.29	5.29	
PFHxA	0.06	0.05	5.12	5.12	
4:2 FTS	0.59	0.54	4.91	4.90	
PFPeS	0.27	0.35	5.83	5.84	
PFHpA	0.29	0.31	5.61	5.61	
DONA	0.50	0.52	5.77	5.78	
PFHxS	0.19	0.24	6.32	6.32	
PFOA	0.35	0.39	6.05	6.06	
6:2 FTS	0.50	0.48	5.83	5.83	
PFHpS	0.24	0.26	6.77	6.78	
PFNA	0.22	0.20	6.48	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.23	0.21	7.20	7.17	
MeFOSA	0.89	0.92	10.33	10.34	
PFDA	0.10	0.09	6.91	6.92	
EtFOSAm	0.73	0.72	11.02	11.03	
8:2 FTS	0.49	0.68	6.67	6.68	B
9-Cl-PF3ON	0.02	0.02	7.51	7.53	
PFNS	0.23	0.23	7.63	7.65	
PFUnDA	0.10	0.10	7.34	7.35	
NMeFOSAA	0.52	0.50	6.85	6.86	
NEtFOSAA	0.62	0.57	7.05	7.10	
PFDS	0.23	0.24	8.05	8.07	
PFDOA	0.16	0.13	7.76	7.77	
MeFOSE	N/A	N/A	10.12	10.12	
EtFOSE	0.00	0.00	10.76	10.76	
11-Cl-PF3OUdS	0.01	0.01	8.35	8.37	
PFTrDA	0.15	0.16	8.18	8.20	
PFDoS	0.25	0.23	8.85	8.87	
PFTDA	0.14	0.14	8.59	8.61	

REPORT OF LABORATORY ANALYSIS

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MSD Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MSD-R	Instrument ID	10LCMS03
Run File Name	A211102A_030	Column ID	118AB10133
Analyzed	11/02/2021 16:14	Ical ID	211026A03
Injected By	NH	Level	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	RPD	Qualifiers
13C2_PFHxA	980	1000	106	50-150	2.0	
13C4_PFOA	980	1100	110	50-150	0.3	
13C2_PFDA	980	1200	123	50-150	2.2	
13C4_PFOS	940	1000	109	50-150	2.8	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	RPD	Qualifiers
13C4_PFBA	980	750	76	50-150	5.9	
13C5_PFPeA	980	800	82	50-150	9.0	
13C3_PFBS	910	790	87	50-150	4.3	
13C2_4:2FTS	920	780	85	50-150	8.1	
13C5_PFHxA	980	770	78	50-150	4.5	
13C4_PFHpA	980	820	83	50-150	0.6	
13C3_PFHxS	930	820	88	50-150	1.6	
13C2_6:2FTS	930	840	90	50-150	8.0	
13C8_PFOA	980	810	83	50-150	7.9	
13C9_PFNA	980	900	91	50-150	8.7	
13C8_PFOS	940	850	90	50-150	15.4	
13C2_8:2FTS	940	1000	109	50-150	5.4	
13C6_PFDA	980	920	94	50-150	4.2	
d3-MeFOSAA	980	1100	109	50-150	19.2	
13C8_PFOSA	980	660	67	50-150	4.0	
d5-EtFOSAA	980	1000	103	50-150	1.4	
13C7_PFUdA	980	1100	107	50-150	14.4	
13C2_PFDoA	980	1100	113	50-150	6.1	
13C2_PFTeDA	980	860	87	50-150	6.1	
13C3_HFPO-DA	980	770	79	50-150	7.8	
d7-N-MeFOSE	980	610	62	10-150	4.6	
d9-N-EtFOSE	980	580	59	10-150	5.5	
d3-N-MeFOSA	980	480	49	10-150	13.6	
d5-N-EtFOSA	980	510	52	10-150	1.2	

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MSD Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MSD-R	Instrument ID	10LCMS03
Run File Name	A211102A_030	Column ID	118AB10133
Analyzed	11/02/2021 16:14	Ical ID	211026A03
Injected By	NH	Level	

Native Analytes

Compound	Sample Conc.	Known Conc.	Conc. Found	%Recovery	Recovery Limits	RPD	Qualifiers	CAS No.
PFBA	30	200	220	99	50-150	5.0		375-22-4
PFPeA	54	200	250	99	50-150	7.2		2706-90-3
HFPO-DA	0.00	200	190	98	50-150	3.7		13252-13-6
PFBS	0.00	170	190	109	50-150	0.4		375-73-5
PFHxA	0.00	200	210	109	50-150	5.6		307-24-4
4:2 FTS	0.00	180	180	96	50-150	3.7		757124-72-4
PFPeS	0.00	190	210	111	50-150	0.3		2706-91-4
PFHpA	0.00	200	210	109	50-150	1.9		375-85-9
DONA	0.00	190	200	108	50-150	2.6		919005-14-4
PFHxS	67	180	280	121	50-150	14.3		355-46-4
PFOA	34	200	270	122	50-150	2.7		335-67-1
6:2 FTS	44	190	230	102	50-150	12.2		27619-97-2
PFHpS	0.00	190	170	90	50-150	11.3		375-92-8
PFNA	0.00	200	210	109	50-150	5.0		375-95-1
PFOSAm	0.00	200	200	101	50-150	3.4		754-91-6
PFOS	310	180	520	118	50-150	18.9		1763-23-1
MeFOSA	0.00	200	200	103	50-150	0.8		31506-32-8
PFDA	0.00	200	220	113	50-150	15.1		335-76-2
EtFOSAm	0.00	200	200	99	50-150	5.4		4151-50-2
8:2 FTS	0.00	190	190	98	50-150	17.3	B	39108-34-4
9-Cl-PF3ON	0.00	180	180	96	50-150	0.4		756426-58-1
PFNS	0.00	180	190	102	50-150	5.5		68259-12-1
PFUnDA	0.00	200	220	110	50-150	2.3		2058-94-8
NMeFOSAA	0.00	200	180	89	50-150	3.0		2355-31-9
NEtFOSAA	0.00	200	230	119	50-150	9.5		2991-50-6
PFDS	0.00	190	180	96	50-150	3.4		335-77-3
PFDOA	0.00	200	210	104	50-150	1.7		307-55-1
MeFOSE	0.00	200	200	102	50-150	1.8		24448-09-7
EtFOSE	0.00	200	190	96	50-150	11.3		1691-99-2
11-Cl-PF3OUdS	0.00	190	160	86	50-150	7.6		763051-92-9
PFTrDA	0.00	200	190	97	50-150	5.1		72629-94-8
PFDoS	0.00	190	160	84	50-150	5.0		79780-39-5
PFTDA	0.00	200	200	104	50-150	2.7		376-06-7

REPORT OF LABORATORY ANALYSIS

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MSD Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MSD-R	Instrument ID	10LCMS03
Run File Name	A211102A_030	Column ID	118AB10133
Analyzed	11/02/2021 16:14	Ical ID	211026A03
Injected By	NH	Level	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.91	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.08	10.14	
d9-N-EtFOSE	N/A	N/A	10.70	10.70	
d3-N-MeFOSA	N/A	N/A	10.32	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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MSD Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	40235057012-MSD-R	Instrument ID	10LCMS03
Run File Name	A211102A_030	Column ID	118AB10133
Analyzed	11/02/2021 16:14	Ical ID	211026A03
Injected By	NH	Level	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.49	0.47	5.33	5.33	
PFBS	0.32	0.34	5.29	5.29	
PFHxA	0.06	0.05	5.12	5.12	
4:2 FTS	0.57	0.54	4.91	4.90	
PFPeS	0.29	0.35	5.84	5.84	
PFHpA	0.30	0.31	5.61	5.61	
DONA	0.45	0.52	5.78	5.78	
PFHxS	0.16	0.24	6.32	6.32	
PFOA	0.29	0.39	6.05	6.06	
6:2 FTS	0.55	0.48	5.83	5.83	
PFHpS	0.27	0.26	6.77	6.78	
PFNA	0.18	0.20	6.49	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.18	0.21	7.21	7.17	
MeFOSA	0.87	0.92	10.34	10.34	
PFDA	0.09	0.09	6.91	6.92	
EtFOSAm	0.67	0.72	11.03	11.03	
8:2 FTS	0.80	0.68	6.67	6.68	B
9-Cl-PF3ON	0.02	0.02	7.52	7.53	
PFNS	0.25	0.23	7.64	7.65	
PFUnDA	0.11	0.10	7.34	7.35	
NMeFOSAA	0.66	0.50	6.86	6.86	
NEtFOSAA	0.58	0.57	7.06	7.10	
PFDS	0.24	0.24	8.06	8.07	
PFDOA	0.14	0.13	7.76	7.77	
MeFOSE	N/A	N/A	10.12	10.12	
EtFOSE	0.00	0.00	10.76	10.76	
11-Cl-PF3OUdS	0.01	0.01	8.36	8.37	
PFTrDA	0.15	0.16	8.19	8.20	
PFDoS	0.25	0.23	8.85	8.87	
PFTDA	0.13	0.14	8.60	8.61	

REPORT OF LABORATORY ANALYSIS

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Certificate of Analysis

Client Name	Pace Analytical Green Bay
Street Address	1241 Bellevue Street, Suite 9
City, State ZIP	Green Bay, WI 54302
Attn:	Dan Milewsky
Client Project Name:	40235057 / Ludington

NVLAP TESTING
NVLAP Lab Code 200860-0

Date Collected:	10/13/2021
Date Received:	10/15/2021
Date Analyzed:	10/27/2021
Date Reported:	10/27/2021
Project ID:	21047603

Test Requested: 3002, Asbestos in Bulk Samples
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

Sample Identification		Physical Description of Sample/Layer	Homo-geneous (Y/N)	Layer Percentage	Asbestos Detected	Asbestos Percentage	Non-Asbestos Fiber Percentage	Non-Fibrous Material Percentage	Matrix Material Composition
Client	Lab Sample Number								
GP-8 (2-4)	21047603-1	Brown Soil	N	100	ND		2 CELL	98	
GP-8 (7-8)	21047603-2	Brown Soil with Brown Fibrous Debris	N	100	ND		30 CELL	70	
GP-9 (1.5-3.5)	21047603-3	Gray Soil	N	100	ND		2 CELL	98	
GP-9 (5.5-7.5)	21047603-4	Brown Soil	N	100	ND		2 CELL	98	
GP-10 (2-4)	21047603-5	Brown Soil with Brown Fibrous Debris	N	100	ND		15 CELL	85	
GP-10 (6.5-8)	21047603-6	Brown Soil	N	100	ND		2 CELL	98	

Piper-Lenore Murphy
Laboratory Analyst

Shannon Whitmore
Asbestos Lab Supervisor

AC = Actinolite	AH = Animal Hair	B = Binder	Q = Quartz
AM = Amosite	CELL = Cellulose	C = Calcite	T = Tar
AN = Anthophyllite	FG = Fibrous Glass	D = Diatoms	V = Vermiculite
CHRY = Chrysotile	MW = Mineral Wool	G = Gypsum	
CR = Crocidolite	OT = Other	M = Mica	
TRM = Tremolite	SYN = Synthetic	OR = Organic	
Tr = Trace	TL = Talc	OP = Opaques	
ND = None Detected	W = Wollastonite	P = Perlite	

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Certificate of Analysis

Client Name	Pace Analytical Green Bay		Date Collected: 10/13/2021
Street Address	1241 Bellevue Street, Suite 9	NVLAP® TESTING	Date Received: 10/15/2021
City, State ZIP	Green Bay, WI 54302	NVLAP Lab Code 200860-0	Date Analyzed: 10/27/2021
Attn:	Dan Milewsky		Date Reported: 10/27/2021
Client Project Name:	40235057 / Ludington		Project ID: 21047603

Test Requested: **3002, Asbestos in Bulk Samples**
Method: EPA 600/R-93/116: Method for Asbestos in Bulk Building Materials, EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method for Asbestos in Bulk Insulation Samples

General Notes

- **ND** indicates no asbestos was detected; the method detection limit is 1 %.
- **Trace** or "< 1" indicates asbestos was identified in the sample, but the concentration is less than 1% and cannot be quantified without point counting.
- Samples identified as inhomogeneous (more than one layer) are separated into individual layers, and each layer is analyzed and reported separately.
- All regulated asbestos minerals (i.e. chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite) were sought in every layer of each sample, but only those asbestos minerals detected are listed. Amosite is the common name for the asbestiform variety of the minerals grunerite. Crocidolite is the common name used for the asbestiform variety of the mineral riebeckite.
- Tile, vinyl, foam, plastic, and fine powder samples may contain asbestos fibers of such small diameter (< 0.25 microns in diameter) that these fibers cannot be detected by PLM. For such samples, more sensitive analytical methods (e.g. TEM, SEM, and XRD) are recommended if greater certainty about asbestos content is required. Semi-quantitative bulk TEM floor tile analysis is accepted under NESHAP regulations.
- These results are submitted pursuant to Aerobiology Laboratory Associates, Inc.'s current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which the results are used or interpreted.
- Unless notified in writing to return the samples covered by this report, Aerobiology Laboratory Associates, Inc. will store the samples for a minimum period of thirty (30) days before discarding. A shipping and handling charge will be assessed for the return of any samples.
- Aerobiology does not guarantee the results of tape lifts, microvacs, wipe, and/or debris samples. Accurate analysis cannot be performed due to particle size, media used, and/or amount of material given. Analysis of these materials should be preformed by a TEM. ***A result of ND does not indicate that the sample area does not contain asbestos. It means the analyst could not identify asbestos in the specific sample for the reasons listed above.***

Notes Required by NVLAP

- This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
- This test report relates only to the items tested or calibrated.
- This report is not valid unless it bears the name of a NVLAP-approved signatory.
- Any reproduction of this document must include the entire document in order for the report to be valid.

Internal Transfer Chain of Custody

210471603

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☐ Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 10/13/2021 Results Requested By: 10/27/2021

Workorder: 40235057 **Workorder Name:** LUDINGTON

Report To	Subcontract To
Dan Milewsky Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436 dan.milewsky@pace	Pace Analytical Golden 780 Simms St, Suite 104 Golden, CO 80401 Phone (866) 620-9348

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: Asbestos-PLM	LAB USE ONLY
1	GP-8 (2-4)	PS	10/13/2021 13:05	40235057010	Solid	1	X	
2	GP-8 (7-8)	PS	10/13/2021 13:10	40235057011	Solid	1	X	
3	GP-9 (1.5-3.5)	PS	10/13/2021 14:05	40235057012	Solid	1	X	
4	GP-9 (5.5-7.5)	PS	10/13/2021 14:10	40235057013	Solid	1	X	
5	GP-10 (2-4)	PS	10/13/2021 14:40	40235057014	Solid	1	X	
6	GP-10 (6.5-8)	PS	10/13/2021 14:45	40235057015	Solid	1	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	10/14/21 1600	ERT 10/15/21	
2				
3				

Comments

Cooler Temperature on Receipt _____ °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signatu
This chain of custody is considered complete as is since this information is available in the owner laborat

LAB USE ONLY

A: pam 10/27/21

V: _____

Q: AG 10/27/21

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

November 12, 2021

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

RE: Project: LUDINGTON ST
Pace Project No.: 40235054

Dear Bill Honea:

Enclosed are the analytical results for sample(s) received by the laboratory on October 13, 2021. 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,

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

Enclosures

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: LUDINGTON ST
Pace Project No.: 40235054

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
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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: LUDINGTON ST
Pace Project No.: 40235054

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40235054001	**GP-1**	Water	10/13/21 09:55	10/13/21 16:40
40235054002	**GP-3**	Water	10/13/21 11:25	10/13/21 16:40
40235054003	**GP-8**	Water	10/13/21 13:30	10/13/21 16:40
40235054004	**GP-10**	Water	10/13/21 15:05	10/13/21 16:40

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SAMPLE ANALYTE COUNT

Project: LUDINGTON ST
Pace Project No.: 40235054

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40235054001	**GP-1**	EPA 6010D	TXW	2	PASI-G
		EPA 8260	LAP	64	PASI-G
40235054003	**GP-8**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	LAP	64	PASI-G
40235054004	**GP-10**	EPA 6010D	TXW	2	PASI-G
		EPA 8270E by SIM	RJN	20	PASI-G
		EPA 8260	LAP	64	PASI-G

PASI-G = Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-1 **Lab ID: 40235054001** Collected: 10/13/21 09:55 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay								
Arsenic, Dissolved	**15.3J**	ug/L	25.0	8.3	1	10/25/21 05:49	10/25/21 14:37	7440-38-2	
Lead, Dissolved	**9.3J**	ug/L	20.0	5.9	1	10/25/21 05:49	10/25/21 14:37	7439-92-1	
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:04	71-43-2	
Bromobenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:04	108-86-1	
Bromochloromethane	**<0.36**	ug/L	5.0	0.36	1		10/15/21 01:04	74-97-5	
Bromodichloromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:04	75-27-4	
Bromoform	**<3.8**	ug/L	5.0	3.8	1		10/15/21 01:04	75-25-2	
Bromomethane	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:04	74-83-9	
n-Butylbenzene	**<0.86**	ug/L	1.0	0.86	1		10/15/21 01:04	104-51-8	
sec-Butylbenzene	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:04	135-98-8	
tert-Butylbenzene	**<0.59**	ug/L	1.0	0.59	1		10/15/21 01:04	98-06-6	
Carbon tetrachloride	**<0.37**	ug/L	1.0	0.37	1		10/15/21 01:04	56-23-5	
Chlorobenzene	**<0.86**	ug/L	1.0	0.86	1		10/15/21 01:04	108-90-7	
Chloroethane	**<1.4**	ug/L	5.0	1.4	1		10/15/21 01:04	75-00-3	
Chloroform	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:04	67-66-3	
Chloromethane	**<1.6**	ug/L	5.0	1.6	1		10/15/21 01:04	74-87-3	
2-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:04	95-49-8	
4-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:04	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.4**	ug/L	5.0	2.4	1		10/15/21 01:04	96-12-8	
Dibromochloromethane	**<2.6**	ug/L	5.0	2.6	1		10/15/21 01:04	124-48-1	
1,2-Dibromoethane (EDB)	**<0.31**	ug/L	1.0	0.31	1		10/15/21 01:04	106-93-4	
Dibromomethane	**<0.99**	ug/L	5.0	0.99	1		10/15/21 01:04	74-95-3	
1,2-Dichlorobenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:04	95-50-1	
1,3-Dichlorobenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:04	541-73-1	
1,4-Dichlorobenzene	**<0.89**	ug/L	1.0	0.89	1		10/15/21 01:04	106-46-7	
Dichlorodifluoromethane	**<0.46**	ug/L	5.0	0.46	1		10/15/21 01:04	75-71-8	
1,1-Dichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:04	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:04	107-06-2	
1,1-Dichloroethene	**<0.58**	ug/L	1.0	0.58	1		10/15/21 01:04	75-35-4	
cis-1,2-Dichloroethene	**<0.47**	ug/L	1.0	0.47	1		10/15/21 01:04	156-59-2	
trans-1,2-Dichloroethene	**<0.53**	ug/L	1.0	0.53	1		10/15/21 01:04	156-60-5	
1,2-Dichloropropane	**<0.45**	ug/L	1.0	0.45	1		10/15/21 01:04	78-87-5	
1,3-Dichloropropane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:04	142-28-9	
2,2-Dichloropropane	**<4.2**	ug/L	5.0	4.2	1		10/15/21 01:04	594-20-7	
1,1-Dichloropropene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:04	563-58-6	
cis-1,3-Dichloropropene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:04	10061-01-5	
trans-1,3-Dichloropropene	**<3.5**	ug/L	5.0	3.5	1		10/15/21 01:04	10061-02-6	
Diisopropyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:04	108-20-3	
Ethylbenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:04	100-41-4	
Hexachloro-1,3-butadiene	**<2.7**	ug/L	5.0	2.7	1		10/15/21 01:04	87-68-3	
Isopropylbenzene (Cumene)	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:04	98-82-8	
p-Isopropyltoluene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:04	99-87-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-1 **Lab ID: 40235054001** Collected: 10/13/21 09:55 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Methylene Chloride	**<0.32**	ug/L	5.0	0.32	1		10/15/21 01:04	75-09-2	
Methyl-tert-butyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:04	1634-04-4	
Naphthalene	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:04	91-20-3	
n-Propylbenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:04	103-65-1	
Styrene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:04	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:04	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.38**	ug/L	1.0	0.38	1		10/15/21 01:04	79-34-5	
Tetrachloroethene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:04	127-18-4	
Toluene	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:04	108-88-3	
1,2,3-Trichlorobenzene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:04	87-61-6	
1,2,4-Trichlorobenzene	**<0.95**	ug/L	5.0	0.95	1		10/15/21 01:04	120-82-1	
1,1,1-Trichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:04	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/L	5.0	0.34	1		10/15/21 01:04	79-00-5	
Trichloroethene	**<0.32**	ug/L	1.0	0.32	1		10/15/21 01:04	79-01-6	
Trichlorofluoromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:04	75-69-4	
1,2,3-Trichloropropane	**<0.56**	ug/L	5.0	0.56	1		10/15/21 01:04	96-18-4	
1,2,4-Trimethylbenzene	**<0.45**	ug/L	1.0	0.45	1		10/15/21 01:04	95-63-6	
1,3,5-Trimethylbenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:04	108-67-8	
Vinyl chloride	**<0.17**	ug/L	1.0	0.17	1		10/15/21 01:04	75-01-4	
m&p-Xylene	**<0.70**	ug/L	2.0	0.70	1		10/15/21 01:04	179601-23-1	
o-Xylene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:04	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		10/15/21 01:04	460-00-4	
1,2-Dichlorobenzene-d4 (S)	99	%	70-130		1		10/15/21 01:04	2199-69-1	
Toluene-d8 (S)	103	%	70-130		1		10/15/21 01:04	2037-26-5	

Sample: GP-8 **Lab ID: 40235054003** Collected: 10/13/21 13:30 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Green Bay								
Arsenic, Dissolved	**<8.3**	ug/L	25.0	8.3	1	10/25/21 05:49	10/25/21 14:40	7440-38-2	
Lead, Dissolved	**50.0**	ug/L	20.0	5.9	1	10/25/21 05:49	10/25/21 14:40	7439-92-1	
8270E MSSV PAH	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3510 Pace Analytical Services - Green Bay								
Acenaphthene	**0.47**	ug/L	0.048	0.013	1	10/15/21 12:34	10/18/21 16:37	83-32-9	
Acenaphthylene	**<0.012**	ug/L	0.048	0.012	1	10/15/21 12:34	10/18/21 16:37	208-96-8	
Anthracene	**<0.018**	ug/L	0.048	0.018	1	10/15/21 12:34	10/18/21 16:37	120-12-7	
Benzo(a)anthracene	**0.014J**	ug/L	0.048	0.013	1	10/15/21 12:34	10/18/21 16:37	56-55-3	
Benzo(a)pyrene	**<0.019**	ug/L	0.048	0.019	1	10/15/21 12:34	10/18/21 16:37	50-32-8	
Benzo(b)fluoranthene	**<0.019**	ug/L	0.048	0.019	1	10/15/21 12:34	10/18/21 16:37	205-99-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-8 **Lab ID: 40235054003** Collected: 10/13/21 13:30 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270E MSSV PAH	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3510 Pace Analytical Services - Green Bay								
Benzo(g,h,i)perylene	**<0.022**	ug/L	0.048	0.022	1	10/15/21 12:34	10/18/21 16:37	191-24-2	
Benzo(k)fluoranthene	**<0.021**	ug/L	0.048	0.021	1	10/15/21 12:34	10/18/21 16:37	207-08-9	
Chrysene	**0.029J**	ug/L	0.048	0.025	1	10/15/21 12:34	10/18/21 16:37	218-01-9	
Dibenz(a,h)anthracene	**<0.017**	ug/L	0.048	0.017	1	10/15/21 12:34	10/18/21 16:37	53-70-3	
Fluoranthene	**0.043J**	ug/L	0.048	0.025	1	10/15/21 12:34	10/18/21 16:37	206-44-0	
Fluorene	**0.024J**	ug/L	0.048	0.022	1	10/15/21 12:34	10/18/21 16:37	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.015**	ug/L	0.048	0.015	1	10/15/21 12:34	10/18/21 16:37	193-39-5	
1-Methylnaphthalene	**0.78**	ug/L	0.048	0.017	1	10/15/21 12:34	10/18/21 16:37	90-12-0	
2-Methylnaphthalene	**0.47**	ug/L	0.048	0.013	1	10/15/21 12:34	10/18/21 16:37	91-57-6	
Naphthalene	**0.37**	ug/L	0.048	0.019	1	10/15/21 12:34	10/18/21 16:37	91-20-3	B
Phenanthrene	**0.093**	ug/L	0.048	0.024	1	10/15/21 12:34	10/18/21 16:37	85-01-8	
Pyrene	**0.035J**	ug/L	0.048	0.021	1	10/15/21 12:34	10/18/21 16:37	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	73	%	10-113		1	10/15/21 12:34	10/18/21 16:37	321-60-8	
Terphenyl-d14 (S)	78	%	28-124		1	10/15/21 12:34	10/18/21 16:37	1718-51-0	
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:23	71-43-2	
Bromobenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:23	108-86-1	
Bromochloromethane	**<0.36**	ug/L	5.0	0.36	1		10/15/21 01:23	74-97-5	
Bromodichloromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:23	75-27-4	
Bromoform	**<3.8**	ug/L	5.0	3.8	1		10/15/21 01:23	75-25-2	
Bromomethane	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:23	74-83-9	
n-Butylbenzene	**<0.86**	ug/L	1.0	0.86	1		10/15/21 01:23	104-51-8	
sec-Butylbenzene	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:23	135-98-8	
tert-Butylbenzene	**<0.59**	ug/L	1.0	0.59	1		10/15/21 01:23	98-06-6	
Carbon tetrachloride	**<0.37**	ug/L	1.0	0.37	1		10/15/21 01:23	56-23-5	
Chlorobenzene	**2.8**	ug/L	1.0	0.86	1		10/15/21 01:23	108-90-7	
Chloroethane	**<1.4**	ug/L	5.0	1.4	1		10/15/21 01:23	75-00-3	
Chloroform	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:23	67-66-3	
Chloromethane	**<1.6**	ug/L	5.0	1.6	1		10/15/21 01:23	74-87-3	
2-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:23	95-49-8	
4-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:23	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.4**	ug/L	5.0	2.4	1		10/15/21 01:23	96-12-8	
Dibromochloromethane	**<2.6**	ug/L	5.0	2.6	1		10/15/21 01:23	124-48-1	
1,2-Dibromoethane (EDB)	**<0.31**	ug/L	1.0	0.31	1		10/15/21 01:23	106-93-4	
Dibromomethane	**<0.99**	ug/L	5.0	0.99	1		10/15/21 01:23	74-95-3	
1,2-Dichlorobenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:23	95-50-1	
1,3-Dichlorobenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:23	541-73-1	
1,4-Dichlorobenzene	**<0.89**	ug/L	1.0	0.89	1		10/15/21 01:23	106-46-7	
Dichlorodifluoromethane	**<0.46**	ug/L	5.0	0.46	1		10/15/21 01:23	75-71-8	
1,1-Dichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:23	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:23	107-06-2	
1,1-Dichloroethene	**<0.58**	ug/L	1.0	0.58	1		10/15/21 01:23	75-35-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-8 **Lab ID: 40235054003** Collected: 10/13/21 13:30 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260								
	Pace Analytical Services - Green Bay								
cis-1,2-Dichloroethene	**<0.47**	ug/L	1.0	0.47	1		10/15/21 01:23	156-59-2	
trans-1,2-Dichloroethene	**<0.53**	ug/L	1.0	0.53	1		10/15/21 01:23	156-60-5	
1,2-Dichloropropane	**<0.45**	ug/L	1.0	0.45	1		10/15/21 01:23	78-87-5	
1,3-Dichloropropane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:23	142-28-9	
2,2-Dichloropropane	**<4.2**	ug/L	5.0	4.2	1		10/15/21 01:23	594-20-7	
1,1-Dichloropropene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:23	563-58-6	
cis-1,3-Dichloropropene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:23	10061-01-5	
trans-1,3-Dichloropropene	**<3.5**	ug/L	5.0	3.5	1		10/15/21 01:23	10061-02-6	
Diisopropyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:23	108-20-3	
Ethylbenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:23	100-41-4	
Hexachloro-1,3-butadiene	**<2.7**	ug/L	5.0	2.7	1		10/15/21 01:23	87-68-3	
Isopropylbenzene (Cumene)	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:23	98-82-8	
p-Isopropyltoluene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:23	99-87-6	
Methylene Chloride	**<0.32**	ug/L	5.0	0.32	1		10/15/21 01:23	75-09-2	
Methyl-tert-butyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:23	1634-04-4	
Naphthalene	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:23	91-20-3	
n-Propylbenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:23	103-65-1	
Styrene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:23	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:23	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.38**	ug/L	1.0	0.38	1		10/15/21 01:23	79-34-5	
Tetrachloroethene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:23	127-18-4	
Toluene	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:23	108-88-3	
1,2,3-Trichlorobenzene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:23	87-61-6	
1,2,4-Trichlorobenzene	**<0.95**	ug/L	5.0	0.95	1		10/15/21 01:23	120-82-1	
1,1,1-Trichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:23	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/L	5.0	0.34	1		10/15/21 01:23	79-00-5	
Trichloroethene	**<0.32**	ug/L	1.0	0.32	1		10/15/21 01:23	79-01-6	
Trichlorofluoromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:23	75-69-4	
1,2,3-Trichloropropane	**<0.56**	ug/L	5.0	0.56	1		10/15/21 01:23	96-18-4	
1,2,4-Trimethylbenzene	**1.4**	ug/L	1.0	0.45	1		10/15/21 01:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:23	108-67-8	
Vinyl chloride	**<0.17**	ug/L	1.0	0.17	1		10/15/21 01:23	75-01-4	
m&p-Xylene	**<0.70**	ug/L	2.0	0.70	1		10/15/21 01:23	179601-23-1	
o-Xylene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:23	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		10/15/21 01:23	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	70-130		1		10/15/21 01:23	2199-69-1	
Toluene-d8 (S)	102	%	70-130		1		10/15/21 01:23	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-10 **Lab ID: 40235054004** Collected: 10/13/21 15:05 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Pace Analytical Services - Green Bay								
Arsenic, Dissolved	**78.1**	ug/L	25.0	13.2	1		10/22/21 12:34	7440-38-2	
Lead, Dissolved	**<6.4**	ug/L	20.0	6.4	1		10/22/21 12:34	7439-92-1	
8270E MSSV PAH	Analytical Method: EPA 8270E by SIM Preparation Method: EPA 3510 Pace Analytical Services - Green Bay								
Acenaphthene	**0.021J**	ug/L	0.047	0.013	1	10/18/21 08:16	10/19/21 14:31	83-32-9	
Acenaphthylene	**<0.012**	ug/L	0.047	0.012	1	10/18/21 08:16	10/19/21 14:31	208-96-8	
Anthracene	**<0.017**	ug/L	0.047	0.017	1	10/18/21 08:16	10/19/21 14:31	120-12-7	
Benzo(a)anthracene	**<0.013**	ug/L	0.047	0.013	1	10/18/21 08:16	10/19/21 14:31	56-55-3	
Benzo(a)pyrene	**<0.018**	ug/L	0.047	0.018	1	10/18/21 08:16	10/19/21 14:31	50-32-8	
Benzo(b)fluoranthene	**<0.018**	ug/L	0.047	0.018	1	10/18/21 08:16	10/19/21 14:31	205-99-2	
Benzo(g,h,i)perylene	**<0.022**	ug/L	0.047	0.022	1	10/18/21 08:16	10/19/21 14:31	191-24-2	
Benzo(k)fluoranthene	**<0.021**	ug/L	0.047	0.021	1	10/18/21 08:16	10/19/21 14:31	207-08-9	
Chrysene	**<0.025**	ug/L	0.047	0.025	1	10/18/21 08:16	10/19/21 14:31	218-01-9	
Dibenz(a,h)anthracene	**<0.017**	ug/L	0.047	0.017	1	10/18/21 08:16	10/19/21 14:31	53-70-3	
Fluoranthene	**<0.025**	ug/L	0.047	0.025	1	10/18/21 08:16	10/19/21 14:31	206-44-0	
Fluorene	**<0.022**	ug/L	0.047	0.022	1	10/18/21 08:16	10/19/21 14:31	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.015**	ug/L	0.047	0.015	1	10/18/21 08:16	10/19/21 14:31	193-39-5	
1-Methylnaphthalene	**<0.017**	ug/L	0.047	0.017	1	10/18/21 08:16	10/19/21 14:31	90-12-0	
2-Methylnaphthalene	**0.016J**	ug/L	0.047	0.013	1	10/18/21 08:16	10/19/21 14:31	91-57-6	
Naphthalene	**0.046J**	ug/L	0.047	0.019	1	10/18/21 08:16	10/19/21 14:31	91-20-3	B
Phenanthrene	**0.044J**	ug/L	0.047	0.024	1	10/18/21 08:16	10/19/21 14:31	85-01-8	
Pyrene	**<0.021**	ug/L	0.047	0.021	1	10/18/21 08:16	10/19/21 14:31	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%	10-113		1	10/18/21 08:16	10/19/21 14:31	321-60-8	
Terphenyl-d14 (S)	80	%	28-124		1	10/18/21 08:16	10/19/21 14:31	1718-51-0	
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Benzene	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:43	71-43-2	
Bromobenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:43	108-86-1	
Bromochloromethane	**<0.36**	ug/L	5.0	0.36	1		10/15/21 01:43	74-97-5	
Bromodichloromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:43	75-27-4	
Bromoform	**<3.8**	ug/L	5.0	3.8	1		10/15/21 01:43	75-25-2	
Bromomethane	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:43	74-83-9	
n-Butylbenzene	**<0.86**	ug/L	1.0	0.86	1		10/15/21 01:43	104-51-8	
sec-Butylbenzene	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:43	135-98-8	
tert-Butylbenzene	**<0.59**	ug/L	1.0	0.59	1		10/15/21 01:43	98-06-6	
Carbon tetrachloride	**<0.37**	ug/L	1.0	0.37	1		10/15/21 01:43	56-23-5	
Chlorobenzene	**<0.86**	ug/L	1.0	0.86	1		10/15/21 01:43	108-90-7	
Chloroethane	**<1.4**	ug/L	5.0	1.4	1		10/15/21 01:43	75-00-3	
Chloroform	**<1.2**	ug/L	5.0	1.2	1		10/15/21 01:43	67-66-3	
Chloromethane	**<1.6**	ug/L	5.0	1.6	1		10/15/21 01:43	74-87-3	
2-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:43	95-49-8	
4-Chlorotoluene	**<0.89**	ug/L	5.0	0.89	1		10/15/21 01:43	106-43-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-10 **Lab ID: 40235054004** Collected: 10/13/21 15:05 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
1,2-Dibromo-3-chloropropane	**<2.4**	ug/L	5.0	2.4	1		10/15/21 01:43	96-12-8	
Dibromochloromethane	**<2.6**	ug/L	5.0	2.6	1		10/15/21 01:43	124-48-1	
1,2-Dibromoethane (EDB)	**<0.31**	ug/L	1.0	0.31	1		10/15/21 01:43	106-93-4	
Dibromomethane	**<0.99**	ug/L	5.0	0.99	1		10/15/21 01:43	74-95-3	
1,2-Dichlorobenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:43	95-50-1	
1,3-Dichlorobenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:43	541-73-1	
1,4-Dichlorobenzene	**<0.89**	ug/L	1.0	0.89	1		10/15/21 01:43	106-46-7	
Dichlorodifluoromethane	**<0.46**	ug/L	5.0	0.46	1		10/15/21 01:43	75-71-8	
1,1-Dichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:43	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:43	107-06-2	
1,1-Dichloroethene	**<0.58**	ug/L	1.0	0.58	1		10/15/21 01:43	75-35-4	
cis-1,2-Dichloroethene	**<0.47**	ug/L	1.0	0.47	1		10/15/21 01:43	156-59-2	
trans-1,2-Dichloroethene	**<0.53**	ug/L	1.0	0.53	1		10/15/21 01:43	156-60-5	
1,2-Dichloropropane	**<0.45**	ug/L	1.0	0.45	1		10/15/21 01:43	78-87-5	
1,3-Dichloropropane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:43	142-28-9	
2,2-Dichloropropane	**<4.2**	ug/L	5.0	4.2	1		10/15/21 01:43	594-20-7	
1,1-Dichloropropene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:43	563-58-6	
cis-1,3-Dichloropropene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:43	10061-01-5	
trans-1,3-Dichloropropene	**<3.5**	ug/L	5.0	3.5	1		10/15/21 01:43	10061-02-6	
Diisopropyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:43	108-20-3	
Ethylbenzene	**<0.33**	ug/L	1.0	0.33	1		10/15/21 01:43	100-41-4	
Hexachloro-1,3-butadiene	**<2.7**	ug/L	5.0	2.7	1		10/15/21 01:43	87-68-3	
Isopropylbenzene (Cumene)	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:43	98-82-8	
p-Isopropyltoluene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:43	99-87-6	
Methylene Chloride	**<0.32**	ug/L	5.0	0.32	1		10/15/21 01:43	75-09-2	
Methyl-tert-butyl ether	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:43	1634-04-4	
Naphthalene	**<1.1**	ug/L	5.0	1.1	1		10/15/21 01:43	91-20-3	
n-Propylbenzene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:43	103-65-1	
Styrene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:43	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:43	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.38**	ug/L	1.0	0.38	1		10/15/21 01:43	79-34-5	
Tetrachloroethene	**<0.41**	ug/L	1.0	0.41	1		10/15/21 01:43	127-18-4	
Toluene	**<0.29**	ug/L	1.0	0.29	1		10/15/21 01:43	108-88-3	
1,2,3-Trichlorobenzene	**<1.0**	ug/L	5.0	1.0	1		10/15/21 01:43	87-61-6	
1,2,4-Trichlorobenzene	**<0.95**	ug/L	5.0	0.95	1		10/15/21 01:43	120-82-1	
1,1,1-Trichloroethane	**<0.30**	ug/L	1.0	0.30	1		10/15/21 01:43	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/L	5.0	0.34	1		10/15/21 01:43	79-00-5	
Trichloroethene	**<0.32**	ug/L	1.0	0.32	1		10/15/21 01:43	79-01-6	
Trichlorofluoromethane	**<0.42**	ug/L	1.0	0.42	1		10/15/21 01:43	75-69-4	
1,2,3-Trichloropropane	**<0.56**	ug/L	5.0	0.56	1		10/15/21 01:43	96-18-4	
1,2,4-Trimethylbenzene	**<0.45**	ug/L	1.0	0.45	1		10/15/21 01:43	95-63-6	
1,3,5-Trimethylbenzene	**<0.36**	ug/L	1.0	0.36	1		10/15/21 01:43	108-67-8	
Vinyl chloride	**<0.17**	ug/L	1.0	0.17	1		10/15/21 01:43	75-01-4	
m&p-Xylene	**<0.70**	ug/L	2.0	0.70	1		10/15/21 01:43	179601-23-1	
o-Xylene	**<0.35**	ug/L	1.0	0.35	1		10/15/21 01:43	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: LUDINGTON ST
Pace Project No.: 40235054

Sample: GP-10 **Lab ID: 40235054004** Collected: 10/13/21 15:05 Received: 10/13/21 16:40 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260 Pace Analytical Services - Green Bay								
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		10/15/21 01:43	460-00-4	
1,2-Dichlorobenzene-d4 (S)	100	%	70-130		1		10/15/21 01:43	2199-69-1	
Toluene-d8 (S)	104	%	70-130		1		10/15/21 01:43	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
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QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

QC Batch: 399389
QC Batch Method: EPA 6010D
Analysis Method: EPA 6010D
Analysis Description: ICP Metals, Trace, Dissolved
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235054004

METHOD BLANK: 2305920 Matrix: Water
Associated Lab Samples: 40235054004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<13.2	25.0	10/22/21 11:35	
Lead, Dissolved	ug/L	<6.4	20.0	10/22/21 11:35	

LABORATORY CONTROL SAMPLE: 2305921

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	250	244	97	80-120	
Lead, Dissolved	ug/L	250	253	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2305923 2305924

Parameter	Units	40235485014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	<25.0	250	250	248	260	97	102	75-125	5	20	
Lead, Dissolved	ug/L	<20.0	250	250	250	259	98	102	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

QC Batch: 399476
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET Dissolved
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235054001, 40235054003

METHOD BLANK: 2306866 Matrix: Water
Associated Lab Samples: 40235054001, 40235054003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<8.3	25.0	10/25/21 14:08	
Lead, Dissolved	ug/L	<5.9	20.0	10/25/21 14:08	

LABORATORY CONTROL SAMPLE: 2306867

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	250	248	99	80-120	
Lead, Dissolved	ug/L	250	260	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2306868 2306869

Parameter	Units	40235634001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	<8.3	250	250	250	247	98	97	75-125	1	20	
Lead, Dissolved	ug/L	<5.9	250	250	260	251	102	99	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

QC Batch: 398518
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40235054001, 40235054003, 40235054004

METHOD BLANK: 2300505 Matrix: Water
Associated Lab Samples: 40235054001, 40235054003, 40235054004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.36	1.0	10/14/21 17:40	
1,1,1-Trichloroethane	ug/L	<0.30	1.0	10/14/21 17:40	
1,1,2,2-Tetrachloroethane	ug/L	<0.38	1.0	10/14/21 17:40	
1,1,2-Trichloroethane	ug/L	<0.34	5.0	10/14/21 17:40	
1,1-Dichloroethane	ug/L	<0.30	1.0	10/14/21 17:40	
1,1-Dichloroethene	ug/L	<0.58	1.0	10/14/21 17:40	
1,1-Dichloropropene	ug/L	<0.41	1.0	10/14/21 17:40	
1,2,3-Trichlorobenzene	ug/L	<1.0	5.0	10/14/21 17:40	
1,2,3-Trichloropropane	ug/L	<0.56	5.0	10/14/21 17:40	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	10/14/21 17:40	
1,2,4-Trimethylbenzene	ug/L	<0.45	1.0	10/14/21 17:40	
1,2-Dibromo-3-chloropropane	ug/L	<2.4	5.0	10/14/21 17:40	
1,2-Dibromoethane (EDB)	ug/L	<0.31	1.0	10/14/21 17:40	
1,2-Dichlorobenzene	ug/L	<0.33	1.0	10/14/21 17:40	
1,2-Dichloroethane	ug/L	<0.29	1.0	10/14/21 17:40	
1,2-Dichloropropane	ug/L	<0.45	1.0	10/14/21 17:40	
1,3,5-Trimethylbenzene	ug/L	<0.36	1.0	10/14/21 17:40	
1,3-Dichlorobenzene	ug/L	<0.35	1.0	10/14/21 17:40	
1,3-Dichloropropane	ug/L	<0.30	1.0	10/14/21 17:40	
1,4-Dichlorobenzene	ug/L	<0.89	1.0	10/14/21 17:40	
2,2-Dichloropropane	ug/L	<4.2	5.0	10/14/21 17:40	
2-Chlorotoluene	ug/L	<0.89	5.0	10/14/21 17:40	
4-Chlorotoluene	ug/L	<0.89	5.0	10/14/21 17:40	
Benzene	ug/L	<0.30	1.0	10/14/21 17:40	
Bromobenzene	ug/L	<0.36	1.0	10/14/21 17:40	
Bromochloromethane	ug/L	<0.36	5.0	10/14/21 17:40	
Bromodichloromethane	ug/L	<0.42	1.0	10/14/21 17:40	
Bromoform	ug/L	<3.8	5.0	10/14/21 17:40	
Bromomethane	ug/L	<1.2	5.0	10/14/21 17:40	
Carbon tetrachloride	ug/L	<0.37	1.0	10/14/21 17:40	
Chlorobenzene	ug/L	<0.86	1.0	10/14/21 17:40	
Chloroethane	ug/L	<1.4	5.0	10/14/21 17:40	
Chloroform	ug/L	<1.2	5.0	10/14/21 17:40	
Chloromethane	ug/L	<1.6	5.0	10/14/21 17:40	
cis-1,2-Dichloroethene	ug/L	<0.47	1.0	10/14/21 17:40	
cis-1,3-Dichloropropene	ug/L	<0.36	1.0	10/14/21 17:40	
Dibromochloromethane	ug/L	<2.6	5.0	10/14/21 17:40	
Dibromomethane	ug/L	<0.99	5.0	10/14/21 17:40	
Dichlorodifluoromethane	ug/L	<0.46	5.0	10/14/21 17:40	
Diisopropyl ether	ug/L	<1.1	5.0	10/14/21 17:40	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

METHOD BLANK: 2300505 Matrix: Water
Associated Lab Samples: 40235054001, 40235054003, 40235054004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/L	<0.33	1.0	10/14/21 17:40	
Hexachloro-1,3-butadiene	ug/L	<2.7	5.0	10/14/21 17:40	
Isopropylbenzene (Cumene)	ug/L	<1.0	5.0	10/14/21 17:40	
m&p-Xylene	ug/L	<0.70	2.0	10/14/21 17:40	
Methyl-tert-butyl ether	ug/L	<1.1	5.0	10/14/21 17:40	
Methylene Chloride	ug/L	<0.32	5.0	10/14/21 17:40	
n-Butylbenzene	ug/L	<0.86	1.0	10/14/21 17:40	
n-Propylbenzene	ug/L	<0.35	1.0	10/14/21 17:40	
Naphthalene	ug/L	<1.1	5.0	10/14/21 17:40	
o-Xylene	ug/L	<0.35	1.0	10/14/21 17:40	
p-Isopropyltoluene	ug/L	<1.0	5.0	10/14/21 17:40	
sec-Butylbenzene	ug/L	<0.42	1.0	10/14/21 17:40	
Styrene	ug/L	<0.36	1.0	10/14/21 17:40	
tert-Butylbenzene	ug/L	<0.59	1.0	10/14/21 17:40	
Tetrachloroethene	ug/L	<0.41	1.0	10/14/21 17:40	
Toluene	ug/L	<0.29	1.0	10/14/21 17:40	
trans-1,2-Dichloroethene	ug/L	<0.53	1.0	10/14/21 17:40	
trans-1,3-Dichloropropene	ug/L	<3.5	5.0	10/14/21 17:40	
Trichloroethene	ug/L	<0.32	1.0	10/14/21 17:40	
Trichlorofluoromethane	ug/L	<0.42	1.0	10/14/21 17:40	
Vinyl chloride	ug/L	<0.17	1.0	10/14/21 17:40	
1,2-Dichlorobenzene-d4 (S)	%	102	70-130	10/14/21 17:40	
4-Bromofluorobenzene (S)	%	97	70-130	10/14/21 17:40	
Toluene-d8 (S)	%	102	70-130	10/14/21 17:40	

LABORATORY CONTROL SAMPLE: 2300506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.9	106	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	58.8	118	66-130	
1,1,2-Trichloroethane	ug/L	50	58.4	117	70-130	
1,1-Dichloroethane	ug/L	50	60.9	122	68-132	
1,1-Dichloroethene	ug/L	50	50.8	102	85-126	
1,2,4-Trichlorobenzene	ug/L	50	50.9	102	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.5	95	51-126	
1,2-Dibromoethane (EDB)	ug/L	50	54.7	109	70-130	
1,2-Dichlorobenzene	ug/L	50	58.1	116	70-130	
1,2-Dichloroethane	ug/L	50	54.7	109	70-130	
1,2-Dichloropropane	ug/L	50	59.3	119	78-125	
1,3-Dichlorobenzene	ug/L	50	57.8	116	70-130	
1,4-Dichlorobenzene	ug/L	50	57.8	116	70-130	
Benzene	ug/L	50	56.1	112	70-132	
Bromodichloromethane	ug/L	50	53.3	107	70-130	
Bromoform	ug/L	50	42.5	85	65-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

LABORATORY CONTROL SAMPLE: 2300506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromomethane	ug/L	50	38.4	77	44-128	
Carbon tetrachloride	ug/L	50	54.1	108	70-130	
Chlorobenzene	ug/L	50	58.8	118	70-130	
Chloroethane	ug/L	50	57.2	114	73-137	
Chloroform	ug/L	50	54.9	110	80-122	
Chloromethane	ug/L	50	37.8	76	27-148	
cis-1,2-Dichloroethene	ug/L	50	52.3	105	70-130	
cis-1,3-Dichloropropene	ug/L	50	49.7	99	70-130	
Dibromochloromethane	ug/L	50	51.5	103	70-130	
Dichlorodifluoromethane	ug/L	50	22.7	45	22-151	
Ethylbenzene	ug/L	50	58.9	118	80-123	
Isopropylbenzene (Cumene)	ug/L	50	59.7	119	70-130	
m&p-Xylene	ug/L	100	116	116	70-130	
Methyl-tert-butyl ether	ug/L	50	48.1	96	66-130	
Methylene Chloride	ug/L	50	50.2	100	70-130	
o-Xylene	ug/L	50	57.8	116	70-130	
Styrene	ug/L	50	59.5	119	70-130	
Tetrachloroethene	ug/L	50	55.9	112	70-130	
Toluene	ug/L	50	57.4	115	80-121	
trans-1,2-Dichloroethene	ug/L	50	55.1	110	70-130	
trans-1,3-Dichloropropene	ug/L	50	48.4	97	58-125	
Trichloroethene	ug/L	50	54.8	110	70-130	
Trichlorofluoromethane	ug/L	50	47.2	94	84-148	
Vinyl chloride	ug/L	50	45.5	91	63-142	
1,2-Dichlorobenzene-d4 (S)	%			98	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2300507 2300508

Parameter	Units	40235044003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	<0.30	50	50	52.6	53.3	105	107	70-130	1	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.38	50	50	57.7	57.2	115	114	66-130	1	20	
1,1,2-Trichloroethane	ug/L	<0.34	50	50	58.5	57.1	117	114	70-130	2	20	
1,1-Dichloroethane	ug/L	<0.30	50	50	60.3	60.0	121	120	68-132	1	20	
1,1-Dichloroethene	ug/L	<0.58	50	50	49.9	50.7	100	101	76-132	2	20	
1,2,4-Trichlorobenzene	ug/L	<0.95	50	50	53.0	52.5	106	105	70-130	1	20	
1,2-Dibromo-3-chloropropane	ug/L	<2.4	50	50	47.3	46.7	95	93	51-126	1	20	
1,2-Dibromoethane (EDB)	ug/L	<0.31	50	50	55.9	54.7	112	109	70-130	2	20	
1,2-Dichlorobenzene	ug/L	<0.33	50	50	58.7	57.9	117	116	70-130	1	20	
1,2-Dichloroethane	ug/L	<0.29	50	50	53.5	53.8	107	108	70-130	0	20	
1,2-Dichloropropane	ug/L	<0.45	50	50	58.7	59.3	117	119	77-125	1	20	
1,3-Dichlorobenzene	ug/L	<0.35	50	50	56.3	56.5	113	113	70-130	0	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2300507 2300508

Parameter	Units	40235044003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dichlorobenzene	ug/L	<0.89	50	50	58.6	58.5	117	117	70-130	0	20	
Benzene	ug/L	<0.30	50	50	55.7	55.7	111	111	70-132	0	20	
Bromodichloromethane	ug/L	<0.42	50	50	53.4	53.6	107	107	70-130	0	20	
Bromoform	ug/L	<3.8	50	50	42.9	42.9	86	86	65-130	0	20	
Bromomethane	ug/L	<1.2	50	50	45.3	48.9	91	98	44-128	8	21	
Carbon tetrachloride	ug/L	<0.37	50	50	53.7	53.9	107	108	70-132	0	20	
Chlorobenzene	ug/L	<0.86	50	50	58.4	58.5	117	117	70-130	0	20	
Chloroethane	ug/L	<1.4	50	50	55.7	55.6	111	111	70-137	0	20	
Chloroform	ug/L	<1.2	50	50	55.4	56.3	111	113	80-122	2	20	
Chloromethane	ug/L	<1.6	50	50	36.6	36.3	73	73	17-149	1	20	
cis-1,2-Dichloroethene	ug/L	<0.47	50	50	52.9	52.4	106	105	70-130	1	20	
cis-1,3-Dichloropropene	ug/L	<0.36	50	50	50.2	49.5	100	99	70-130	1	20	
Dibromochloromethane	ug/L	<2.6	50	50	52.4	52.2	105	104	70-130	0	20	
Dichlorodifluoromethane	ug/L	<0.46	50	50	22.4	21.5	45	43	22-158	4	20	
Ethylbenzene	ug/L	<0.33	50	50	58.7	57.4	117	115	80-123	2	20	
Isopropylbenzene (Cumene)	ug/L	<1.0	50	50	59.7	59.5	119	119	70-130	0	20	
m&p-Xylene	ug/L	<0.70	100	100	116	115	116	115	70-130	0	20	
Methyl-tert-butyl ether	ug/L	<1.1	50	50	46.5	46.2	93	92	66-130	1	20	
Methylene Chloride	ug/L	<0.32	50	50	49.6	49.7	99	99	70-130	0	20	
o-Xylene	ug/L	<0.35	50	50	57.6	57.2	115	114	70-130	1	20	
Styrene	ug/L	<0.36	50	50	59.7	59.7	119	119	70-130	0	20	
Tetrachloroethene	ug/L	<0.41	50	50	56.2	55.3	112	111	70-130	2	20	
Toluene	ug/L	<0.29	50	50	57.4	56.7	115	113	80-121	1	20	
trans-1,2-Dichloroethene	ug/L	<0.53	50	50	52.1	52.9	104	106	70-134	1	20	
trans-1,3-Dichloropropene	ug/L	<3.5	50	50	49.7	49.1	99	98	58-130	1	20	
Trichloroethene	ug/L	<0.32	50	50	53.4	54.2	107	108	70-130	1	20	
Trichlorofluoromethane	ug/L	<0.42	50	50	46.2	45.6	92	91	82-151	1	20	
Vinyl chloride	ug/L	<0.17	50	50	45.3	43.8	91	88	61-143	3	20	
1,2-Dichlorobenzene-d4 (S)	%						98	96	70-130			
4-Bromofluorobenzene (S)	%						98	98	70-130			
Toluene-d8 (S)	%						103	103	70-130			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

QC Batch: 398677
QC Batch Method: EPA 3510
Analysis Method: EPA 8270E by SIM
Analysis Description: 8270E Water PAH
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40235054003

METHOD BLANK: 2301680 Matrix: Water
Associated Lab Samples: 40235054003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	<0.018	0.050	10/18/21 08:02	
2-Methylnaphthalene	ug/L	<0.014	0.050	10/18/21 08:02	
Acenaphthene	ug/L	<0.014	0.050	10/18/21 08:02	
Acenaphthylene	ug/L	<0.013	0.050	10/18/21 08:02	
Anthracene	ug/L	<0.018	0.050	10/18/21 08:02	
Benzo(a)anthracene	ug/L	<0.014	0.050	10/18/21 08:02	
Benzo(a)pyrene	ug/L	<0.020	0.050	10/18/21 08:02	
Benzo(b)fluoranthene	ug/L	<0.020	0.050	10/18/21 08:02	
Benzo(g,h,i)perylene	ug/L	<0.023	0.050	10/18/21 08:02	
Benzo(k)fluoranthene	ug/L	<0.022	0.050	10/18/21 08:02	
Chrysene	ug/L	<0.027	0.050	10/18/21 08:02	
Dibenz(a,h)anthracene	ug/L	<0.018	0.050	10/18/21 08:02	
Fluoranthene	ug/L	<0.026	0.050	10/18/21 08:02	
Fluorene	ug/L	<0.024	0.050	10/18/21 08:02	
Indeno(1,2,3-cd)pyrene	ug/L	<0.016	0.050	10/18/21 08:02	
Naphthalene	ug/L	0.038J	0.050	10/18/21 08:02	
Phenanthrene	ug/L	<0.026	0.050	10/18/21 08:02	
Pyrene	ug/L	<0.023	0.050	10/18/21 08:02	
2-Fluorobiphenyl (S)	%	71	10-113	10/18/21 08:02	
Terphenyl-d14 (S)	%	64	28-124	10/18/21 08:02	

LABORATORY CONTROL SAMPLE: 2301681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	2	1.6	81	71-120	
2-Methylnaphthalene	ug/L	2	1.6	80	68-120	
Acenaphthene	ug/L	2	1.7	83	71-120	
Acenaphthylene	ug/L	2	1.7	87	68-120	
Anthracene	ug/L	2	1.5	73	51-99	
Benzo(a)anthracene	ug/L	2	1.4	71	52-92	
Benzo(a)pyrene	ug/L	2	1.8	88	61-105	
Benzo(b)fluoranthene	ug/L	2	1.5	76	57-102	
Benzo(g,h,i)perylene	ug/L	2	1.7	83	62-120	
Benzo(k)fluoranthene	ug/L	2	2.2	108	70-122	
Chrysene	ug/L	2	2.0	100	71-122	
Dibenz(a,h)anthracene	ug/L	2	1.4	72	41-101	
Fluoranthene	ug/L	2	1.7	84	67-116	
Fluorene	ug/L	2	1.7	84	71-120	
Indeno(1,2,3-cd)pyrene	ug/L	2	1.5	76	59-120	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

LABORATORY CONTROL SAMPLE: 2301681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	2	1.7	83	71-120	
Phenanthrene	ug/L	2	1.6	78	60-102	
Pyrene	ug/L	2	1.7	83	72-120	
2-Fluorobiphenyl (S)	%			74	10-113	
Terphenyl-d14 (S)	%			74	28-124	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2301682 2301683

Parameter	Units	40235060008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/L	<0.018	1.9	2	1.5	1.7	79	82	71-120	9	20	
2-Methylnaphthalene	ug/L	<0.014	1.9	2	1.5	1.6	77	80	68-120	8	20	
Acenaphthene	ug/L	<0.014	1.9	2	1.7	1.9	87	91	71-120	10	20	
Acenaphthylene	ug/L	<0.013	1.9	2	1.6	1.8	82	91	68-120	15	20	
Anthracene	ug/L	<0.019	1.9	2	1.5	1.6	77	80	51-99	8	20	
Benzo(a)anthracene	ug/L	<0.014	1.9	2	1.4	1.6	71	78	52-92	14	20	
Benzo(a)pyrene	ug/L	<0.020	1.9	2	1.7	2.0	87	97	61-105	16	20	
Benzo(b)fluoranthene	ug/L	<0.020	1.9	2	1.4	1.6	72	80	57-102	15	20	
Benzo(g,h,i)perylene	ug/L	<0.024	1.9	2	1.6	1.9	83	95	62-120	18	20	
Benzo(k)fluoranthene	ug/L	<0.023	1.9	2	1.9	2.2	101	110	70-122	14	20	
Chrysene	ug/L	<0.027	1.9	2	1.9	2.2	97	110	71-122	18	20	
Dibenz(a,h)anthracene	ug/L	<0.018	1.9	2	1.5	1.8	79	89	41-101	17	20	
Fluoranthene	ug/L	<0.026	1.9	2	2.0	2.3	103	111	67-116	12	20	
Fluorene	ug/L	<0.024	1.9	2	1.6	2.1	82	101	71-120	25	20	R1
Indeno(1,2,3-cd)pyrene	ug/L	<0.016	1.9	2	1.5	1.9	78	94	59-120	24	20	R1
Naphthalene	ug/L	<0.020	1.9	2	1.6	1.9	84	92	71-120	15	20	
Phenanthrene	ug/L	<0.026	1.9	2	1.6	1.8	81	89	60-102	14	20	
Pyrene	ug/L	<0.023	1.9	2	1.7	1.8	85	86	72-120	6	20	
2-Fluorobiphenyl (S)	%						73	80	10-113			
Terphenyl-d14 (S)	%						71	76	28-124			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

QC Batch: 398782
QC Batch Method: EPA 3510
Analysis Method: EPA 8270E by SIM
Analysis Description: 8270E Water PAH
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40235054004

METHOD BLANK: 2302550 Matrix: Water
Associated Lab Samples: 40235054004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	<0.018	0.050	10/19/21 08:05	
2-Methylnaphthalene	ug/L	<0.014	0.050	10/19/21 08:05	
Acenaphthene	ug/L	<0.014	0.050	10/19/21 08:05	
Acenaphthylene	ug/L	<0.013	0.050	10/19/21 08:05	
Anthracene	ug/L	<0.018	0.050	10/19/21 08:05	
Benzo(a)anthracene	ug/L	<0.014	0.050	10/19/21 08:05	
Benzo(a)pyrene	ug/L	<0.020	0.050	10/19/21 08:05	
Benzo(b)fluoranthene	ug/L	<0.020	0.050	10/19/21 08:05	
Benzo(g,h,i)perylene	ug/L	<0.023	0.050	10/19/21 08:05	
Benzo(k)fluoranthene	ug/L	<0.022	0.050	10/19/21 08:05	
Chrysene	ug/L	<0.027	0.050	10/19/21 08:05	
Dibenz(a,h)anthracene	ug/L	<0.018	0.050	10/19/21 08:05	
Fluoranthene	ug/L	<0.026	0.050	10/19/21 08:05	
Fluorene	ug/L	<0.024	0.050	10/19/21 08:05	
Indeno(1,2,3-cd)pyrene	ug/L	<0.016	0.050	10/19/21 08:05	
Naphthalene	ug/L	0.022J	0.050	10/19/21 08:05	
Phenanthrene	ug/L	<0.026	0.050	10/19/21 08:05	
Pyrene	ug/L	<0.023	0.050	10/19/21 08:05	
2-Fluorobiphenyl (S)	%	73	10-113	10/19/21 08:05	
Terphenyl-d14 (S)	%	77	28-124	10/19/21 08:05	

LABORATORY CONTROL SAMPLE & LCSD: 2302551 2302552

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	2	1.6	1.6	82	80	71-120	2	20	
2-Methylnaphthalene	ug/L	2	1.6	1.6	80	79	68-120	2	20	
Acenaphthene	ug/L	2	1.7	1.7	85	84	71-120	1	20	
Acenaphthylene	ug/L	2	1.7	1.7	84	87	68-120	3	20	
Anthracene	ug/L	2	1.6	1.7	79	83	51-99	5	20	
Benzo(a)anthracene	ug/L	2	1.6	1.7	81	83	52-92	2	20	
Benzo(a)pyrene	ug/L	2	1.7	1.8	85	90	61-105	6	20	
Benzo(b)fluoranthene	ug/L	2	1.6	1.6	81	80	57-102	1	20	
Benzo(g,h,i)perylene	ug/L	2	1.8	1.8	92	88	62-120	5	20	
Benzo(k)fluoranthene	ug/L	2	2.0	2.0	101	100	70-122	1	20	
Chrysene	ug/L	2	1.9	2.0	95	99	71-122	4	20	
Dibenz(a,h)anthracene	ug/L	2	1.8	1.8	89	90	41-101	1	20	
Fluoranthene	ug/L	2	2.0	2.0	98	100	67-116	2	20	
Fluorene	ug/L	2	1.7	1.8	87	90	71-120	3	20	
Indeno(1,2,3-cd)pyrene	ug/L	2	1.7	1.8	87	89	59-120	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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: LUDINGTON ST
Pace Project No.: 40235054

LABORATORY CONTROL SAMPLE & LCSD: 2302551 2302552

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Naphthalene	ug/L	2	1.7	1.7	87	83	71-120	4	20	
Phenanthrene	ug/L	2	1.7	1.7	84	85	60-102	2	20	
Pyrene	ug/L	2	1.8	1.7	92	86	72-120	7	20	
2-Fluorobiphenyl (S)	%				75	73	10-113			
Terphenyl-d14 (S)	%				83	73	28-124			

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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: LUDINGTON ST
Pace Project No.: 40235054

DEFINITIONS

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

ND - Not Detected at or above LOD.

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

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

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 398829

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

R1 RPD value was outside control limits.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LUDINGTON ST
Pace Project No.: 40235054

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40235054001	**GP-1**	EPA 3010A	399476	EPA 6010D	399558
40235054003	**GP-8**	EPA 3010A	399476	EPA 6010D	399558
40235054004	**GP-10**	EPA 6010D	399389		
40235054003	**GP-8**	EPA 3510	398677	EPA 8270E by SIM	398712
40235054004	**GP-10**	EPA 3510	398782	EPA 8270E by SIM	398829
40235054001	**GP-1**	EPA 8260	398518		
40235054003	**GP-8**	EPA 8260	398518		
40235054004	**GP-10**	EPA 8260	398518		

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

40235054

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CHAIN OF CUSTODY

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington St
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

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

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@Ayresassociates.com
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, B = Biota, C = Charcoal, O = Oil, S = Soil, SL = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Analyses Requested: Diss. As + Pb	PFAS	VOCs	PAHs	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
	FILTERED? (YES/NO)				Y/N: Y	N	N	N		Profile #:
	PRESERVATION (CODE)*				Pick Letter: D	A	B	A		
001	GP-1	10-13-21	9:55	GW	1	2	3			
002	GP-3	10-13-21	11:25	GW		2				
	~~GP-4~~								No Sample	
003	GP-8	10-13-21	13:30	GW	1	2	3	2		
004	GP-10	10-13-21	15:05	GW	1	2	3	1		

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:
William Honea	10/31/21 1640		
			10/13/21 1640

PACE Project No.: 40235054

Receipt Temp = 4 °C

Sample Receipt pH: OK / Adjusted

Cooler Custody Seal: Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

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

Sample Preservation Receipt Form

Client Name: Dyes Project # 40235054

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

Initial when completed: AR Date/ Time:

Lab Lot# of pH paper: 10736004 Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	Vials: VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001										2		1					3													✓		2.5 / 5 / 10
002										2																						**2.5 / 5 / 10**
003						2				2		1					3													✓		2.5 / 5 / 10
004						2				2		1					3													✓		**2.5 / 5 / 10**
005																																2.5 / 5 / 10
006																																**2.5 / 5 / 10**
007																																2.5 / 5 / 10
008																																**2.5 / 5 / 10**
009																																2.5 / 5 / 10
010																																**2.5 / 5 / 10**
011																																2.5 / 5 / 10
012																																**2.5 / 5 / 10**
013																																2.5 / 5 / 10
014																																**2.5 / 5 / 10**
015																																2.5 / 5 / 10
016																																**2.5 / 5 / 10**
017																																2.5 / 5 / 10
018																																**2.5 / 5 / 10**
019																																2.5 / 5 / 10
020																																**2.5 / 5 / 10**

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: 26Mar2020
	Document No.: **ENV-FRM-GBAY-0014-Rev.00**	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40235054

40235054

Client Name: Hyrs

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

Cooler Temperature Uncorr: 4 /Corr: 4

Person examining contents:
Date: 10/13/24 /Initials:

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

Labeled By Initials:

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. proj # mail 10/13/24
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD:	☐Yes ☑No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☐Yes ☑No ☐N/A	12. 002 ID GP-4 10/13/24
-Includes date/time/ID/Analysis Matrix: W		
Trip Blank Present:	☐Yes ☑No ☐N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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 logi

Page 2 of 2

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Client Services
PACE Wisconsin
1241 Bellevue Street
Green Bay WI 54302

REPORT OF LABORATORY ANALYSIS FOR PFAAs

Report Information:

Pace Project #: 10583478
Sample Receipt Date: 10/15/2021
Client Project #: 40235054 AYRES & ASSOCIA
Client Sub PO #: N/A
State Cert #: 999407970

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PFAA Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Ashley Williams, your Pace Project Manager.

This report has been reviewed by:

November 12, 2021

Ashley Williams, Project Manager
(612) 346-8158
(612) 607-6444 (fax)
ashley.williams@pacelabs.com

Report Prepared Date:
November 8, 2021

Report of Laboratory Analysis

DISCUSSION

This report presents the results from the analyses performed on four samples submitted by a representative of Pace Wisconsin. The samples were analyzed for thirty-three perfluorinated compounds using Wisconsin DNR Guidance for PFAS. Reporting limits were set to MDL.

Laboratory method blanks were prepared and analyzed with each sample batch as part of our routine quality control procedures. With the exception of PFOS in BLANK-93940, the results show the blanks were free of the target perfluorinated compounds at the reporting limits. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank levels were flagged B in the results tables and may be, at least partially, attributed to the background.

Laboratory spike samples were also prepared with each sample batch using clean reference matrix that had been fortified with native standards. The recovery results were within the method limits. These spikes indicate that extraction performed as expected. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from that analysis will be provided upon request.

The four injection internal standards (13C4 PFOA, 13C4 PFOS, 13C2_PFDA, and 13C2_PFHxA) pass for each analysis in the batch verifying that the instrument detector is working as expected.

Elevated extracted internal standard (EIS) recoveries (R Flag) were present in BLANK-94205 and LCS-94206, however, the use of the isotope dilution method generally precludes any adverse impact on those individual native compounds that have a directly associated standard.

Values were flagged "I" where incorrect isotope ratios were obtained. Results below the calibration range were flagged "J".

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-	27700
California	2929	North Carolina-	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (170	CL101
Georgia	959	Ohio-VAP (180	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon- rimary	MN300001
Illinois	200011	Oregon-Second	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-D	382
Minnesota	027-053-137	West Virginia-D	9952C
Minnesota-Ag	via MN 027-053	Wisconsin	999407970
Minnesota-Petr	1240	Wyoming-UST	via A2LA 2926.
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

Appendix A

Sample Management

Internal Transfer Chain of Custody

Pace Analytical® www.pacelabs.com

[x] Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: [x] Yes [ ] No

Workorder: 40235054 **Workorder Name:** LUDINGTON ST **Owner Received Date:** 10/13/2021 **Results Requested By:** 11/04/2021

Report To	Subcontract To
Dan Milewsky Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace Analytical Minnesota 1700 Elm Street SE Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: PFAS (WDNR 33 Targets)	LAB USE ONLY
1	GP-1	PS	10/13/2021 09:55	40235054001	Water	2	X	001
2	GP-3	PS	10/13/2021 11:25	40235054002	Water	2	X	002
3	GP-8	PS	10/13/2021 13:30	40235054003	Water	2	X	003
4	GP-10	PS	10/13/2021 15:05	40235054004	Water	2	X	004
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	10/14/21 1700	[signature] Pace	10/15/21 0925
2				
3				

Comments

Cooler Temperature on Receipt 1.9 °C Custody Seal (Y) or N Received on Ice (Y) or N Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

WO#: 10583478

10583478

Pace Analytical®	Document Name: **Sample Condition Upon Receipt (SCUR) - MN**	Document Revised: 14Apr2021 **Page 1 of 1**
	Document No.: **ENV-FRM-MIN4-0150 Rev.02**	Pace Analytical Services - **Minneapolis**

Sample Condition Upon Receipt

Client Name: Pace Green Bay

Project #: WO#: 10583478

PM: AW1 Due Date: 11/03/21

CLIENT: PASI-WI

Courier: ☐Fed Ex ☐UPS ☐USPS ☐Client ☐Pace ☐SpeeDee ☑Commercial

Tracking Number: _____ See Exceptions ☐ ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present? ☑Yes ☐No **Seals Intact?** ☑Yes ☐No **Biological Tissue Frozen?** ☐Yes ☐No ☑N/A

Packing Material: ☑Bubble Wrap ☑Bubble Bags ☐None ☐Other:_____ **Temp Blank?** ☑Yes ☐No

Thermometer: ☑T1(0461) ☐T2(1336) ☐T3(0459) ☐OS418-LS ☐T4(0254) ☐T5(0489) ☐160285052 **Type of Ice:** ☑Wet ☐Blue ☐None ☐Dry ☐Melted

Did Samples Originate in West Virginia? ☐Yes ☑No **Were All Container Temps Taken?** ☐Yes ☐No ☑N/A

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.9 °C

Correction Factor: True **Cooler Temp Corrected w/temp blank:** 1.9 °C

Average Corrected Temp (no temp blank only): _____ °C ☐See Exceptions ENV-FRM-MIN4-0142 ☐1 Container

USDA Regulated Soil: (☑N/A, water sample/Other:_____)

Date/Initials of Person Examining Contents: CJS 10/15/21

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐Yes ☐No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐Yes ☐No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑Yes	☐No		1.
Chain of Custody Relinquished?	☑Yes	☐No		2.
Sampler Name and/or Signature on COC?	☐Yes	☐No	☑N/A	3.
Samples Arrived within Hold Time?	☑Yes	☐No		4.
Short Hold Time Analysis (<72 hr)?	☐Yes	☑No		5. ☐Fecal Coliform ☐HPC ☐Total Coliform/E coli ☐BOD/cBOD ☐Hex Chrome ☐Turbidity ☐Nitrate ☐Nitrite ☐Orthophos ☐Other_____
Rush Turn Around Time Requested?	☐Yes	☑No		6.
Sufficient Volume?	☑Yes	☐No		7.
Correct Containers Used? -Pace Containers Used?	☑Yes ☑Yes	☐No ☐No		8.
Containers Intact?	☑Yes	☐No		9.
Field Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☑N/A	10. Is sediment visible in the dissolved container? ☐Yes ☐No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑Water ☐Soil ☐Oil ☐Other_____	☑Yes	☐No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐ ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐Yes	☐No	☑N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>10 Cyanide)	☐Yes	☐No	☑N/A	☐NaOH ☐HNO_3 ☐H_2SO_4 ☐Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐Yes	☐No	☑N/A	Positive for Res. Chlorine? ☐Yes ☐No **pH Paper Lot#** **See Exception** ☐ ENV-FRM-MIN4-0142
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Extra labels present on soil VOA or WIDRO containers?	☐Yes	☐No	☑N/A	13. **See Exception** ☐ ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)?	☐Yes	☐No	☑N/A	
Trip Blank Present?	☐Yes	☐No	☑N/A	14.
Trip Blank Custody Seals Present?	☐Yes	☐No	☑N/A	Pace Trip Blank Lot # (if purchased):_____

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Ashley Williams **Date:** 10/18/21

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: CJS 10

Report No.....10583478_ID36_DFR

Page 7 of 58

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

Page 1 of 1

40235054

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

(Please Print Clearly)	
Company Name:	Ayres
Branch/Location:	Green Bay
Project Contact:	Bill Honea
Phone:	(920) 327-7815
Project Number:	
Project Name:	Ludington St
Project State:	WI
Sampled By (Print):	William Honea
Sampled By (Sign):	William Honea
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	subs@Ayresassociates.com
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, B = Biota, C = Charcoal, O = Oil, S = Soil, SI = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Analyses Requested: Diss. As + Pb	PFAS	VOCs	PAHs	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
	FILTERED? (YES/NO)				Y	N	N	N			
	PRESERVATION (CODE)*				D	A	B	A			
001	GP-1	10-13-21	9:55	GW	1	2	3				
002	GP-3	10-13-21	11:25	GW		2					
	~~GP-4~~								No Sample		
003	GP-8	10-13-21	13:30	GW	1	2	3	2			
004	GP-10	10-13-21	15:05	GW	1	2	3	1			

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:
William Honea	10/31/21 1640		
		Allen	10/13/21 1640

PACE Project No.: 40235054

Receipt Temp = 4 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal Present / Not Present Intact / Not Intact

Version 6.0 06/14/06

ORIGINAL

Sample Preservation Receipt Form

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

Client Name: Hyes Project # 40235054

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

Initial when completed: TH Date/ Time:

Lab Lot# of pH paper: 10D3604 Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	Vials: VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001										2		1					3													✓		2.5 / 5 / 10
002										2		1					3													✓		2.5 / 5 / 10
003						2				2		1					3													✓		2.5 / 5 / 10
004						2				2		1					3													✓		2.5 / 5 / 10
005																																2.5 / 5 / 10
006																																2.5 / 5 / 10
007																																2.5 / 5 / 10
008																																2.5 / 5 / 10
009																																2.5 / 5 / 10
010																																2.5 / 5 / 10
011																																2.5 / 5 / 10
012																																2.5 / 5 / 10
013																																2.5 / 5 / 10
014																																2.5 / 5 / 10
015																																2.5 / 5 / 10
016																																2.5 / 5 / 10
017																																2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																																2.5 / 5 / 10

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

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40235054

40235054

Client Name: Alyes

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 - 110 **Type of Ice:** (Wet) Blue Dry None ☐ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 4 /Corr: 4

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: 10/13/24 /Initials:
Labeled By Initials:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☐No ☐N/A	2. proj # in mail 10/13/24
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☐Yes ☑No ☐N/A	12. 002 ID GP-4 10/13/24
-Includes date/time/ID/Analysis Matrix: W		
Trip Blank Present:	☐Yes ☑No ☐N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑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 logir

Page 2 of 2

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interferencepresent

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDEInterference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = SeeDiscussion

REPORT OF LABORATORY ANALYSIS

Appendix B

Sample Analysis Summary

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-1	Extraction Date	10/22/2021 08:58
Lab Sample ID	40235054001	Total Amount Extracted	55.9mL
Lab File ID	Q211027B_025	Ical ID	211027A01
Matrix	Non_Potable_Water	CCal File	Q211027B_019
Collected	10/13/2021 09:55	Ending CCal File	Q211027B_030
Received	10/15/2021 09:25	Blank File	Q211028A_004

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	2.2 J	8.9	2.0	2.0	1	375-22-4	
PFPeA	3.5 J	8.9	2.0	2.0	1	2706-90-3	
HFPO-DA	ND	8.9	2.4	2.4	1	13252-13-6	
PFBS	4.8 J	7.9	2.1	2.1	1	375-73-5	
PFHxA	ND	8.9	2.0	2.0	1	307-24-4	
4:2 FTS	ND	8.4	2.5	2.5	1	757124-72-4	
PFPeS	ND	8.4	2.1	2.1	1	2706-91-4	
PFHpA	4.0 J	8.9	2.5	2.5	1	375-85-9	
DONA	ND	8.5	2.3	2.3	1	919005-14-4	
PFHxS	ND	8.1	2.3	2.3	1	355-46-4	
PFOA	3.2 IJ	8.9	2.6	2.6	1	335-67-1	
6:2 FTS	ND	8.5	2.9	2.9	1	27619-97-2	
PFHpS	ND	8.5	1.8	1.8	1	375-92-8	
PFNA	ND	8.9	3.3	3.3	1	375-95-1	
PFOSAm	ND	8.9	3.7	3.7	1	754-91-6	
PFOS	19	8.3	2.5	2.5	1	1763-23-1	
MeFOSA	ND	8.9	2.3	2.3	1	31506-32-8	
PFDA	3.8 J	8.9	2.5	2.5	1	335-76-2	
EtFOSAm	ND	8.9	2.7	2.7	1	4151-50-2	
8:2 FTS	ND	8.6	2.9	2.9	1	39108-34-4	
9-Cl-PF3ON	ND	8.3	1.4	1.4	1	756426-58-1	
PFNS	ND	8.6	2.0	2.0	1	68259-12-1	
PFUnDA	ND	8.9	2.4	2.4	1	2058-94-8	
NMeFOSAA	ND	8.9	1.9	1.9	1	2355-31-9	
NEtFOSAA	ND	8.9	2.5	2.5	1	2991-50-6	
PFDS	ND	8.6	2.0	2.0	1	335-77-3	
PFDOA	ND	8.9	2.2	2.2	1	307-55-1	
MeFOSE	ND	8.9	1.5	1.5	1	24448-09-7	
EtFOSE	ND	8.9	2.2	2.2	1	1691-99-2	
11-Cl-PF3OUdS	ND	8.4	1.9	1.9	1	763051-92-9	
PFTrDA	ND	8.9	2.8	2.8	1	72629-94-8	
PFDoS	ND	8.7	2.1	2.1	1	79780-39-5	
PFTDA	ND	8.9	2.1	2.1	1	376-06-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-1	Extraction Date	10/22/2021 08:58
Lab Sample ID	40235054001	Total Amount Extracted	55.9mL
Lab File ID	Q211027B_025	Ical ID	211027A01
Matrix	Non_Potable_Water	CCal File	Q211027B_019
Collected	10/13/2021 09:55	Ending CCal File	Q211027B_030
Received	10/15/2021 09:25	Blank File	Q211028A_004

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	89	91	102	50-150	
13C4_PFOA	89	100	116	50-150	
13C2_PFDA	89	93	104	50-150	
13C4_PFOS	86	90	105	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	89	92	103	25-150	
13C5_PFPeA	89	90	101	25-150	
13C3_PFBS	83	82	98	25-150	
13C2_4:2FTS	84	81	97	25-150	
13C5_PFHxA	89	94	105	25-150	
13C4_PFHpA	89	89	100	25-150	
13C3_PFHxS	85	92	109	25-150	
13C2_6:2FTS	85	91	107	25-150	
13C8_PFOA	89	92	103	25-150	
13C9_PFNA	89	90	101	25-150	
13C8_PFOS	86	79	92	25-150	
13C2_8:2FTS	86	88	103	25-150	
13C6_PFDA	89	84	94	25-150	
d3-MeFOSAA	89	65	73	25-150	
13C8_PFOSA	89	68	76	25-150	
d5-EtFOSAA	89	76	85	25-150	
13C7_PFUdA	89	84	94	25-150	
13C2_PFDoA	89	73	82	25-150	
13C2_PFTeDA	89	86	97	25-150	
13C3_HFPO-DA	89	84	94	25-150	
d7-N-MeFOSE	89	59	66	10-150	
d9-N-EtFOSE	89	62	69	10-150	
d3-N-MeFOSA	89	32	35	10-150	
d5-N-EtFOSA	89	31	35	10-150	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-1	Extraction Date	10/22/2021 08:58
Lab Sample ID	40235054001	Total Amount Extracted	55.9mL
Lab File ID	Q211027B_025	Ical ID	211027A01
Matrix	Non_Potable_Water	CCal File	Q211027B_019
Collected	10/13/2021 09:55	Ending CCal File	Q211027B_030
Received	10/15/2021 09:25	Blank File	Q211028A_004

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	6.21	6.18	
13C4_PFOA	N/A	N/A	7.54	7.51	
13C2_PFDA	N/A	N/A	8.89	8.89	
13C4_PFOS	N/A	N/A	9.36	9.34	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-1	Extraction Date	10/22/2021 08:58
Lab Sample ID	40235054001	Total Amount Extracted	55.9mL
Lab File ID	Q211027B_025	Ical ID	211027A01
Matrix	Non_Potable_Water	CCal File	Q211027B_019
Collected	10/13/2021 09:55	Ending CCal File	Q211027B_030
Received	10/15/2021 09:25	Blank File	Q211028A_004

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	4.78	4.77	
13C5_PFPeA	N/A	N/A	5.56	5.53	
13C3_PFBS	N/A	N/A	6.48	6.46	
13C2_4:2FTS	N/A	N/A	5.93	5.92	
13C5_PFHxA	N/A	N/A	6.21	6.20	
13C4_PFHpA	N/A	N/A	6.87	6.86	
13C3_PFHxS	N/A	N/A	7.96	7.95	
13C2_6:2FTS	N/A	N/A	7.19	7.18	
13C8_PFOA	N/A	N/A	7.54	7.53	
13C9_PFNA	N/A	N/A	8.21	8.20	
13C8_PFOS	N/A	N/A	9.37	9.36	
13C2_8:2FTS	N/A	N/A	8.50	8.50	
13C6_PFDA	N/A	N/A	8.89	8.86	
d3-MeFOSAA	N/A	N/A	8.76	8.73	
13C8_PFOSA	N/A	N/A	11.28	11.26	
d5-EtFOSAA	N/A	N/A	9.07	9.06	
13C7_PFUdA	N/A	N/A	9.56	9.54	
13C2_PFDoA	N/A	N/A	10.24	10.23	
13C2_PFTeDA	N/A	N/A	11.54	11.53	
13C3_HFPO-DA	N/A	N/A	6.49	6.47	
d7-N-MeFOSE	N/A	N/A	13.02	12.99	
d9-N-EtFOSE	N/A	N/A	13.50	13.47	
d3-N-MeFOSA	N/A	N/A	13.22	13.20	
d5-N-EtFOSA	N/A	N/A	13.67	13.65	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-1	Extraction Date	10/22/2021 08:58
Lab Sample ID	40235054001	Total Amount Extracted	55.9mL
Lab File ID	Q211027B_025	Ical ID	211027A01
Matrix	Non_Potable_Water	CCal File	Q211027B_019
Collected	10/13/2021 09:55	Ending CCal File	Q211027B_030
Received	10/15/2021 09:25	Blank File	Q211028A_004

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	4.79	4.80	J
PFPeA	N/A	N/A	5.56	5.57	J
HFPO-DA	0.000	0.570	0.00	6.44	
PFBS	0.310	0.370	6.48	6.52	J
PFHxA	0.000	0.0730	6.22	6.22	
4:2 FTS	0.000	1.10	0.00	5.94	
PFPeS	0.000	0.450	7.24	7.23	
PFHpA	0.680	0.510	6.88	6.85	J
DONA	0.000	0.490	0.00	7.04	
PFHxS	0.000	0.280	0.00	7.91	
PFOA	0.000	0.320	7.54	7.47	IJ
6:2 FTS	0.890	1.40	7.18	7.18	
PFHpS	0.000	0.430	0.00	8.66	
PFNA	0.260	0.260	8.22	8.19	
PFOSAm	N/A	N/A	11.29	11.26	
PFOS	0.260	0.220	9.38	9.25	
MeFOSA	0.000	0.520	0.00	13.20	
PFDA	0.190	0.190	8.90	8.88	J
EtFOSAm	0.000	0.500	0.00	13.65	
8:2 FTS	2.20	1.40	8.50	8.49	
9-Cl-PF3ON	0.000	0.0400	0.00	9.77	
PFNS	0.230	0.250	10.04	10.03	
PFUnDA	0.000	0.150	0.00	9.58	
NMeFOSAA	0.000	0.690	0.00	8.76	
NEtFOSAA	0.000	0.500	0.00	9.08	
PFDS	0.000	0.300	0.00	10.69	
PFDOA	0.000	0.180	0.00	10.17	
MeFOSE	N/A	N/A	0.00	13.03	
EtFOSE	0.000	0.000	0.00	13.51	
11-Cl-PF3OUdS	0.000	0.0290	0.00	11.15	
PFTrDA	0.000	0.200	0.00	10.89	
PFDoS	0.000	0.250	0.00	11.91	
PFTDA	0.000	0.150	0.00	11.47	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-3	Extraction Date	11/02/2021 11:46
Lab Sample ID	40235054002-R	Total Amount Extracted	104mL
Lab File ID	A211104A_040	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211104A_039
Collected	10/13/2021 11:25	Ending CCal File	A211104A_050
Received	10/15/2021 09:25	Blank File	A211104A_019

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	21	4.8	1.1	1.1	1	375-22-4	
PFPeA	30	4.8	1.1	1.1	1	2706-90-3	
HFPO-DA	ND	4.8	1.3	1.3	1	13252-13-6	
PFBS	8.3	4.3	1.1	1.1	1	375-73-5	
PFHxA	18	4.8	1.1	1.1	1	307-24-4	
4:2 FTS	ND	4.5	1.3	1.3	1	757124-72-4	
PFPeS	ND	4.5	1.1	1.1	1	2706-91-4	
PFHpA	12	4.8	1.3	1.3	1	375-85-9	
DONA	ND	4.6	1.2	1.2	1	919005-14-4	
PFHxS	2.5 J	4.4	1.2	1.2	1	355-46-4	
PFOA	15	4.8	1.4	1.4	1	335-67-1	
6:2 FTS	ND	4.6	1.6	1.6	1	27619-97-2	
PFHpS	ND	4.6	0.99	0.99	1	375-92-8	
PFNA	3.9 J	4.8	1.8	1.8	1	375-95-1	
PFOSAm	ND	4.8	2.0	2.0	1	754-91-6	
PFOS	4.5	4.5	1.3	1.3	1	1763-23-1	
MeFOSA	ND	4.8	1.2	1.2	1	31506-32-8	
PFDA	ND	4.8	1.4	1.4	1	335-76-2	
EtFOSAm	ND	4.8	1.5	1.5	1	4151-50-2	
8:2 FTS	ND	4.6	1.6	1.6	1	39108-34-4	
9-Cl-PF3ON	ND	4.5	0.73	0.73	1	756426-58-1	
PFNS	ND	4.6	1.1	1.1	1	68259-12-1	
PFUnDA	ND	4.8	1.3	1.3	1	2058-94-8	
NMeFOSAA	ND	4.8	1.0	1.0	1	2355-31-9	
NEtFOSAA	ND	4.8	1.3	1.3	1	2991-50-6	
PFDS	ND	4.6	1.1	1.1	1	335-77-3	
PFDOA	ND	4.8	1.2	1.2	1	307-55-1	
MeFOSE	ND	4.8	0.79	0.79	1	24448-09-7	
EtFOSE	ND	4.8	1.2	1.2	1	1691-99-2	
11-Cl-PF3OUdS	ND	4.5	1.1	1.1	1	763051-92-9	
PFTrDA	ND	4.8	1.5	1.5	1	72629-94-8	
PFDoS	ND	4.7	1.1	1.1	1	79780-39-5	
PFTDA	ND	4.8	1.1	1.1	1	376-06-7	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-3	Extraction Date	11/02/2021 11:46
Lab Sample ID	40235054002-R	Total Amount Extracted	104mL
Lab File ID	A211104A_040	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211104A_039
Collected	10/13/2021 11:25	Ending CCal File	A211104A_050
Received	10/15/2021 09:25	Blank File	A211104A_019

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	48	44	91	50-150	
13C4_PFOA	48	42	88	50-150	
13C2_PFDA	48	48	100	50-150	
13C4_PFOS	46	46	99	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	48	45	94	50-150	
13C5_PFPeA	48	44	91	50-150	
13C3_PFBS	45	41	92	50-150	
13C2_4:2FTS	45	44	98	50-150	
13C5_PFHxA	48	44	92	50-150	
13C4_PFHpA	48	44	92	50-150	
13C3_PFHxS	46	43	95	50-150	
13C2_6:2FTS	46	49	107	50-150	
13C8_PFOA	48	44	91	50-150	
13C9_PFNA	48	45	93	50-150	
13C8_PFOS	46	44	96	50-150	
13C2_8:2FTS	46	38	82	50-150	
13C6_PFDA	48	42	88	50-150	
d3-MeFOSAA	48	38	79	50-150	
13C8_PFOSA	48	35	72	50-150	
d5-EtFOSAA	48	36	74	50-150	
13C7_PFUdA	48	40	84	50-150	
13C2_PFDoA	48	37	77	50-150	
13C2_PFTeDA	48	38	80	50-150	
13C3_HFPO-DA	48	42	87	50-150	
d7-N-MeFOSE	48	29	60	10-150	
d9-N-EtFOSE	48	32	66	10-150	
d3-N-MeFOSA	48	16	34	10-150	
d5-N-EtFOSA	48	16	34	10-150	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-3	Extraction Date	11/02/2021 11:46
Lab Sample ID	40235054002-R	Total Amount Extracted	104mL
Lab File ID	A211104A_040	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211104A_039
Collected	10/13/2021 11:25	Ending CCal File	A211104A_050
Received	10/15/2021 09:25	Blank File	A211104A_019

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.04	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

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PFAS by Isotope Dilution

Client Sample ID	GP-3	Extraction Date	11/02/2021 11:46
Lab Sample ID	40235054002-R	Total Amount Extracted	104mL
Lab File ID	A211104A_040	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211104A_039
Collected	10/13/2021 11:25	Ending CCal File	A211104A_050
Received	10/15/2021 09:25	Blank File	A211104A_019

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.04	6.05	
13C9_PFNA	N/A	N/A	6.47	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.32	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-3	Extraction Date	11/02/2021 11:46
Lab Sample ID	40235054002-R	Total Amount Extracted	104mL
Lab File ID	A211104A_040	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211104A_039
Collected	10/13/2021 11:25	Ending CCal File	A211104A_050
Received	10/15/2021 09:25	Blank File	A211104A_019

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.000	0.460	0.00	5.33	
PFBS	0.300	0.340	5.29	5.29	
PFHxA	0.069	0.0680	5.12	5.12	
4:2 FTS	0.000	0.560	0.00	4.90	
PFPeS	0.460	0.310	5.83	5.84	
PFHpA	0.300	0.290	5.61	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.260	0.270	6.32	6.32	J
PFOA	0.410	0.390	6.05	6.06	
6:2 FTS	0.000	0.520	5.83	5.83	
PFHpS	0.000	0.220	6.76	6.78	
PFNA	0.230	0.180	6.48	6.49	J
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.170	0.210	7.17	7.17	
MeFOSA	0.000	0.860	0.00	10.34	
PFDA	0.000	0.0720	0.00	6.92	
EtFOSAm	0.000	0.710	0.00	11.03	
8:2 FTS	0.000	0.790	0.00	6.68	
9-Cl-PF3ON	0.000	0.0230	0.00	7.53	
PFNS	0.000	0.240	0.00	7.65	
PFUnDA	0.000	0.110	0.00	7.35	
NMeFOSAA	0.000	0.530	0.00	6.86	
NEtFOSAA	0.000	0.740	0.00	7.10	
PFDS	0.000	0.220	0.00	8.07	
PFDOA	0.000	0.140	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0130	0.00	8.37	
PFTrDA	0.000	0.150	0.00	8.20	
PFDoS	0.000	0.230	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054003	Total Amount Extracted	100mL
Lab File ID	A211103B_030	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 13:30	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	60	5.0	1.1	1.1	1	375-22-4	
PFPeA	150	5.0	1.1	1.1	1	2706-90-3	
HFPO-DA	ND	5.0	1.3	1.3	1	13252-13-6	
PFBS	6.0	4.4	1.2	1.2	1	375-73-5	
PFHxA	120	5.0	1.1	1.1	1	307-24-4	
4:2 FTS	ND	4.7	1.4	1.4	1	757124-72-4	
PFPeS	ND	4.7	1.2	1.2	1	2706-91-4	
PFHpA	72	5.0	1.4	1.4	1	375-85-9	
DONA	ND	4.7	1.3	1.3	1	919005-14-4	
PFHxS	6.8	4.5	1.3	1.3	1	355-46-4	
PFOA	28	5.0	1.5	1.5	1	335-67-1	
6:2 FTS	4.4 J	4.7	1.6	1.6	1	27619-97-2	
PFHpS	ND	4.7	1.0	1.0	1	375-92-8	
PFNA	3.3 J	5.0	1.8	1.8	1	375-95-1	
PFOSAm	ND	5.0	2.0	2.0	1	754-91-6	
PFOS	16	4.6	1.4	1.4	1	1763-23-1	
MeFOSA	ND	5.0	1.3	1.3	1	31506-32-8	
PFDA	1.7 J	5.0	1.4	1.4	1	335-76-2	
EtFOSAm	ND	5.0	1.5	1.5	1	4151-50-2	
8:2 FTS	ND	4.8	1.6	1.6	1	39108-34-4	
9-Cl-PF3ON	ND	4.6	0.76	0.76	1	756426-58-1	
PFNS	ND	4.8	1.1	1.1	1	68259-12-1	
PFUnDA	ND	5.0	1.3	1.3	1	2058-94-8	
NMeFOSAA	ND	5.0	1.1	1.1	1	2355-31-9	
NEtFOSAA	7.5	5.0	1.4	1.4	1	2991-50-6	
PFDS	ND	4.8	1.1	1.1	1	335-77-3	
PFDOA	ND	5.0	1.2	1.2	1	307-55-1	
MeFOSE	ND	5.0	0.82	0.82	1	24448-09-7	
EtFOSE	ND	5.0	1.2	1.2	1	1691-99-2	
11-Cl-PF3OUdS	ND	4.7	1.1	1.1	1	763051-92-9	
PFTrDA	ND	5.0	1.5	1.5	1	72629-94-8	
PFDoS	ND	4.8	1.1	1.1	1	79780-39-5	
PFTDA	ND	5.0	1.2	1.2	1	376-06-7	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054003	Total Amount Extracted	100mL
Lab File ID	A211103B_030	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 13:30	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	50	51	103	50-150	
13C4_PFOA	50	53	106	50-150	
13C2_PFDA	50	47	95	50-150	
13C4_PFOS	48	50	105	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	50	49	99	50-150	
13C5_PFPeA	50	52	105	50-150	
13C3_PFBS	46	47	103	50-150	
13C2_4:2FTS	47	46	99	50-150	
13C5_PFHxA	50	48	97	50-150	
13C4_PFHpA	50	48	97	50-150	
13C3_PFHxS	47	49	103	50-150	
13C2_6:2FTS	47	49	103	50-150	
13C8_PFOA	50	51	102	50-150	
13C9_PFNA	50	51	102	50-150	
13C8_PFOS	48	46	96	50-150	
13C2_8:2FTS	48	40	85	50-150	
13C6_PFDA	50	46	92	50-150	
d3-MeFOSAA	50	42	85	50-150	
13C8_PFOSA	50	34	67	50-150	
d5-EtFOSAA	50	47	94	50-150	
13C7_PFUdA	50	43	87	50-150	
13C2_PFDoA	50	42	84	50-150	
13C2_PFTeDA	50	41	83	50-150	
13C3_HFPO-DA	50	47	95	50-150	
d7-N-MeFOSE	50	27	55	10-150	
d9-N-EtFOSE	50	26	53	10-150	
d3-N-MeFOSA	50	19	39	10-150	
d5-N-EtFOSA	50	19	39	10-150	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054003	Total Amount Extracted	100mL
Lab File ID	A211103B_030	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 13:30	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.04	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

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PFAS by Isotope Dilution

Client Sample ID	GP-8	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054003	Total Amount Extracted	100mL
Lab File ID	A211103B_030	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 13:30	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.82	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.47	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.32	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-8	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054003	Total Amount Extracted	100mL
Lab File ID	A211103B_030	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 13:30	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.000	0.460	5.32	5.33	
PFBS	0.320	0.360	5.29	5.29	
PFHxA	0.064	0.0630	5.12	5.12	
4:2 FTS	0.000	0.570	4.87	4.87	
PFPeS	0.360	0.310	5.84	5.84	
PFHpA	0.300	0.300	5.61	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.260	0.270	6.32	6.32	
PFOA	0.350	0.380	6.05	6.06	
6:2 FTS	0.610	0.500	5.83	5.83	J
PFHpS	0.000	0.230	6.76	6.78	
PFNA	0.200	0.210	6.48	6.49	J
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.190	0.210	7.20	7.17	
MeFOSA	0.000	0.860	0.00	10.34	
PFDA	0.078	0.0970	6.90	6.92	J
EtFOSAm	1.00	0.680	11.05	11.03	
8:2 FTS	0.560	0.640	6.66	6.68	
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.250	0.00	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.540	0.00	6.86	
NEtFOSAA	0.680	0.720	7.06	7.10	
PFDS	0.000	0.230	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0140	8.35	8.37	
PFTrDA	0.000	0.150	0.00	8.20	
PFDoS	0.000	0.240	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054004	Total Amount Extracted	97.3mL
Lab File ID	A211103B_031	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 15:05	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	49	5.1	1.1	1.1	1	375-22-4	
PFPeA	140	5.1	1.1	1.1	1	2706-90-3	
HFPO-DA	ND	5.1	1.4	1.4	1	13252-13-6	
PFBS	6.8	4.5	1.2	1.2	1	375-73-5	
PFHxA	120	5.1	1.1	1.1	1	307-24-4	
4:2 FTS	ND	4.8	1.4	1.4	1	757124-72-4	
PFPeS	6.0	4.8	1.2	1.2	1	2706-91-4	
PFHpA	130	5.1	1.4	1.4	1	375-85-9	
DONA	ND	4.9	1.3	1.3	1	919005-14-4	
PFHxS	22	4.7	1.3	1.3	1	355-46-4	
PFOA	350	5.1	1.5	1.5	1	335-67-1	
6:2 FTS	11	4.9	1.7	1.7	1	27619-97-2	
PFHpS	1.6 J	4.9	1.1	1.1	1	375-92-8	
PFNA	ND	5.1	1.9	1.9	1	375-95-1	
PFOSAm	ND	5.1	2.1	2.1	1	754-91-6	
PFOS	31	4.8	1.4	1.4	1	1763-23-1	
MeFOSA	ND	5.1	1.3	1.3	1	31506-32-8	
PFDA	ND	5.1	1.4	1.4	1	335-76-2	
EtFOSAm	ND	5.1	1.6	1.6	1	4151-50-2	
8:2 FTS	4.7 J	4.9	1.7	1.7	1	39108-34-4	
9-Cl-PF3ON	ND	4.8	0.78	0.78	1	756426-58-1	
PFNS	ND	4.9	1.1	1.1	1	68259-12-1	
PFUnDA	ND	5.1	1.4	1.4	1	2058-94-8	
NMeFOSAA	ND	5.1	1.1	1.1	1	2355-31-9	
NEtFOSAA	ND	5.1	1.4	1.4	1	2991-50-6	
PFDS	ND	5.0	1.2	1.2	1	335-77-3	
PFDOA	ND	5.1	1.2	1.2	1	307-55-1	
MeFOSE	ND	5.1	0.85	0.85	1	24448-09-7	
EtFOSE	ND	5.1	1.3	1.3	1	1691-99-2	
11-Cl-PF3OUdS	ND	4.8	1.1	1.1	1	763051-92-9	
PFTrDA	ND	5.1	1.6	1.6	1	72629-94-8	
PFDoS	ND	5.0	1.2	1.2	1	79780-39-5	
PFTDA	ND	5.1	1.2	1.2	1	376-06-7	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054004	Total Amount Extracted	97.3mL
Lab File ID	A211103B_031	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 15:05	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	51	54	104	50-150	
13C4_PFOA	51	53	104	50-150	
13C2_PFDA	51	48	93	50-150	
13C4_PFOS	49	48	97	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	51	51	100	50-150	
13C5_PFPeA	51	53	103	50-150	
13C3_PFBS	48	48	101	50-150	
13C2_4:2FTS	48	57	118	50-150	
13C5_PFHxA	51	53	103	50-150	
13C4_PFHpA	51	50	98	50-150	
13C3_PFHxS	49	52	107	50-150	
13C2_6:2FTS	49	53	108	50-150	
13C8_PFOA	51	53	103	50-150	
13C9_PFNA	51	53	103	50-150	
13C8_PFOS	49	48	98	50-150	
13C2_8:2FTS	49	40	80	50-150	
13C6_PFDA	51	49	96	50-150	
d3-MeFOSAA	51	42	82	50-150	
13C8_PFOSA	51	34	67	50-150	
d5-EtFOSAA	51	40	78	50-150	
13C7_PFUdA	51	44	86	50-150	
13C2_PFDoA	51	37	73	50-150	
13C2_PFTeDA	51	35	69	50-150	
13C3_HFPO-DA	51	50	96	50-150	
d7-N-MeFOSE	51	23	46	10-150	
d9-N-EtFOSE	51	22	44	10-150	
d3-N-MeFOSA	51	6.6	13	10-150	
d5-N-EtFOSA	51	6.1	12	10-150	

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Sample Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	GP-10	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054004	Total Amount Extracted	97.3mL
Lab File ID	A211103B_031	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 15:05	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

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PFAS by Isotope Dilution

Client Sample ID	GP-10	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054004	Total Amount Extracted	97.3mL
Lab File ID	A211103B_031	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 15:05	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.68	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.32	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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PFAS by Isotope Dilution

Client Sample ID	GP-10	Extraction Date	10/29/2021 10:08
Lab Sample ID	40235054004	Total Amount Extracted	97.3mL
Lab File ID	A211103B_031	Ical ID	211103A03
Matrix	Non_Potable_Water	CCal File	A211103B_029
Collected	10/13/2021 15:05	Ending CCal File	A211103B_040
Received	10/15/2021 09:25	Blank File	A211101C_008

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.000	0.460	5.33	5.33	
PFBS	0.360	0.360	5.30	5.29	
PFHxA	0.068	0.0630	5.12	5.12	
4:2 FTS	0.000	0.570	4.91	4.90	
PFPeS	0.320	0.310	5.84	5.84	
PFHpA	0.300	0.300	5.61	5.61	
DONA	0.000	0.520	0.00	5.78	
PFHxS	0.250	0.270	6.32	6.32	
PFOA	0.390	0.380	6.05	6.06	
6:2 FTS	0.470	0.500	5.83	5.83	
PFHpS	0.270	0.230	6.77	6.78	J
PFNA	0.220	0.210	6.48	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.130	0.210	7.06	7.17	
MeFOSA	0.000	0.860	0.00	10.34	
PFDA	0.000	0.0970	0.00	6.92	
EtFOSAm	0.000	0.680	0.00	11.03	
8:2 FTS	0.600	0.640	6.67	6.68	J
9-Cl-PF3ON	0.000	0.0210	0.00	7.53	
PFNS	0.000	0.250	0.00	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.540	0.00	6.86	
NEtFOSAA	0.000	0.720	0.00	7.10	
PFDS	0.000	0.230	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0140	0.00	8.37	
PFTrDA	0.000	0.150	0.00	8.20	
PFDoS	0.000	0.240	0.00	8.87	
PFTDA	0.000	0.140	0.00	8.61	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKGY	Extraction Date	10/22/2021 08:58
Lab Sample ID	BLANK-93940	Total Amount Extracted	262mL
Lab File ID	Q211028A_004	Ical ID	211027A01
Matrix	Water	CCal File	Q211028A_002
Collected	10/19/2021 14:13	Ending CCal File	Q211028A_008
Received	10/19/2021 14:13	Blank File	

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	1.9	0.42	0.42	1	375-22-4	
PFPeA	ND	1.9	0.42	0.42	1	2706-90-3	
HFPO-DA	ND	1.9	0.50	0.50	1	13252-13-6	
PFBS	ND	1.7	0.45	0.45	1	375-73-5	
PFHxA	ND	1.9	0.42	0.42	1	307-24-4	
4:2 FTS	ND	1.8	0.53	0.53	1	757124-72-4	
PFPeS	ND	1.8	0.45	0.45	1	2706-91-4	
PFHpA	ND	1.9	0.52	0.52	1	375-85-9	
DONA	ND	1.8	0.49	0.49	1	919005-14-4	
PFHxS	ND	1.7	0.48	0.48	1	355-46-4	
PFOA	ND	1.9	0.56	0.56	1	335-67-1	
6:2 FTS	ND	1.8	0.61	0.61	1	27619-97-2	
PFHpS	ND	1.8	0.39	0.39	1	375-92-8	
PFNA	ND	1.9	0.71	0.71	1	375-95-1	
PFOSAm	ND	1.9	0.78	0.78	1	754-91-6	
PFOS	1.7 J	1.8	0.52	0.52	1	1763-23-1	
MeFOSA	ND	1.9	0.49	0.49	1	31506-32-8	
PFDA	ND	1.9	0.54	0.54	1	335-76-2	
EtFOSAm	ND	1.9	0.58	0.58	1	4151-50-2	
8:2 FTS	ND	1.8	0.62	0.62	1	39108-34-4	
9-Cl-PF3ON	ND	1.8	0.29	0.29	1	756426-58-1	
PFNS	ND	1.8	0.43	0.43	1	68259-12-1	
PFUnDA	ND	1.9	0.51	0.51	1	2058-94-8	
NMeFOSAA	ND	1.9	0.41	0.41	1	2355-31-9	
NEtFOSAA	ND	1.9	0.53	0.53	1	2991-50-6	
PFDS	ND	1.8	0.43	0.43	1	335-77-3	
PFDOA	ND	1.9	0.46	0.46	1	307-55-1	
MeFOSE	ND	1.9	0.31	0.31	1	24448-09-7	
EtFOSE	ND	1.9	0.47	0.47	1	1691-99-2	
11-Cl-PF3OUdS	ND	1.8	0.42	0.42	1	763051-92-9	
PFTrDA	ND	1.9	0.59	0.59	1	72629-94-8	
PFDoS	ND	1.8	0.44	0.44	1	79780-39-5	
PFTDA	ND	1.9	0.45	0.45	1	376-06-7	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKGY	Extraction Date	10/22/2021 08:58
Lab Sample ID	BLANK-93940	Total Amount Extracted	262mL
Lab File ID	Q211028A_004	Ical ID	211027A01
Matrix	Water	CCal File	Q211028A_002
Collected	10/19/2021 14:13	Ending CCal File	Q211028A_008
Received	10/19/2021 14:13	Blank File	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	19	18	92	50-150	
13C4_PFOA	19	17	88	50-150	
13C2_PFDA	19	20	106	50-150	
13C4_PFOS	18	18	96	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	19	18	96	50-150	
13C5_PFPeA	19	18	96	50-150	
13C3_PFBS	18	17	97	50-150	
13C2_4:2FTS	18	18	101	50-150	
13C5_PFHxA	19	18	94	50-150	
13C4_PFHpA	19	17	88	50-150	
13C3_PFHxS	18	17	92	50-150	
13C2_6:2FTS	18	17	95	50-150	
13C8_PFOA	19	18	97	50-150	
13C9_PFNA	19	19	97	50-150	
13C8_PFOS	18	16	90	50-150	
13C2_8:2FTS	18	16	87	50-150	
13C6_PFDA	19	20	105	50-150	
d3-MeFOSAA	19	15	78	50-150	
13C8_PFOSA	19	16	83	50-150	
d5-EtFOSAA	19	16	83	50-150	
13C7_PFUdA	19	18	94	50-150	
13C2_PFDoA	19	17	90	50-150	
13C2_PFTeDA	19	20	105	50-150	
13C3_HFPO-DA	19	17	91	50-150	
d7-N-MeFOSE	19	14	73	20-150	
d9-N-EtFOSE	19	15	77	20-150	
d3-N-MeFOSA	19	9.4	49	20-150	
d5-N-EtFOSA	19	10.0	52	20-150	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKGY	Extraction Date	10/22/2021 08:58
Lab Sample ID	BLANK-93940	Total Amount Extracted	262mL
Lab File ID	Q211028A_004	Ical ID	211027A01
Matrix	Water	CCal File	Q211028A_002
Collected	10/19/2021 14:13	Ending CCal File	Q211028A_008
Received	10/19/2021 14:13	Blank File	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	6.22	6.19	
13C4_PFOA	N/A	N/A	7.56	7.52	
13C2_PFDA	N/A	N/A	8.91	8.87	
13C4_PFOS	N/A	N/A	9.39	9.34	

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Client Sample ID	BLKGY	Extraction Date	10/22/2021 08:58
Lab Sample ID	BLANK-93940	Total Amount Extracted	262mL
Lab File ID	Q211028A_004	Ical ID	211027A01
Matrix	Water	CCal File	Q211028A_002
Collected	10/19/2021 14:13	Ending CCal File	Q211028A_008
Received	10/19/2021 14:13	Blank File	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	4.78	4.77	
13C5_PFPeA	N/A	N/A	5.56	5.53	
13C3_PFBS	N/A	N/A	6.49	6.45	
13C2_4:2FTS	N/A	N/A	5.94	5.91	
13C5_PFHxA	N/A	N/A	6.22	6.19	
13C4_PFHpA	N/A	N/A	6.90	6.85	
13C3_PFHxS	N/A	N/A	7.99	7.94	
13C2_6:2FTS	N/A	N/A	7.21	7.17	
13C8_PFOA	N/A	N/A	7.57	7.52	
13C9_PFNA	N/A	N/A	8.24	8.19	
13C8_PFOS	N/A	N/A	9.39	9.34	
13C2_8:2FTS	N/A	N/A	8.53	8.48	
13C6_PFDA	N/A	N/A	8.92	8.87	
d3-MeFOSAA	N/A	N/A	8.79	8.74	
13C8_PFOSA	N/A	N/A	11.30	11.24	
d5-EtFOSAA	N/A	N/A	9.10	9.05	
13C7_PFUdA	N/A	N/A	9.59	9.55	
13C2_PFDoA	N/A	N/A	10.26	10.22	
13C2_PFTeDA	N/A	N/A	11.55	11.52	
13C3_HFPO-DA	N/A	N/A	6.50	6.46	
d7-N-MeFOSE	N/A	N/A	13.02	12.97	
d9-N-EtFOSE	N/A	N/A	13.51	13.46	
d3-N-MeFOSA	N/A	N/A	13.23	13.18	
d5-N-EtFOSA	N/A	N/A	13.68	13.63	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKGY	Extraction Date	10/22/2021 08:58
Lab Sample ID	BLANK-93940	Total Amount Extracted	262mL
Lab File ID	Q211028A_004	Ical ID	211027A01
Matrix	Water	CCal File	Q211028A_002
Collected	10/19/2021 14:13	Ending CCal File	Q211028A_008
Received	10/19/2021 14:13	Blank File	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	0.00	4.77	
PFPeA	N/A	N/A	0.00	5.54	
HFPO-DA	0.000	0.660	0.00	6.48	
PFBS	0.230	0.360	6.50	6.46	
PFHxA	0.000	0.0790	0.00	6.22	
4:2 FTS	0.000	0.950	0.00	5.91	
PFPeS	0.000	0.380	7.25	7.22	
PFHpA	0.000	0.590	0.00	6.85	
DONA	0.000	0.470	0.00	7.10	
PFHxS	0.460	0.290	7.99	7.91	
PFOA	0.000	0.300	0.00	7.53	
6:2 FTS	1.10	1.50	7.21	7.17	
PFHpS	0.000	0.460	0.00	8.66	
PFNA	0.000	0.260	0.00	8.20	
PFOSAm	N/A	N/A	11.30	11.25	
PFOS	0.280	0.220	9.40	9.25	J
MeFOSA	0.000	0.540	0.00	13.20	
PFDA	0.000	0.160	8.92	8.88	
EtFOSAm	0.000	0.480	0.00	13.65	
8:2 FTS	0.000	1.30	0.00	8.49	
9-Cl-PF3ON	0.000	0.0440	0.00	9.84	
PFNS	0.000	0.240	0.00	10.03	
PFUnDA	0.000	0.130	0.00	9.55	
NMeFOSAA	0.000	0.640	0.00	8.76	
NEtFOSAA	0.000	0.540	0.00	9.08	
PFDS	0.000	0.300	0.00	10.69	
PFDOA	0.000	0.170	0.00	10.22	
MeFOSE	N/A	N/A	0.00	13.02	
EtFOSE	0.000	0.000	0.00	13.50	
11-Cl-PF3OUdS	0.000	0.0240	0.00	11.15	
PFTrDA	0.000	0.180	0.00	10.89	
PFDoS	0.000	0.230	0.00	11.91	
PFTDA	0.000	0.140	0.00	11.52	

REPORT OF LABORATORY ANALYSIS

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKKK	Extraction Date	10/29/2021 10:08
Lab Sample ID	BLANK-94161	Total Amount Extracted	250mL
Lab File ID	A211101C_008	Ical ID	211026A03
Matrix	Water	CCal File	A211101C_006
Collected	10/28/2021 12:07	Ending CCal File	A211101C_022
Received	10/28/2021 12:07	Blank File	

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	2.0	0.44	0.44	1	375-22-4	
PFPeA	ND	2.0	0.44	0.44	1	2706-90-3	
HFPO-DA	ND	2.0	0.53	0.53	1	13252-13-6	
PFBS	ND	1.8	0.47	0.47	1	375-73-5	
PFHxA	ND	2.0	0.44	0.44	1	307-24-4	
4:2 FTS	ND	1.9	0.56	0.56	1	757124-72-4	
PFPeS	ND	1.9	0.48	0.48	1	2706-91-4	
PFHpA	ND	2.0	0.55	0.55	1	375-85-9	
DONA	ND	1.9	0.51	0.51	1	919005-14-4	
PFHxS	ND	1.8	0.51	0.51	1	355-46-4	
PFOA	ND	2.0	0.59	0.59	1	335-67-1	
6:2 FTS	ND	1.9	0.65	0.65	1	27619-97-2	
PFHpS	ND	1.9	0.41	0.41	1	375-92-8	
PFNA	ND	2.0	0.74	0.74	1	375-95-1	
PFOSAm	ND	2.0	0.82	0.82	1	754-91-6	
PFOS	ND	1.9	0.55	0.55	1	1763-23-1	
MeFOSA	ND	2.0	0.51	0.51	1	31506-32-8	
PFDA	ND	2.0	0.56	0.56	1	335-76-2	
EtFOSAm	ND	2.0	0.61	0.61	1	4151-50-2	
8:2 FTS	ND	1.9	0.65	0.65	1	39108-34-4	
9-Cl-PF3ON	ND	1.9	0.31	0.31	1	756426-58-1	
PFNS	ND	1.9	0.45	0.45	1	68259-12-1	
PFUnDA	ND	2.0	0.54	0.54	1	2058-94-8	
NMeFOSAA	ND	2.0	0.43	0.43	1	2355-31-9	
NEtFOSAA	ND	2.0	0.56	0.56	1	2991-50-6	
PFDS	ND	1.9	0.45	0.45	1	335-77-3	
PFDOA	ND	2.0	0.48	0.48	1	307-55-1	
MeFOSE	ND	2.0	0.33	0.33	1	24448-09-7	
EtFOSE	ND	2.0	0.50	0.50	1	1691-99-2	
11-Cl-PF3OUdS	ND	1.9	0.44	0.44	1	763051-92-9	
PFTrDA	ND	2.0	0.62	0.62	1	72629-94-8	
PFDoS	ND	1.9	0.46	0.46	1	79780-39-5	
PFTDA	ND	2.0	0.48	0.48	1	376-06-7	

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Client Sample ID	BLKKK	Extraction Date	10/29/2021 10:08
Lab Sample ID	BLANK-94161	Total Amount Extracted	250mL
Lab File ID	A211101C_008	Ical ID	211026A03
Matrix	Water	CCal File	A211101C_006
Collected	10/28/2021 12:07	Ending CCal File	A211101C_022
Received	10/28/2021 12:07	Blank File	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	20	19	95	50-150	
13C4_PFOA	20	18	92	50-150	
13C2_PFDA	20	19	96	50-150	
13C4_PFOS	19	17	91	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	20	19	96	50-150	
13C5_PFPeA	20	20	100	50-150	
13C3_PFBS	19	18	97	50-150	
13C2_4:2FTS	19	17	93	50-150	
13C5_PFHxA	20	20	99	50-150	
13C4_PFHpA	20	19	96	50-150	
13C3_PFHxS	19	19	100	50-150	
13C2_6:2FTS	19	21	111	50-150	
13C8_PFOA	20	20	102	50-150	
13C9_PFNA	20	21	106	50-150	
13C8_PFOS	19	18	96	50-150	
13C2_8:2FTS	19	18	92	50-150	
13C6_PFDA	20	19	93	50-150	
d3-MeFOSAA	20	18	90	50-150	
13C8_PFOSA	20	15	76	50-150	
d5-EtFOSAA	20	15	75	50-150	
13C7_PFUdA	20	19	93	50-150	
13C2_PFDoA	20	16	78	50-150	
13C2_PFTeDA	20	16	82	50-150	
13C3_HFPO-DA	20	19	95	50-150	
d7-N-MeFOSE	20	13	64	10-150	
d9-N-EtFOSE	20	13	63	10-150	
d3-N-MeFOSA	20	9.7	48	10-150	
d5-N-EtFOSA	20	9.2	46	10-150	

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Client Sample ID	BLKKK	Extraction Date	10/29/2021 10:08
Lab Sample ID	BLANK-94161	Total Amount Extracted	250mL
Lab File ID	A211101C_008	Ical ID	211026A03
Matrix	Water	CCal File	A211101C_006
Collected	10/28/2021 12:07	Ending CCal File	A211101C_022
Received	10/28/2021 12:07	Blank File	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.91	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

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Client Sample ID	BLKKK	Extraction Date	10/29/2021 10:08
Lab Sample ID	BLANK-94161	Total Amount Extracted	250mL
Lab File ID	A211101C_008	Ical ID	211026A03
Matrix	Water	CCal File	A211101C_006
Collected	10/28/2021 12:07	Ending CCal File	A211101C_022
Received	10/28/2021 12:07	Blank File	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.32	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.21	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.91	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.60	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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Client Sample ID	BLKKK	Extraction Date	10/29/2021 10:08
Lab Sample ID	BLANK-94161	Total Amount Extracted	250mL
Lab File ID	A211101C_008	Ical ID	211026A03
Matrix	Water	CCal File	A211101C_006
Collected	10/28/2021 12:07	Ending CCal File	A211101C_022
Received	10/28/2021 12:07	Blank File	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	0.00	4.54	
HFPO-DA	0.000	0.460	0.00	5.33	
PFBS	0.780	0.290	5.30	5.29	
PFHxA	0.000	0.0760	5.12	5.12	
4:2 FTS	0.000	0.660	0.00	4.90	
PFPeS	0.000	0.330	0.00	5.84	
PFHpA	0.000	0.300	0.00	5.61	
DONA	0.000	0.540	0.00	5.78	
PFHxS	0.000	0.250	6.32	6.32	
PFOA	0.000	0.370	0.00	6.06	
6:2 FTS	0.000	0.600	0.00	5.83	
PFHpS	0.000	0.230	0.00	6.78	
PFNA	0.000	0.170	0.00	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.340	0.240	7.22	7.17	
MeFOSA	0.000	0.860	0.00	10.34	
PFDA	0.000	0.0940	0.00	6.92	
EtFOSAm	0.000	0.680	0.00	11.03	
8:2 FTS	0.000	0.630	0.00	6.68	
9-Cl-PF3ON	0.000	0.0220	0.00	7.53	
PFNS	0.000	0.240	0.00	7.65	
PFUnDA	0.000	0.0800	0.00	7.35	
NMeFOSAA	0.000	0.450	0.00	6.86	
NEtFOSAA	0.000	0.630	7.14	7.10	
PFDS	0.000	0.250	0.00	8.07	
PFDOA	0.000	0.130	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0100	0.00	8.37	
PFTrDA	0.000	0.140	0.00	8.20	
PFDoS	0.000	0.220	0.00	8.87	
PFTDA	0.000	0.170	0.00	8.61	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKLA	Extraction Date	11/02/2021 11:46
Lab Sample ID	BLANK-94205	Total Amount Extracted	262mL
Lab File ID	A211104A_019	Ical ID	211103A03
Matrix	Water	CCal File	A211104A_017
Collected	11/01/2021 20:58	Ending CCal File	A211104A_028
Received	11/01/2021 20:58	Blank File	

Compound	Concentration (ng/L)	QL (ng/L)	RL (ng/L)	DL (ng/L)	Dil.	CAS No.	Qual.
PFBA	ND	1.9	0.42	0.42	1	375-22-4	
PFPeA	ND	1.9	0.42	0.42	1	2706-90-3	
HFPO-DA	ND	1.9	0.50	0.50	1	13252-13-6	
PFBS	ND	1.7	0.45	0.45	1	375-73-5	
PFHxA	ND	1.9	0.42	0.42	1	307-24-4	
4:2 FTS	ND	1.8	0.53	0.53	1	757124-72-4	
PFPeS	ND	1.8	0.45	0.45	1	2706-91-4	
PFHpA	ND	1.9	0.52	0.52	1	375-85-9	
DONA	ND	1.8	0.49	0.49	1	919005-14-4	
PFHxS	ND	1.7	0.48	0.48	1	355-46-4	
PFOA	ND	1.9	0.56	0.56	1	335-67-1	
6:2 FTS	ND	1.8	0.62	0.62	1	27619-97-2	
PFHpS	ND	1.8	0.39	0.39	1	375-92-8	
PFNA	ND	1.9	0.71	0.71	1	375-95-1	
PFOSAm	ND	1.9	0.78	0.78	1	754-91-6	
PFOS	ND	1.8	0.52	0.52	1	1763-23-1	
MeFOSA	ND	1.9	0.49	0.49	1	31506-32-8	
PFDA	ND	1.9	0.54	0.54	1	335-76-2	
EtFOSAm	ND	1.9	0.58	0.58	1	4151-50-2	
8:2 FTS	ND	1.8	0.62	0.62	1	39108-34-4	
9-Cl-PF3ON	ND	1.8	0.29	0.29	1	756426-58-1	
PFNS	ND	1.8	0.43	0.43	1	68259-12-1	
PFUnDA	ND	1.9	0.52	0.52	1	2058-94-8	
NMeFOSAA	ND	1.9	0.41	0.41	1	2355-31-9	
NEtFOSAA	ND	1.9	0.53	0.53	1	2991-50-6	
PFDS	ND	1.8	0.43	0.43	1	335-77-3	
PFDOA	ND	1.9	0.46	0.46	1	307-55-1	
MeFOSE	ND	1.9	0.31	0.31	1	24448-09-7	
EtFOSE	ND	1.9	0.47	0.47	1	1691-99-2	
11-Cl-PF3OUdS	ND	1.8	0.42	0.42	1	763051-92-9	
PFTrDA	ND	1.9	0.59	0.59	1	72629-94-8	
PFDoS	ND	1.8	0.44	0.44	1	79780-39-5	
PFTDA	ND	1.9	0.45	0.45	1	376-06-7	

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Method Blank Analysis Summary

PFAS by Isotope Dilution

Client Sample ID	BLKLA	Extraction Date	11/02/2021 11:46
Lab Sample ID	BLANK-94205	Total Amount Extracted	262mL
Lab File ID	A211104A_019	Ical ID	211103A03
Matrix	Water	CCal File	A211104A_017
Collected	11/01/2021 20:58	Ending CCal File	A211104A_028
Received	11/01/2021 20:58	Blank File	

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	19	20	106	50-150	
13C4_PFOA	19	26	134	50-150	
13C2_PFDA	19	26	135	50-150	
13C4_PFOS	18	14	74	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	19	19	97	50-150	
13C5_PFPeA	19	20	104	50-150	
13C3_PFBS	18	20	114	50-150	
13C2_4:2FTS	18	23	127	50-150	
13C5_PFHxA	19	20	107	50-150	
13C4_PFHpA	19	22	113	50-150	
13C3_PFHxS	18	17	95	50-150	
13C2_6:2FTS	18	28	**154**	50-150	R
13C8_PFOA	19	24	124	50-150	
13C9_PFNA	19	24	127	50-150	
13C8_PFOS	18	11	62	50-150	
13C2_8:2FTS	18	31	**170**	50-150	R
13C6_PFDA	19	23	122	50-150	
d3-MeFOSAA	19	27	142	50-150	
13C8_PFOSA	19	17	91	50-150	
d5-EtFOSAA	19	26	136	50-150	
13C7_PFUdA	19	22	113	50-150	
13C2_PFDoA	19	24	125	50-150	
13C2_PFTeDA	19	26	137	50-150	
13C3_HFPO-DA	19	20	105	50-150	
d7-N-MeFOSE	19	16	85	20-150	
d9-N-EtFOSE	19	16	85	20-150	
d3-N-MeFOSA	19	11	56	20-150	
d5-N-EtFOSA	19	11	56	20-150	

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Client Sample ID	BLKLA	Extraction Date	11/02/2021 11:46
Lab Sample ID	BLANK-94205	Total Amount Extracted	262mL
Lab File ID	A211104A_019	Ical ID	211103A03
Matrix	Water	CCal File	A211104A_017
Collected	11/01/2021 20:58	Ending CCal File	A211104A_028
Received	11/01/2021 20:58	Blank File	

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.20	7.21	

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Lab Sample ID	BLANK-94205	Total Amount Extracted	262mL
Lab File ID	A211104A_019	Ical ID	211103A03
Matrix	Water	CCal File	A211104A_017
Collected	11/01/2021 20:58	Ending CCal File	A211104A_028
Received	11/01/2021 20:58	Blank File	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.55	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.61	5.61	
13C3_PFHxS	N/A	N/A	6.32	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	R
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.48	6.48	
13C8_PFOS	N/A	N/A	7.20	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	R
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.33	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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Client Sample ID	BLKLA	Extraction Date	11/02/2021 11:46
Lab Sample ID	BLANK-94205	Total Amount Extracted	262mL
Lab File ID	A211104A_019	Ical ID	211103A03
Matrix	Water	CCal File	A211104A_017
Collected	11/01/2021 20:58	Ending CCal File	A211104A_028
Received	11/01/2021 20:58	Blank File	

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.000	0.430	0.00	5.33	
PFBS	0.420	0.340	5.30	5.29	
PFHxA	0.000	0.0670	5.13	5.12	
4:2 FTS	0.000	0.580	5.10	4.90	
PFPeS	0.000	0.310	5.84	5.84	
PFHpA	0.000	0.290	5.62	5.61	
DONA	0.000	0.490	0.00	5.78	
PFHxS	0.370	0.240	6.32	6.32	
PFOA	0.150	0.370	6.05	6.06	
6:2 FTS	0.000	0.450	5.83	5.83	
PFHpS	0.000	0.210	0.00	6.78	
PFNA	0.000	0.200	6.48	6.49	
PFOSAm	N/A	N/A	8.67	8.66	
PFOS	0.360	0.230	7.21	7.17	
MeFOSA	0.000	0.910	0.00	10.34	
PFDA	0.000	0.0910	0.00	6.92	
EtFOSAm	0.000	0.680	0.00	11.03	
8:2 FTS	0.000	0.510	0.00	6.68	
9-Cl-PF3ON	0.000	0.0240	0.00	7.53	
PFNS	0.000	0.230	0.00	7.65	
PFUnDA	0.000	0.100	0.00	7.35	
NMeFOSAA	0.000	0.560	0.00	6.86	
NEtFOSAA	0.000	0.680	0.00	7.10	
PFDS	0.000	0.260	0.00	8.07	
PFDOA	0.000	0.140	0.00	7.77	
MeFOSE	N/A	N/A	0.00	10.12	
EtFOSE	0.000	0.000	0.00	10.76	
11-Cl-PF3OUdS	0.000	0.0130	0.00	8.37	
PFTrDA	0.000	0.160	0.00	8.20	
PFDoS	0.000	0.210	0.00	8.87	
PFTDA	0.000	0.130	0.00	8.61	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-93941	Instrument ID	10LCMS01
Run File Name	Q211027B_006	Column ID	118AB10133
Analyzed	10/27/2021 14:16	Ical ID	211027A01
Injected By	NH	Level	L

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	19	16	83	50-150	
13C4_PFOA	19	15	81	50-150	
13C2_PFDA	19	16	83	50-150	
13C4_PFOS	18	15	80	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	19	16	82	50-150	
13C5_PFPeA	19	15	82	50-150	
13C3_PFBS	18	15	86	50-150	
13C2_4:2FTS	18	14	81	50-150	
13C5_PFHxA	19	15	80	50-150	
13C4_PFHpA	19	15	77	50-150	
13C3_PFHxS	18	15	85	50-150	
13C2_6:2FTS	18	16	87	50-150	
13C8_PFOA	19	15	77	50-150	
13C9_PFNA	19	15	80	50-150	
13C8_PFOS	18	14	78	50-150	
13C2_8:2FTS	18	14	76	50-150	
13C6_PFDA	19	15	82	50-150	
d3-MeFOSAA	19	13	71	50-150	
13C8_PFOSA	19	13	67	50-150	
d5-EtFOSAA	19	15	78	50-150	
13C7_PFUdA	19	14	72	50-150	
13C2_PFDoA	19	14	73	50-150	
13C2_PFTeDA	19	15	79	50-150	
13C3_HFPO-DA	19	15	81	50-150	
d7-N-MeFOSE	19	12	64	20-150	
d9-N-EtFOSE	19	12	64	20-150	
d3-N-MeFOSA	19	9.4	50	20-150	
d5-N-EtFOSA	19	9.9	52	20-150	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-93941	Instrument ID	10LCMS01
Run File Name	Q211027B_006	Column ID	118AB10133
Analyzed	10/27/2021 14:16	Ical ID	211027A01
Injected By	NH	Level	L

Native Analytes

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	3.8	3.8	101	50-150		375-22-4
PFPeA	3.8	4.0	106	50-150		2706-90-3
HFPO-DA	3.8	3.3	87	50-150		13252-13-6
PFBS	3.3	3.3	98	50-150		375-73-5
PFHxA	3.8	4.2	110	50-150		307-24-4
4:2 FTS	3.5	3.0	86	50-150		757124-72-4
PFPeS	3.5	3.5	100	50-150		2706-91-4
PFHpA	3.8	4.0	107	50-150		375-85-9
DONA	3.6	3.4	97	50-150		919005-14-4
PFHxS	3.4	3.7	107	50-150		355-46-4
PFOA	3.8	4.2	112	50-150		335-67-1
6:2 FTS	3.6	3.2	88	50-150		27619-97-2
PFHpS	3.6	3.7	102	50-150		375-92-8
PFNA	3.8	3.5	93	50-150		375-95-1
PFOSAm	3.8	4.2	112	50-150		754-91-6
PFOS	3.5	4.3	124	50-150	B	1763-23-1
MeFOSA	3.8	3.5	93	50-150		31506-32-8
PFDA	3.8	3.6	96	50-150		335-76-2
EtFOSAm	3.8	3.5	93	50-150		4151-50-2
8:2 FTS	3.6	3.1	85	50-150		39108-34-4
9-Cl-PF3ON	3.5	3.5	99	50-150		756426-58-1
PFNS	3.6	3.5	96	50-150		68259-12-1
PFUnDA	3.8	3.8	101	50-150		2058-94-8
NMeFOSAA	3.8	3.4	90	50-150		2355-31-9
NEtFOSAA	3.8	3.0	78	50-150		2991-50-6
PFDS	3.6	3.3	91	50-150		335-77-3
PFDOA	3.8	3.9	103	50-150		307-55-1
MeFOSE	3.8	3.9	103	50-150		24448-09-7
EtFOSE	3.8	3.5	93	50-150		1691-99-2
11-Cl-PF3OUdS	3.6	3.1	88	50-150		763051-92-9
PFTrDA	3.8	3.5	92	50-150		72629-94-8
PFDoS	3.7	3.7	102	50-150		79780-39-5
PFTDA	3.8	3.0	79	50-150		376-06-7

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-93941	Instrument ID	10LCMS01
Run File Name	Q211027B_006	Column ID	118AB10133
Analyzed	10/27/2021 14:16	Ical ID	211027A01
Injected By	NH	Level	L

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	6.19	6.18	
13C4_PFOA	N/A	N/A	7.52	7.51	
13C2_PFDA	N/A	N/A	8.88	8.89	
13C4_PFOS	N/A	N/A	9.35	9.34	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	4.78	4.77	
13C5_PFPeA	N/A	N/A	5.54	5.53	
13C3_PFBS	N/A	N/A	6.46	6.46	
13C2_4:2FTS	N/A	N/A	5.91	5.92	
13C5_PFHxA	N/A	N/A	6.20	6.20	
13C4_PFHpA	N/A	N/A	6.86	6.86	
13C3_PFHxS	N/A	N/A	7.95	7.95	
13C2_6:2FTS	N/A	N/A	7.17	7.18	
13C8_PFOA	N/A	N/A	7.52	7.53	
13C9_PFNA	N/A	N/A	8.20	8.20	
13C8_PFOS	N/A	N/A	9.35	9.36	
13C2_8:2FTS	N/A	N/A	8.49	8.50	
13C6_PFDA	N/A	N/A	8.88	8.86	
d3-MeFOSAA	N/A	N/A	8.75	8.73	
13C8_PFOSA	N/A	N/A	11.26	11.26	
d5-EtFOSAA	N/A	N/A	9.06	9.06	
13C7_PFUdA	N/A	N/A	9.55	9.54	
13C2_PFDoA	N/A	N/A	10.23	10.23	
13C2_PFTeDA	N/A	N/A	11.53	11.53	
13C3_HFPO-DA	N/A	N/A	6.47	6.47	
d7-N-MeFOSE	N/A	N/A	12.99	12.99	
d9-N-EtFOSE	N/A	N/A	13.47	13.47	
d3-N-MeFOSA	N/A	N/A	13.19	13.20	
d5-N-EtFOSA	N/A	N/A	13.64	13.65	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-93941	Instrument ID	10LCMS01
Run File Name	Q211027B_006	Column ID	118AB10133
Analyzed	10/27/2021 14:16	Ical ID	211027A01
Injected By	NH	Level	L

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	4.78	4.80	
PFPeA	N/A	N/A	5.54	5.57	
HFPO-DA	0.74	0.62	6.48	6.44	
PFBS	0.35	0.34	6.46	6.52	
PFHxA	0.06	0.09	6.20	6.22	
4:2 FTS	1.00	0.90	5.92	5.94	
PFPeS	0.43	0.45	7.23	7.23	
PFHpA	0.52	0.56	6.87	6.85	
DONA	0.52	0.49	7.11	7.04	
PFHxS	0.25	0.31	7.96	7.91	
PFOA	0.28	0.27	7.53	7.47	
6:2 FTS	1.30	1.10	7.18	7.18	
PFHpS	0.37	0.49	8.67	8.66	
PFNA	0.27	0.23	8.21	8.19	
PFOSAm	N/A	N/A	11.27	11.26	
PFOS	0.26	0.25	9.37	9.25	B
MeFOSA	0.48	0.46	13.22	13.20	
PFDA	0.16	0.16	8.89	8.88	
EtFOSAm	0.48	0.45	13.66	13.65	
8:2 FTS	1.60	1.50	8.50	8.49	
9-Cl-PF3ON	0.03	0.03	9.85	9.77	
PFNS	0.24	0.24	10.04	10.03	
PFUnDA	0.15	0.15	9.56	9.58	
NMeFOSAA	0.55	0.86	8.77	8.76	
NEtFOSAA	0.52	0.59	9.08	9.08	
PFDS	0.29	0.29	10.70	10.69	
PFDOA	0.20	0.17	10.23	10.17	
MeFOSE	N/A	N/A	13.03	13.03	
EtFOSE	0.00	0.00	13.52	13.51	
11-Cl-PF3OUdS	0.02	0.02	11.17	11.15	
PFTrDA	0.18	0.20	10.90	10.89	
PFDoS	0.24	0.23	11.92	11.91	
PFTDA	0.16	0.15	11.54	11.47	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94162	Instrument ID	10LCMS03
Run File Name	A211101C_009	Column ID	118AB10133
Analyzed	11/01/2021 19:50	Ical ID	211026A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	19	19	97	50-150	
13C4_PFOA	19	19	96	50-150	
13C2_PFDA	19	18	94	50-150	
13C4_PFOS	18	17	94	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	19	18	95	50-150	
13C5_PFPeA	19	18	96	50-150	
13C3_PFBS	18	17	97	50-150	
13C2_4:2FTS	18	16	92	50-150	
13C5_PFHxA	19	18	94	50-150	
13C4_PFHpA	19	18	92	50-150	
13C3_PFHxS	18	18	97	50-150	
13C2_6:2FTS	18	18	97	50-150	
13C8_PFOA	19	18	95	50-150	
13C9_PFNA	19	19	96	50-150	
13C8_PFOS	18	17	92	50-150	
13C2_8:2FTS	18	19	101	50-150	
13C6_PFDA	19	17	89	50-150	
d3-MeFOSAA	19	15	80	50-150	
13C8_PFOSA	19	15	76	50-150	
d5-EtFOSAA	19	14	74	50-150	
13C7_PFUdA	19	17	88	50-150	
13C2_PFDoA	19	16	85	50-150	
13C2_PFTeDA	19	15	79	50-150	
13C3_HFPO-DA	19	18	94	50-150	
d7-N-MeFOSE	19	14	74	20-150	
d9-N-EtFOSE	19	17	90	20-150	
d3-N-MeFOSA	19	10	53	20-150	
d5-N-EtFOSA	19	10	54	20-150	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94162	Instrument ID	10LCMS03
Run File Name	A211101C_009	Column ID	118AB10133
Analyzed	11/01/2021 19:50	Ical ID	211026A03
Injected By	NH	Level	L

Native Analytes

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	3.9	4.0	103	50-150		375-22-4
PFPeA	3.9	3.9	101	50-150		2706-90-3
HFPO-DA	3.9	3.9	100	50-150		13252-13-6
PFBS	3.4	3.7	108	50-150		375-73-5
PFHxA	3.9	4.3	112	50-150		307-24-4
4:2 FTS	3.6	3.9	109	50-150		757124-72-4
PFPeS	3.6	3.8	105	50-150		2706-91-4
PFHpA	3.9	4.3	110	50-150		375-85-9
DONA	3.6	3.9	107	50-150		919005-14-4
PFHxS	3.5	3.7	105	50-150		355-46-4
PFOA	3.9	3.9	102	50-150		335-67-1
6:2 FTS	3.7	4.3	117	50-150		27619-97-2
PFHpS	3.7	3.3	91	50-150		375-92-8
PFNA	3.9	3.8	99	50-150		375-95-1
PFOSAm	3.9	3.8	100	50-150		754-91-6
PFOS	3.6	3.4	94	50-150		1763-23-1
MeFOSA	3.9	3.8	98	50-150		31506-32-8
PFDA	3.9	3.6	93	50-150		335-76-2
EtFOSAm	3.9	3.8	98	50-150		4151-50-2
8:2 FTS	3.7	4.1	110	50-150		39108-34-4
9-Cl-PF3ON	3.6	3.5	98	50-150		756426-58-1
PFNS	3.7	3.6	98	50-150		68259-12-1
PFUnDA	3.9	4.2	109	50-150		2058-94-8
NMeFOSAA	3.9	3.7	96	50-150		2355-31-9
NEtFOSAA	3.9	4.5	117	50-150		2991-50-6
PFDS	3.7	3.5	95	50-150		335-77-3
PFDOA	3.9	4.0	105	50-150		307-55-1
MeFOSE	3.9	4.0	104	50-150		24448-09-7
EtFOSE	3.9	3.0	79	50-150		1691-99-2
11-Cl-PF3OUdS	3.6	3.3	90	50-150	I	763051-92-9
PFTrDA	3.9	4.1	107	50-150		72629-94-8
PFDoS	3.7	3.1	83	50-150		79780-39-5
PFTDA	3.9	3.9	100	50-150		376-06-7

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94162	Instrument ID	10LCMS03
Run File Name	A211101C_009	Column ID	118AB10133
Analyzed	11/01/2021 19:50	Ical ID	211026A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFOA	N/A	N/A	6.06	6.05	
13C2_PFDA	N/A	N/A	6.91	6.91	
13C4_PFOS	N/A	N/A	7.21	7.21	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.55	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.61	5.61	
13C3_PFHxS	N/A	N/A	6.32	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.06	6.05	
13C9_PFNA	N/A	N/A	6.49	6.48	
13C8_PFOS	N/A	N/A	7.21	7.21	
13C2_8:2FTS	N/A	N/A	6.67	6.67	
13C6_PFDA	N/A	N/A	6.91	6.91	
d3-MeFOSAA	N/A	N/A	6.86	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.05	7.05	
13C7_PFUdA	N/A	N/A	7.34	7.34	
13C2_PFDoA	N/A	N/A	7.76	7.77	
13C2_PFTeDA	N/A	N/A	8.60	8.61	
13C3_HFPO-DA	N/A	N/A	5.32	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.01	11.01	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94162	Instrument ID	10LCMS03
Run File Name	A211101C_009	Column ID	118AB10133
Analyzed	11/01/2021 19:50	Ical ID	211026A03
Injected By	NH	Level	L

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.70	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.46	0.46	5.33	5.33	
PFBS	0.32	0.29	5.30	5.29	
PFHxA	0.07	0.07	5.13	5.12	
4:2 FTS	0.53	0.66	4.92	4.90	
PFPeS	0.30	0.33	5.85	5.84	
PFHpA	0.26	0.30	5.62	5.61	
DONA	0.49	0.54	5.78	5.78	
PFHxS	0.26	0.25	6.33	6.32	
PFOA	0.44	0.37	6.06	6.06	
6:2 FTS	0.43	0.60	5.84	5.83	
PFHpS	0.23	0.23	6.78	6.78	
PFNA	0.20	0.17	6.49	6.49	
PFOSAm	N/A	N/A	8.67	8.66	
PFOS	0.24	0.24	7.22	7.17	
MeFOSA	0.92	0.86	10.35	10.34	
PFDA	0.09	0.09	6.92	6.92	
EtFOSAm	0.68	0.68	11.04	11.03	
8:2 FTS	0.59	0.63	6.68	6.68	
9-Cl-PF3ON	0.01	0.02	7.53	7.53	
PFNS	0.24	0.24	7.65	7.65	
PFUnDA	0.12	0.08	7.34	7.35	
NMeFOSAA	0.61	0.45	6.86	6.86	
NEtFOSAA	0.61	0.63	7.06	7.10	
PFDS	0.25	0.25	8.06	8.07	
PFDOA	0.11	0.13	7.77	7.77	
MeFOSE	N/A	N/A	10.13	10.12	
EtFOSE	0.00	0.00	10.77	10.76	
11-Cl-PF3OUdS	0.01	0.01	8.37	8.37	I
PFTrDA	0.13	0.14	8.19	8.20	
PFDoS	0.24	0.22	8.86	8.87	
PFTDA	0.15	0.17	8.61	8.61	

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LCS Analysis Summary

PFAS by Isotope Dilution

Lab Sample ID	LCS-94206	Instrument ID	10LCMS03
Run File Name	A211104A_020	Column ID	118AB10133
Analyzed	11/04/2021 14:12	Ical ID	211103A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C2_PFHxA	20	23	115	50-150	
13C4_PFOA	20	25	125	50-150	
13C2_PFDA	20	30	150	50-150	
13C4_PFOS	19	20	106	50-150	

Extracted Internal Standards

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers
13C4_PFBA	20	18	93	50-150	
13C5_PFPeA	20	19	99	50-150	
13C3_PFBS	18	20	110	50-150	
13C2_4:2FTS	18	21	113	50-150	
13C5_PFHxA	20	20	103	50-150	
13C4_PFHpA	20	21	108	50-150	
13C3_PFHxS	19	20	106	50-150	
13C2_6:2FTS	19	23	125	50-150	
13C8_PFOA	20	22	113	50-150	
13C9_PFNA	20	23	118	50-150	
13C8_PFOS	19	17	92	50-150	
13C2_8:2FTS	19	30	**159**	50-150	R
13C6_PFDA	20	24	122	50-150	
d3-MeFOSAA	20	22	110	50-150	
13C8_PFOSA	20	14	74	50-150	
d5-EtFOSAA	20	21	107	50-150	
13C7_PFUdA	20	23	116	50-150	
13C2_PFDoA	20	20	100	50-150	
13C2_PFTeDA	20	19	97	50-150	
13C3_HFPO-DA	20	19	99	50-150	
d7-N-MeFOSE	20	15	77	20-150	
d9-N-EtFOSE	20	15	75	20-150	
d3-N-MeFOSA	20	8.4	43	20-150	
d5-N-EtFOSA	20	8.1	41	20-150	

REPORT OF LABORATORY ANALYSIS

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Native Analytes

Compound	Known Conc.	Conc. Found	%Recovery	Recovery Limits	Qualifiers	CAS No.
PFBA	3.9	4.7	119	50-150		375-22-4
PFPeA	3.9	4.6	117	50-150		2706-90-3
HFPO-DA	3.9	4.2	108	50-150		13252-13-6
PFBS	3.5	4.2	120	50-150		375-73-5
PFHxA	3.9	4.6	116	50-150		307-24-4
4:2 FTS	3.7	4.3	118	50-150		757124-72-4
PFPeS	3.7	3.8	103	50-150		2706-91-4
PFHpA	3.9	4.6	117	50-150		375-85-9
DONA	3.7	4.0	107	50-150		919005-14-4
PFHxS	3.6	4.3	120	50-150		355-46-4
PFOA	3.9	4.6	116	50-150		335-67-1
6:2 FTS	3.7	4.5	120	50-150		27619-97-2
PFHpS	3.7	4.9	130	50-150		375-92-8
PFNA	3.9	4.5	115	50-150		375-95-1
PFOSAm	3.9	4.4	112	50-150		754-91-6
PFOS	3.6	4.2	114	50-150		1763-23-1
MeFOSA	3.9	4.6	116	50-150		31506-32-8
PFDA	3.9	4.3	108	50-150		335-76-2
EtFOSAm	3.9	4.2	106	50-150		4151-50-2
8:2 FTS	3.8	4.2	111	50-150		39108-34-4
9-Cl-PF3ON	3.7	3.9	105	50-150		756426-58-1
PFNS	3.8	3.1	83	50-150		68259-12-1
PFUnDA	3.9	4.2	107	50-150		2058-94-8
NMeFOSAA	3.9	4.3	109	50-150		2355-31-9
NEtFOSAA	3.9	3.6	90	50-150		2991-50-6
PFDS	3.8	2.2	59	50-150		335-77-3
PFDOA	3.9	4.3	109	50-150		307-55-1
MeFOSE	3.9	3.8	97	50-150		24448-09-7
EtFOSE	3.9	3.9	100	50-150		1691-99-2
11-Cl-PF3OUdS	3.7	2.7	74	50-150		763051-92-9
PFTrDA	3.9	4.1	103	50-150		72629-94-8
PFDoS	3.8	2.6	67	50-150		79780-39-5
PFTDA	3.9	4.5	115	50-150		376-06-7

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Analyzed	11/04/2021 14:12	Ical ID	211103A03
Injected By	NH	Level	L

Injection Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C2_PFHxA	N/A	N/A	5.11	5.11	
13C4_PFOA	N/A	N/A	6.05	6.05	
13C2_PFDA	N/A	N/A	6.90	6.91	
13C4_PFOS	N/A	N/A	7.19	7.21	

Extracted Internal Standards

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
13C4_PFBA	N/A	N/A	3.69	3.69	
13C5_PFPeA	N/A	N/A	4.54	4.53	
13C3_PFBS	N/A	N/A	5.29	5.29	
13C2_4:2FTS	N/A	N/A	4.91	4.90	
13C5_PFHxA	N/A	N/A	5.12	5.11	
13C4_PFHpA	N/A	N/A	5.60	5.61	
13C3_PFHxS	N/A	N/A	6.31	6.32	
13C2_6:2FTS	N/A	N/A	5.83	5.83	
13C8_PFOA	N/A	N/A	6.05	6.05	
13C9_PFNA	N/A	N/A	6.47	6.48	
13C8_PFOS	N/A	N/A	7.19	7.21	
13C2_8:2FTS	N/A	N/A	6.66	6.67	R
13C6_PFDA	N/A	N/A	6.90	6.91	
d3-MeFOSAA	N/A	N/A	6.85	6.86	
13C8_PFOSA	N/A	N/A	8.66	8.66	
d5-EtFOSAA	N/A	N/A	7.04	7.05	
13C7_PFUdA	N/A	N/A	7.32	7.34	
13C2_PFDoA	N/A	N/A	7.75	7.77	
13C2_PFTeDA	N/A	N/A	8.59	8.61	
13C3_HFPO-DA	N/A	N/A	5.31	5.31	
d7-N-MeFOSE	N/A	N/A	10.09	10.14	
d9-N-EtFOSE	N/A	N/A	10.71	10.70	
d3-N-MeFOSA	N/A	N/A	10.33	10.32	
d5-N-EtFOSA	N/A	N/A	11.00	11.01	

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Injected By	NH	Level	L

Native Analytes

Compound	Ion Abund. Ratio	Reference Ratio	Retention Time	Reference Time	Qualifiers
PFBA	N/A	N/A	3.69	3.70	
PFPeA	N/A	N/A	4.55	4.54	
HFPO-DA	0.46	0.43	5.32	5.33	
PFBS	0.32	0.34	5.30	5.29	
PFHxA	0.06	0.06	5.12	5.12	
4:2 FTS	0.54	0.58	4.91	4.90	
PFPeS	0.33	0.31	5.84	5.84	
PFHpA	0.28	0.29	5.61	5.61	
DONA	0.50	0.49	5.77	5.78	
PFHxS	0.24	0.24	6.32	6.32	
PFOA	0.34	0.37	6.05	6.06	
6:2 FTS	0.59	0.45	5.83	5.83	
PFHpS	0.22	0.21	6.77	6.78	
PFNA	0.19	0.20	6.48	6.49	
PFOSAm	N/A	N/A	8.66	8.66	
PFOS	0.20	0.23	7.20	7.17	
MeFOSA	0.82	0.91	10.34	10.34	
PFDA	0.08	0.09	6.90	6.92	
EtFOSAm	0.74	0.68	11.03	11.03	
8:2 FTS	0.60	0.51	6.66	6.68	
9-Cl-PF3ON	0.02	0.02	7.51	7.53	
PFNS	0.23	0.23	7.63	7.65	
PFUnDA	0.09	0.10	7.33	7.35	
NMeFOSAA	0.49	0.56	6.85	6.86	
NEtFOSAA	0.78	0.68	7.05	7.10	
PFDS	0.23	0.26	8.05	8.07	
PFDOA	0.13	0.14	7.75	7.77	
MeFOSE	N/A	N/A	10.13	10.12	
EtFOSE	0.00	0.00	10.76	10.76	
11-Cl-PF3OUdS	0.01	0.01	8.35	8.37	
PFTrDA	0.15	0.16	8.17	8.20	
PFDoS	0.21	0.21	8.85	8.87	
PFTDA	0.13	0.13	8.59	8.61	

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