

## Immediate Action Report and No Further Action Request

**To:** Mathew Turner, Superior Refining Company, LLC  
**From:** Lynette Carney and Kaitlin Montz  
**Subject:** PFAS Contaminated Stormwater Release  
**Date:** May 5, 2022  
**Project:** 49161468.03 100 104  
**WDNR SERTS:** 20220321NO16-1

This report summarizes the immediate response activities performed by Superior Refining Company LLC (SRC) and Barr Engineering Co. (Barr) following an unintentional release of stormwater from Pond 4 at the SRC Refinery in Superior, Wisconsin (Figure 1). As you are aware, the stormwater in Pond 4 contains residual PFAS from firefighting foam that was utilized for emergency response efforts following the Refinery's April 2018 Incident.

### Background

At approximately 06:45am on the morning of March 21, 2022, Superior Refinery operations personnel noticed water weeping from the berm of Stormwater Pond 4 while conducting their routine rounds. The source of the flow was determined to be the result of a hole that a muskrat had burrowed through the Pond 4 berm. Refinery personnel and equipment were quickly deployed to repair the berm and the weeping was stopped at approximately 07:45am. Total flow was calculated to be 1,800 gallons based on an estimated flow of 30gpm for one hour.

While the berm repair was ongoing, a vacuum truck was used to recover approximately 1,500 gallons of water consisting of released stormwater from Pond 4 comingled with stormwater that was already present outside of the berm due to snowpack melt and precipitation at the time of the release. The recovered water was then routed through the Refinery's WWTP for treatment.

The Wisconsin Department of Natural Resources (WDNR) was notified of the release upon discovery by SRC on March 21, 2022. The WDNR assigned site tracking number 20220321NO16-1 to this release event. The associated WDNR *Notification for Hazardous Substance Discharge* communications and site contact information is provided in Attachment A.

### Field Activity Summary

On March 21, 2022, SRC operators discovered a hole that a muskrat had burrowed in the southeast berm of stormwater Pond 4. Water that was recovered from the discharge as well as existing stormwater present outside the berm was collected with a vacuum truck and routed through the Refinery's Wastewater Treatment Plant for treatment.

**To:** Mathew Turner, Superior Refining Company, LLC  
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**Page:** 2

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On March 21, 2022, Barr collected an analytical water sample (*POND4WEIR-03212022*) from stormwater Pond 4 since the berm had already been repaired and discharge stopped prior to sampling staff being able to arrive at site. The sample was sent to off-site laboratories to be analyzed for Oil and Grease and PFAS. The Oil and Grease water analytical sample was submitted to Pace Analytical (Pace) in Minneapolis, Minnesota. The PFAS sample was submitted to Merit Laboratories Inc. (Merit) in East Lansing, Michigan for analyses of 33 PFAS analytes including PFOA and PFOS. The results are summarized in Table 1 and the Pace and Merit laboratory reports are provided in Attachment B.

## **Receptor Risk**

Since the released pond water was substantially recovered prior to off-site discharge, no documented impacts to surface water were identified. No groundwater risks were identified based on the limited extent of the release, immediate nature of the response actions, the underlying impermeable clay soil, and the absence of water supply wells within 500 feet of the release location (Figure 2).

## **Conclusions**

Approximately 1,800 gallons of Pond 4 stormwater was unintentionally discharged through a newly formed hole a muskrat had burrowed in the southeast side of stormwater Pond 4. The hole was quickly repaired, and discharged water was collected for treatment. The stormwater remaining in Pond 4 was sampled with results indicating non-detect for Oil and Grease and detections of some PFAS compounds. The land use at the facility is industrial and is not expected to change. The native soil in the vicinity of the release is documented to be clay material and the majority of the discharged stormwater was recovered. No potential impacts to nearby surface water and groundwater receptors were identified. In addition, this release was limited to areas already covered by a separate and ongoing PFAS investigation at the refinery (BRRTS 02-16-581317).

This report provides the required documentation to demonstrate that the immediate response action is complete, and no further action is necessary to investigate or respond to this release.

## Site Photographs

- Photo 1 View of Stormwater Pond 4 and berm where hole from a muskrat was located in front of excavator. Photo taken facing southeast on March 21, 2022.
- Photo 2 View of Stormwater Pond 4; non-vegetated area was location of hole from a muskrat in berm.
- Photo 3 View of berm where hole from muskrat was located in front of excavator. Photo taken facing northwest on March 21, 2022.
- Photo 4 View of pond water sample platform. Platform is located near the northeast corner of the pond. Photo taken on March 21, 2022.

## Tables

Table 1 Pond 4 Stormwater Release Analytical Data Summary

## Figures

Figure 1 Site Location

Figure 2 Receptor Survey

## Attachments

Attachment A WDNR Hazardous Substance Discharge Notification Form and Site Contact Information

Attachment B Laboratory Analytical Reports

## Site Photographs



**Photo 1** View of Stormwater Pond 4 and berm where hole from a muskrat was located in front of excavator. Photo taken facing southeast on March 21, 2022.



**Photo 2** View of Stormwater Pond 4; non-vegetated area was location of hole from a muskrat in berm. Photo taken facing southeast on March 21, 2022.





**Photo 3** View of berm where hole from muskrat was located in front of excavator. Photo taken facing northwest on March 21, 2022.



**Photo 4** View of pond water sample platform. Platform is located near the northeast corner of the pond. Photo taken on March 21, 2022.

## Tables

**Table 1**  
**Pond 4 Stormwater Release Analytical Data Summary**  
**Superior Refining Company LLC**  
**Superior, WI**

Location Date	Pond 4 WEIR 3/21/2022
Parameter	
General Parameters [mg/l]	
Oil and Grease	< 1.4 U
Per- and Polyfluoroalkyl Substances [ng/l]	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	< 0.73 U
2-(Heptafluoropropoxy)tetrafluoropropionic acid (HFPO-DA)	< 0.30 U
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	< 0.73 U
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	< 0.67 U
4,8-dioxa-3H-perfluorononanoic acid (DONA)	< 0.34 U
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	< 0.34 U
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	<b>32</b>
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	<b>24 J+</b>
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	< 0.40 U
Methylperfluoro-1-octanesulfonamide (N-MEFOSA)	< 0.57 U
n-Ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	< 0.61 U
n-Ethylperfluorooctanesulfonamide (N-EtFOSA)	< 0.57 U
n-Methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	< 0.31 U
Perfluorobutanesulfonic acid (PFBS)	<b>3.6</b>
Perfluorobutanoic acid (PFBA)	<b>35</b>
Perfluorodecanesulfonic acid (PFDS)	< 0.57 U
Perfluorodecanoic acid (PFDA)	<b>1.6 J</b>
Perfluorododecanesulfonate (PFDOS)	< 0.57 U
Perfluorododecanoic acid (PFDoA / PFDoDA)	< 0.94 U
Perfluoroheptanesulfonic acid (PFHpS)	<b>1.5 J</b>
Perfluoroheptanoic acid (PFHpA)	<b>27</b>
Perfluorohexanesulfonic acid (PFHxS)	<b>36</b>
Perfluorohexanesulfonic acid (PFHxS) - Branched	<b>5.4</b>
Perfluorohexanesulfonic acid (PFHxS) - Linear	<b>31</b>
Perfluorohexanoic acid (PFHxA)	<b>60</b>
Perfluorononanesulfonic acid (PFNS)	< 0.51 U
Perfluorononanoic acid (PFNA)	<b>4.6</b>
Perfluorooctanesulfonamide (PFOSA / FOSA)	< 0.54 U
Perfluorooctanesulfonic acid (PFOS)	<b>98</b>
Perfluorooctanesulfonic acid (PFOS) - Branched	<b>39</b>
Perfluorooctanesulfonic acid (PFOS) - Linear	<b>62</b>
Perfluorooctanoic acid (PFOA)	<b>15</b>
Perfluoropentanesulfonic acid (PFPeS)	<b>3.5</b>
Perfluoropentanoic acid (PFPeA)	<b>150</b>
Perfluorotetradecanoic acid (PFTA / PFTeDA / PFTeA)	< 0.76 U
Perfluorotridecanoic acid (PFTrDA / PFTriA)	< 0.64 U
Perfluoroundecanoic acid (PFUnA / PFUnDA)	< 0.43 U



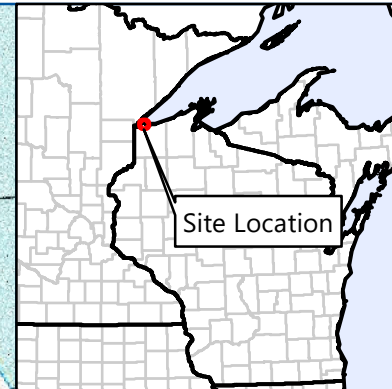
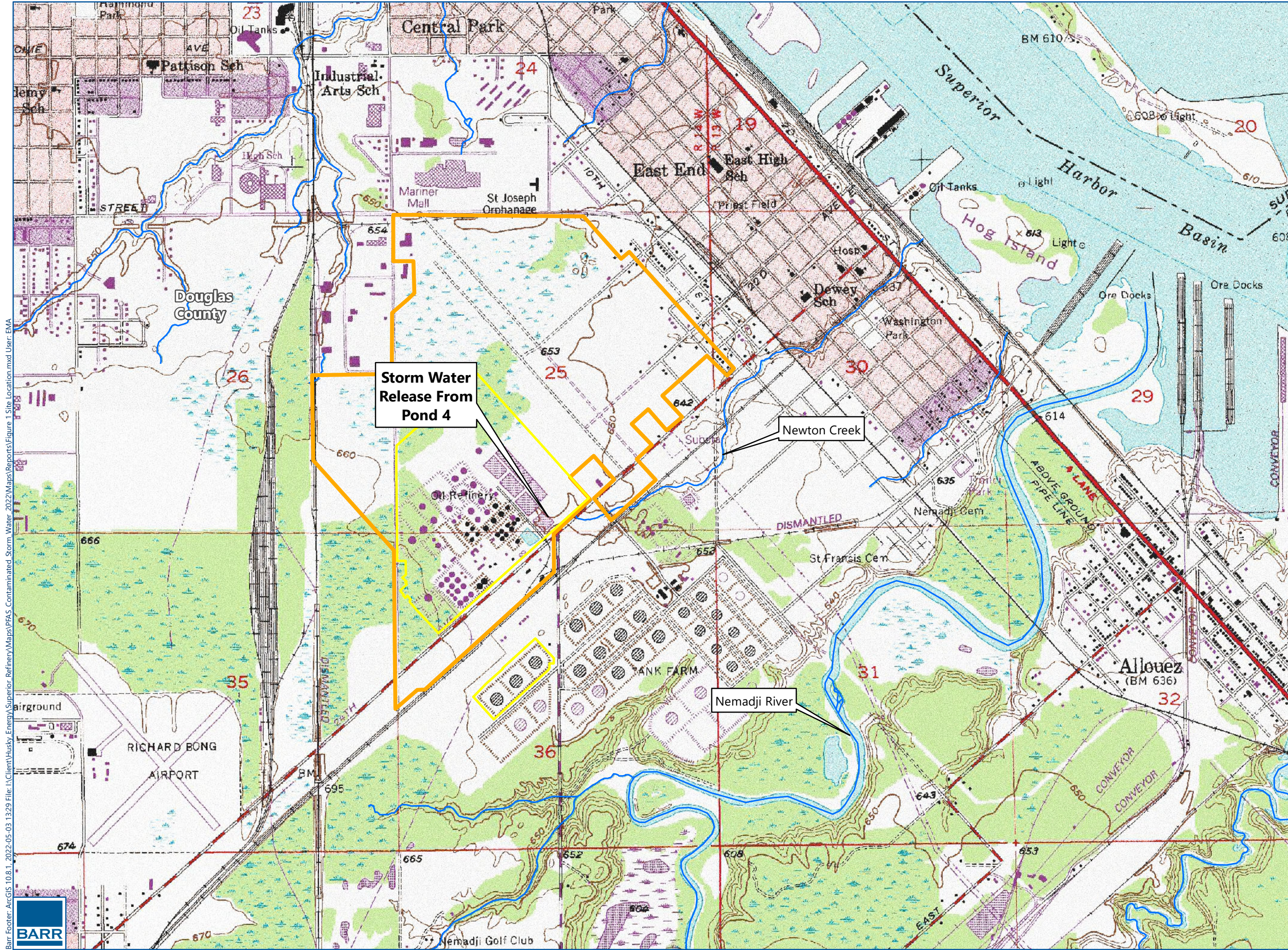
## Data Footnotes and Qualifiers

### Barr Standard Footnotes and Qualifiers

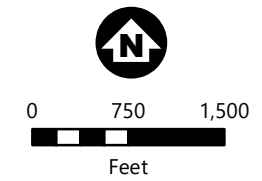
J	Estimated detected value. Either certain QC criteria were not met or the concentration is between the laboratory's detection and quantitation limits.
J+	The result is an estimated quantity and may be biased high.
U	The analyte was analyzed for, but was not detected.

## Figures





- Approximate SRC Property Boundaries for Contiguous Operations
- Approximate Fenceline Boundaries for Refining-Related Activities



**SITE LOCATION**  
 PFAS Contaminated  
 Storm Water Release

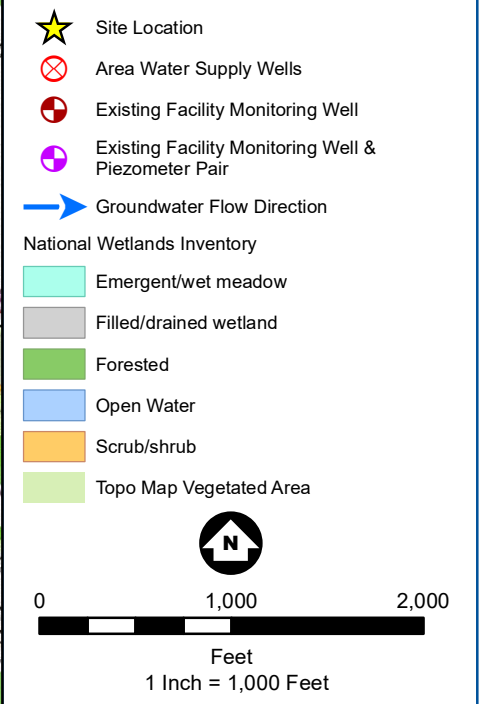
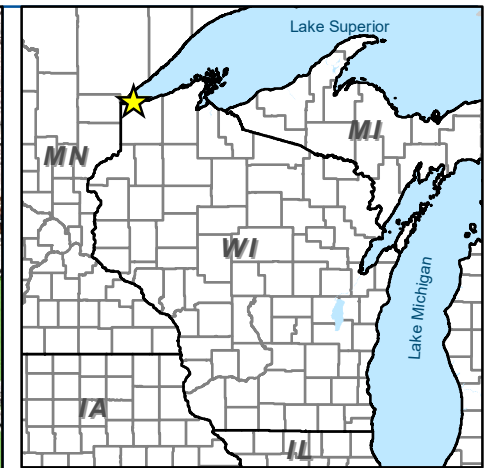
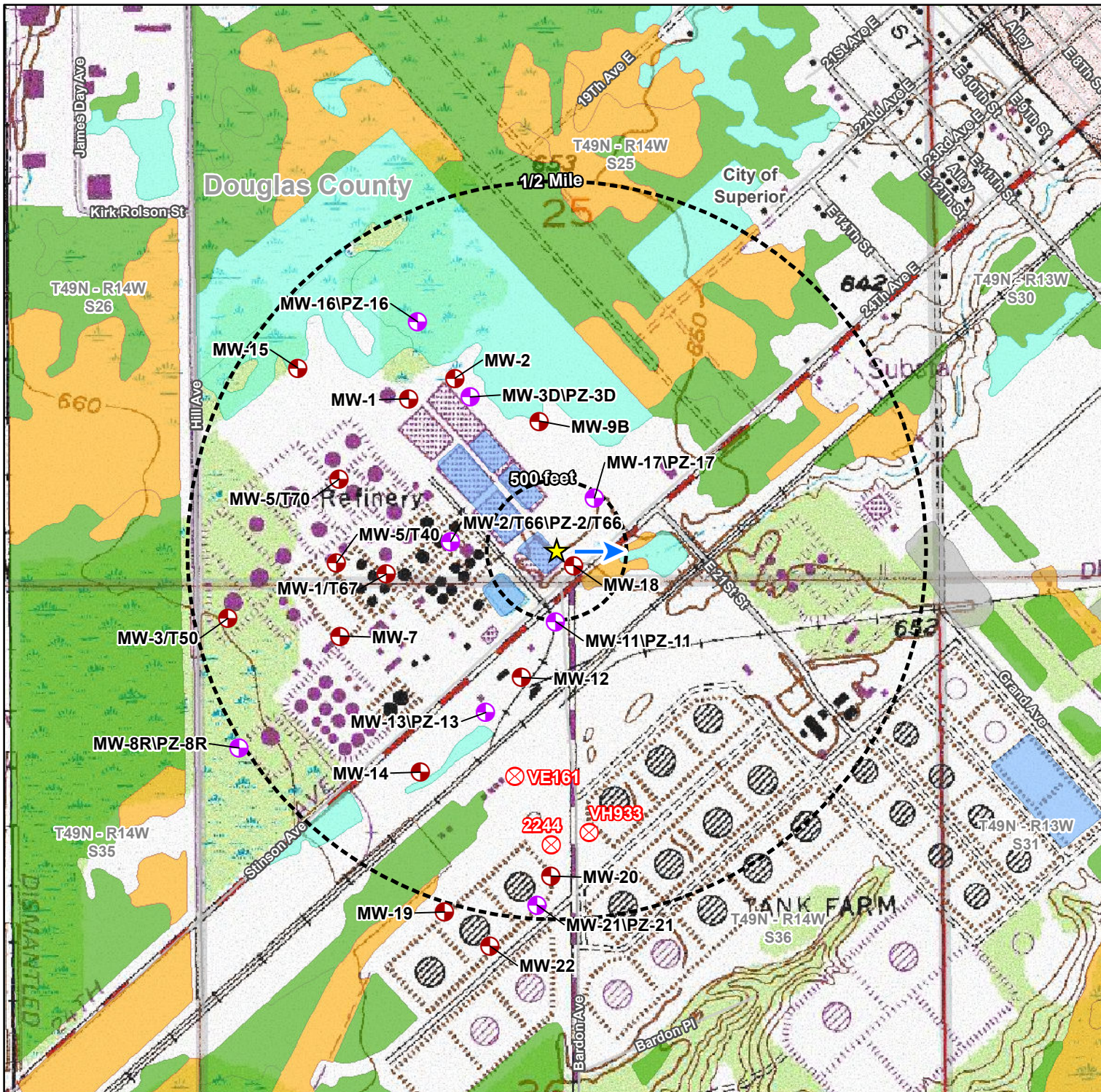
Superior Refining  
 Company LLC (SRC)  
 Superior, WI

**FIGURE 1**

Barr Footer: ArcGIS 10.8.1, 2022-05-03 13:29 File: I:\Client\Husky Energy\Superior Refinery\Maps\PFAS Contaminated Storm Water 2022\Maps\Reports\Figure 1 Site Location.mxd User: EMA







RECEPTOR SURVEY  
PFAS Contaminated  
Storm Water Release

Superior Refining  
Company LLC (SRC)  
Superior, WI

**FIGURE 2**



## Attachments

**Attachment A**

**WDNR Hazardous Substance Discharge Notification Form**

**From:** [Sager, John E - DNR](#)  
**To:** [matthew.turner@cenovus.com](mailto:matthew.turner@cenovus.com)  
**Subject:** WI SPILL #17499 ID 20220321NO16-1 - OTHER: PFAS CONTAMINATED STORM WATER  
**Date:** Monday, March 21, 2022 2:25:40 PM

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SERTS ID:  
20220321NO16-1

Reported:  
03/21/2022 11:58

Occurred:  
03/21/2022 06:45

Substance:  
OTHER: PFAS CONTAMINATED STORM WATER  
PFAS CONTAMINATED STORM WATER

Released Amt: 1800 Gal  
Recovered Amt: UNKNOWN  
(Amounts are often estimated)

Reported by:  
MARK DARBY  
SUPERIOR REFINING COMPANY LLC  
[mark.darby@cenovus.com](mailto:mark.darby@cenovus.com)

Location:  
NO REGION  
DOUGLAS COUNTY  
SUPERIOR, CITY OF  
SUPERIOR REFINING COMPANY  
2407 STINSON AVENUE  
STORM WATER POND 4

Responsible Party:  
SUPERIOR REFINING COMPANY LLC  
2407 STINSON AVENUE  
SUPERIOR, WI

RP Contact:  
MATT TURNER  
SUPERIOR REFINING COMPANY LLC  
(715) 398-8434  
[matthew.turner@cenovus.com](mailto:matthew.turner@cenovus.com)

Cause:  
OTHER CAUSE

Cause Description:  
MUSKRAT BURROWED HOLE INTO STORM WATER POND #4 DIKE. PFAS CONTAMINATED WATER FROM STORM WATER POND 4 DISCHARGED. ESTIMATED 1800 GALLONS DISCHARGED.

Environmental Impact:  
ENVIRONMENTAL IMPACT UNKNOWN AT THIS TIME.

Cleanup:

HOLE IN DIKE REPAIRED BY 0721HRS ON 3-21-22. VACUUM TRUCK USED TO RECOVER DISCHARGED WATER. BARR ENGINEERING RETAINED TO SAMPLE POND 4 FOR PFAS. SAMPLES WILL BE COLLECTED ON 3-21-22. BARR WILL FOLLOW UP WITH A REPORT.

Submitted by:

JOHN SAGER

(715) 919-7239

john.sager@wisconsin.gov

Sent to:

anita.smith@wisconsin.gov  
caroline.rice@wisconsin.gov  
christine.haag@wisconsin.gov  
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dee.allen@ldftribe.com  
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tyler.dix@wisconsin.gov  
zana.sijan@wisconsin.gov

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<http://www.cenovus.com>

**PFAS Contaminated Storm Water Release  
Site and Facility Contact Information**

**Site Information:**

WDNR SERTS Number: 20220321NO16-1  
Facility Identification Number: 816009590  
Superior Refining Company LLC  
2407 Stinson Avenue  
Superior, Wisconsin  
Douglas County, Wisconsin  
SW ¼, SW ¼ of Section 25, T49N, R14W  
Latitude / Longitude: 46.69276 / 92.07450  
WTM91 Coordinates: X: 361386, Y: 693110

**Responsible Party:**

Superior Refining Company LLC  
Attn: Matt Turner, Environmental Technologist  
2407 Stinson Avenue  
Superior, WI 54880  
Phone: (403) 298-6050  
Email: matthew.turner@cenovous.com

**Environmental Consultant:**

Barr Engineering Co.  
Attn: Lynette Carney, Project Manager  
325 South Lake Avenue, Suite 700  
Duluth, MN 55802  
Phone: (218) 529-7141  
Email: lcarney@barr.com

**Attachment B**

**Laboratory Analytical Reports**

March 24, 2022

Jim Taraldsen  
Barr Engineering Company  
325 S Lake Ave  
Duluth, MN 55802

RE: Project: 49161427.28 100 004 SRC  
Pace Project No.: 10601544

Dear Jim Taraldsen:

Enclosed are the analytical results for sample(s) received by the laboratory on March 22, 2022. 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 - Minneapolis

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

Sincerely,



Martha Hansen  
martha.hansen@pacelabs.com  
(612)607-6451  
Project Manager

Enclosures

cc: BarrDM@barr.com, Barr Engineering  
Ryan Erickson, Barr Engineering  
Timothy Harris, GHD  
Brian Kwiatkoski, Barr Engineering  
Accounts Payable, Barr Engineering



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

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### **Pace Analytical Services, LLC - Minneapolis MN**

1700 Elm Street SE, Minneapolis, MN 55414  
1800 Elm Street SE, Minneapolis, MN 55414--Satellite Air Lab

A2LA Certification #: 2926.01\*  
Alabama Certification #: 40770  
Alaska Contaminated Sites Certification #: 17-009\*  
Alaska DW Certification #: MN00064  
Arizona Certification #: AZ0014\*  
Arkansas DW Certification #: MN00064  
Arkansas WW Certification #: 88-0680  
California Certification #: 2929  
Colorado Certification #: MN00064  
Connecticut Certification #: PH-0256  
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137  
Florida Certification #: E87605\*  
Georgia Certification #: 959  
Hawaii Certification #: MN00064  
Idaho Certification #: MN00064  
Illinois Certification #: 200011  
Indiana Certification #: C-MN-01  
Iowa Certification #: 368  
Kansas Certification #: E-10167  
Kentucky DW Certification #: 90062  
Kentucky WW Certification #: 90062  
Louisiana DEQ Certification #: AI-03086\*  
Louisiana DW Certification #: MN00064  
Maine Certification #: MN00064\*  
Maryland Certification #: 322  
Michigan Certification #: 9909  
Minnesota Certification #: 027-053-137\*  
Minnesota Dept of Ag Approval: via MN 027-053-137  
Minnesota Petrofund Registration #: 1240\*  
Mississippi Certification #: MN00064

Missouri Certification #: 10100  
Montana Certification #: CERT0092  
Nebraska Certification #: NE-OS-18-06  
Nevada Certification #: MN00064  
New Hampshire Certification #: 2081\*  
New Jersey Certification #: MN002  
New York Certification #: 11647\*  
North Carolina DW Certification #: 27700  
North Carolina WW Certification #: 530  
North Dakota Certification #: R-036  
Ohio DW Certification #: 41244  
Ohio VAP Certification (1700) #: CL101  
Ohio VAP Certification (1800) #: CL110\*  
Oklahoma Certification #: 9507\*  
Oregon Primary Certification #: MN300001  
Oregon Secondary Certification #: MN200001\*  
Pennsylvania Certification #: 68-00563\*  
Puerto Rico Certification #: MN00064  
South Carolina Certification #: 74003001  
Tennessee Certification #: TN02818  
Texas Certification #: T104704192\*  
Utah Certification #: MN00064\*  
Vermont Certification #: VT-027053137  
Virginia Certification #: 460163\*  
Washington Certification #: C486\*  
West Virginia DEP Certification #: 382  
West Virginia DW Certification #: 9952 C  
Wisconsin Certification #: 999407970  
Wyoming UST Certification #: via A2LA 2926.01  
USDA Permit #: P330-19-00208  
\*Please Note: Applicable air certifications are denoted with an asterisk (\*).

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
10601544001	POND 4 WEIR-03212022	Water	03/21/22 10:15	03/22/22 12:50

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### SAMPLE ANALYTE COUNT

Project: 49161427.28 100 004 SRC  
Pace Project No.: 10601544

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10601544001	POND 4 WEIR-03212022	EPA 1664B OG	EPT	1	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

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**Sample: POND 4 WEIR-03212022**    **Lab ID: 10601544001**    Collected: 03/21/22 10:15    Received: 03/22/22 12:50    Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>1664B HEM, Oil and Grease</b>	Analytical Method: EPA 1664B OG Pace Analytical Services - Minneapolis								
Oil and Grease	<1.4	mg/L	5.1	1.4	1		03/24/22 10:08		

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### QUALITY CONTROL DATA

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

QC Batch: 805250

Analysis Method: EPA 1664B OG

QC Batch Method: EPA 1664B OG

Analysis Description: 1664B HEM, Oil and Grease

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10601544001

METHOD BLANK: 4274087

Matrix: Water

Associated Lab Samples: 10601544001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Oil and Grease	mg/L	<1.4	5.0	03/24/22 10:08	

LABORATORY CONTROL SAMPLE: 4274088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	38.2	96	78-114	

MATRIX SPIKE SAMPLE: 4274089

Parameter	Units	10600368001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	<1.3	37.4	35.0	93	78-114	

SAMPLE DUPLICATE: 4274090

Parameter	Units	10600370001 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	4.0J		18	

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

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## QUALIFIERS

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

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### DEFINITIONS

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

ND - Not Detected at or above LOD.

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

LOD - Limit of Detection adjusted for dilution factor, 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.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 49161427.28 100 004 SRC

Pace Project No.: 10601544

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
10601544001	POND 4 WEIR-03212022	EPA 1664B OG	805250		

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### REPORT OF LABORATORY ANALYSIS

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# Barr Engineering Co. Chain of Custody

Sample Origination State:



- Ann Arbor     Duluth     Jefferson City  
 Bismarck     Hibbing     Minneapolis

- KS     MO     WI  
 MI     ND    Other:  
 MN     SD

Analysis Requested		COC Number: <b>53174</b>	
		COC <u>1</u> of <u>1</u>	
Water	Soil	Matrix Code:	
		GW = Groundwater	A = None
		SW = Surface Water	B = HCl
		WW = Waste Water	C = HNO <sub>3</sub>
		DW = Drinking Water	D = H <sub>2</sub> SO <sub>4</sub>
		S = Soil/Solid	E = NaOH
		SD = Sediment	F = MeOH
		O = Other	G = NaHSO <sub>4</sub>
			H = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
			I = Ascorbic Acid
			J = NH <sub>4</sub> Cl
			K = Zn Acetate
			O = Other

Location	Sample Depth			Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD Y / N	Total Number Of Containers	% Solids	Preservative Code	Field Filtered Y/N
	Start	Stop	Unit (m./ft. or in.)								
1. POND 4 WEIR - 03212022				03/21/2022	1015	SW	N	1	X		Oil & Grease <u>U</u>
2.											
3.											* 2-day FAT
4.											
5.											
6.											
7.											
8.											
9.											
10.											

**WO#: 10601544**

10601544

**BARR USE ONLY**

Sampled by: KMJ3

Barr Proj. Manager: REE

Barr DQ Manager: JET

Lab Name: Pace

Lab Location: Duluth, MN

Relinquished by: [Signature]    On Ice?  N    Date: 3/21/22    Time: 1130

Relinquished by: [Signature]    On Ice?  Y    Date: 3/21/22    Time: 1130

Samples Shipped VIA:     Courier     Federal Express     Sampler     Other: \_\_\_\_\_

Lab WO: \_\_\_\_\_    Temperature on Receipt (°C): 2

Received by: [Signature]    Date: 3/21/22    Time: 1130

Received by: [Signature]    Date: 3/22/22    Time: 1250

Bill Number: \_\_\_\_\_

Requested Due Date:

Standard Turn Around Time

Rush 2-day FAT (mm/dd/yyyy)

**Sample Condition Upon Receipt**      **Client Name:** Barr Engineering Co.      **Project #:** \_\_\_\_\_

**Courier:**       Fed Ex     UPS     USPS     Client  
 Pace     SpeedDee     Commercial

**Tracking Number:** \_\_\_\_\_      See Exceptions  ENV-FRM-MIN4-0142

WO#: 10601544

PM: MKH      Due Date: 03/24/22

CLIENT: BARR

**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)     T4(0254)      **Type of Ice:**     Wet     Blue     None     Dry     Melted  
 T5(0489)     01339252/1710     122639816     140792808

**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:** 2.1 °C      **Average Corrected Temp (no temp blank only):** \_\_\_\_\_ °C       See Exceptions ENV-FRM-MIN4-0142  
 Container

**Correction Factor:** -0.1      **Cooler Temp Corrected w/temp blank:** 2.0 °C

**USDA Regulated Soil:**     N/A, water sample/Other: \_\_\_\_\_      **Date/Initials of Person Examining Contents:** YLV 3/22/22

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 ENV-FRM-MIN4-0154 and include with SCUR/COC paperwork.**

Location (check one): <input type="checkbox"/> Duluth <input checked="" type="checkbox"/> Minneapolis <input type="checkbox"/> Virginia	COMMENTS:
Chain of Custody Present and Filled Out? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.
Chain of Custody Relinquished? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2.
Sampler Name and/or Signature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Samples Arrived within Hold Time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4.      If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8hr, <24 hrs, <input type="checkbox"/> >24 hrs
<b>Short Hold Time Analysis (&lt;72 hr)?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. <input type="checkbox"/> Fecal Coliform <input type="checkbox"/> HPC <input type="checkbox"/> Total Coliform/E coli <input type="checkbox"/> BOD/cBOD <input type="checkbox"/> Hex Chrome <input type="checkbox"/> Turbidity <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Orthophos <input type="checkbox"/> Other
<b>Rush Turn Around Time Requested?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6.
Sufficient Volume? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Correct Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8.
-Pace Containers Used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Containers Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
Field Filtered Volume Received for Dissolved Tests? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	10.    Is sediment visible in the dissolved container? <input type="checkbox"/> Yes <input type="checkbox"/> No
Is sufficient information available to reconcile the samples to the COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11.    If no, write ID/ Date/Time on Container Below:      See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142
Matrix: <input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Oil <input type="checkbox"/> Other-	
All containers needing acid/base preservation have been checked? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12.    Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , <2pH, NaOH >9 Sulfide, NaOH >10 Cyanide) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> NaOH <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> Zinc Acetate  Positive for Res. <input type="checkbox"/> Yes <input type="checkbox"/> No      See Exception <input type="checkbox"/> ENV-FRM-MIN4-0142 Chlorine? <input type="checkbox"/> No      pH Paper Lot# Res. Chlorine    0-6 Roll    0-6 Strip    0-14 Strip
Exceptions: VOA, Coliform, TOC/DOC <u>Oil and Grease</u> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
DRO/8015 (water) and Dioxin/PFAS	
Headspace in Methyl Mercury Container? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Extra labels present on soil VOA or WIDRO containers? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.      See Exception <input type="checkbox"/> ENV-FRM-MIN4-0140
Headspace in VOA Vials (greater than 6mm)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Custody Seals Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Pace Trip Blank Lot # (if purchased): _____

**CLIENT NOTIFICATION/RESOLUTION**      **Field Data Required?**     Yes     No

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

Comments/Resolution:    Lab approved 2-day TAT.

**Project Manager Review:** \_\_\_\_\_      **Date:**    3/22/22

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: YLV      Page 10 of 10



# Analytical Laboratory Report

Report ID: S34091.01(01)+QC01  
Generated on 03/24/2022

Report to

Attention: Ryan Erickson  
Barr Engineering  
325 South Lake Avenue  
Suite 700  
Duluth, MN 55802

Phone: 218-529-7112 FAX:  
Email: [rerickson@barr.com](mailto:rerickson@barr.com)

Additional Contacts: David Beattie, Matthew Turner, Barr Data Management, Brian Kwiatkoski, Katie Wolohan, Andy McCabe, Michael J. Powers, Bill Snellman, Becca R. Mattson, James Taraldsen, Aaron Laszewski, Allen Prince, Josh Kirk

Report produced by

Merit Laboratories, Inc.  
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East Lansing, MI 48823

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John Lavery ([johnlavery@meritlabs.com](mailto:johnlavery@meritlabs.com))  
Barbara Ball ([bball@meritlabs.com](mailto:bball@meritlabs.com))

Report Summary

Lab Sample ID(s): S34091.01-S34091.03  
Project: SRC 49161427.28 100 004  
Collected Date(s): 03/21/2022  
Submitted Date/Time: 03/22/2022 09:30  
Sampled by: KMJ3  
P.O. #: 8401487925

Table of Contents

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- General Report Notes (Page 2)
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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (\*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the

FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

## Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

## Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched





# Analytical Laboratory Report

## Method Summary

Method	Version
N/A	Not Applicable
WI SPE	PFAS by LCMSMS Per Wisconsin DNR Document EA-19-0001

## Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6
PFDoS	Perfluorododecanesulfonic acid	79780-39-5
NMeFOSAM	N-Methylperfluorooctanesulfonamide	31506-32-8
NEtFOSAM	N-Ethylperfluorooctanesulfonamide	4151-50-2
NMeFOSE	N-Methylperfluorooctanesulfonamidoethanol	24448-09-7
NEtFOSE	N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2



# Analytical Laboratory Report

## Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S34091.01	POND4WEIR-03212022	Surface Water	03/21/22 10:15
S34091.02	Field Blank	Water	03/21/22 10:05
S34091.03	Trip Blank	Water	03/21/22 09:00



# Analytical Laboratory Report

Lab Sample ID: S34091.01

Sample Tag: POND4WEIR-03212022

Collected Date/Time: 03/21/2022 10:15

Matrix: Surface Water

COC Reference: 591074

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	250ml Plastic	Trizma	Yes	3.6	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for DW PFAs*	7	N/A	03/22/22 10:00	KCV	
Initial wt. (g) / Final wt. (g)*	306.58/37.74	WI SPE	03/22/22 10:00	KCV	

### Organics

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 14:33, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	35	1.9	0.27	ng/L	0.0149	375-22-4	
PFPeA*	150	1.9	0.21	ng/L	0.0149	2706-90-3	
4:2 FTSA*	Not detected	1.9	0.34	ng/L	0.0149	757124-72-4	I
PFHxA*	60	1.9	0.24	ng/L	0.0149	307-24-4	
PFBS*	3.6	1.9	0.18	ng/L	0.0149	375-73-5	
PFHpA*	27	1.9	0.42	ng/L	0.0149	375-85-9	
PFPeS*	3.5	1.9	0.22	ng/L	0.0149	2706-91-4	
6:2 FTSA*	32	1.9	0.51	ng/L	0.0149	27619-97-2	
PFOA*	15	1.9	0.39	ng/L	0.0149	335-67-1	
PFHxS*	36	1.9	0.58	ng/L	0.0149	355-46-4	
PFHxS-LN*	31	1.9	0.58	ng/L	0.0149	355-46-4-LN	
PFHxS-BR*	5.4	1.9	0.58	ng/L	0.0149	355-46-4-BR	
PFNA*	4.6	1.9	0.39	ng/L	0.0149	375-95-1	
8:2 FTSA*	24	1.9	0.67	ng/L	0.0149	39108-34-4	I
PFHpS*	1.5	1.9	0.48	ng/L	0.0149	375-92-8	J
PFDA*	1.6	1.9	0.51	ng/L	0.0149	335-76-2	J
N-MeFOSAA*	Not detected	1.9	0.31	ng/L	0.0149	2355-31-9	
EtFOSAA*	Not detected	1.9	0.61	ng/L	0.0149	2991-50-6	
PFOS*	98	1.9	0.34	ng/L	0.0149	1763-23-1	
PFOS-LN*	62	1.9	0.34	ng/L	0.0149	1763-23-1-LN	
PFOS-BR*	39	1.9	0.34	ng/L	0.0149	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.43	ng/L	0.0149	2058-94-8	
PFNS*	Not detected	1.9	0.51	ng/L	0.0149	68259-12-1	
PFDODA*	Not detected	1.9	0.94	ng/L	0.0149	307-55-1	
PFDS*	Not detected	1.9	0.57	ng/L	0.0149	335-77-3	
PFTTrDA*	Not detected	1.9	0.64	ng/L	0.0149	72629-94-8	
FOSA*	Not detected	1.9	0.54	ng/L	0.0149	754-91-6	
PFTeDA*	Not detected	1.9	0.76	ng/L	0.0149	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.73	ng/L	0.0149	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.40	ng/L	0.0149	756426-58-1	
ADONA*	Not detected	1.9	0.34	ng/L	0.0149	919005-14-4	
HFPO-DA*	Not detected	1.9	0.30	ng/L	0.0149	13252-13-6	
PFDoS*	Not detected	1.9	0.57	ng/L	0.0149	79780-39-5	
NMeFOSAM*	Not detected	1.9	0.57	ng/L	0.0149	31506-32-8	

I-Matrix interference with internal standard

J-Estimated value less than reporting limit, but greater than MDL



# Analytical Laboratory Report

Lab Sample ID: S34091.01 (continued)

Sample Tag: POND4WEIR-03212022

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 14:33, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
NEtFOSAM*	Not detected	1.9	0.57	ng/L	0.0149	4151-50-2	
NMeFOSE*	Not detected	1.9	0.67	ng/L	0.0149	24448-09-7	
NEtFOSE*	Not detected	1.9	0.73	ng/L	0.0149	1691-99-2	



# Analytical Laboratory Report

Lab Sample ID: S34091.02

Sample Tag: Field Blank

Collected Date/Time: 03/21/2022 10:05

Matrix: Water

COC Reference: 591074

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	Trizma	Yes	3.6	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for DW PFAs*	7	N/A	03/22/22 10:00	KCV	
Initial wt. (g) / Final wt. (g)*	322.10/38.05	WI SPE	03/22/22 10:00	KCV	

### Organics

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 14:50, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	1.8	0.25	ng/L	0.0141	375-22-4	
PFPeA*	Not detected	1.8	0.20	ng/L	0.0141	2706-90-3	
4:2 FTSA*	Not detected	1.8	0.32	ng/L	0.0141	757124-72-4	
PFHxA*	Not detected	1.8	0.23	ng/L	0.0141	307-24-4	
PFBS*	Not detected	1.8	0.17	ng/L	0.0141	375-73-5	
PFHpA*	Not detected	1.8	0.39	ng/L	0.0141	375-85-9	
PFPeS*	Not detected	1.8	0.21	ng/L	0.0141	2706-91-4	
6:2 FTSA*	Not detected	1.8	0.48	ng/L	0.0141	27619-97-2	
PFOA*	0.47	1.8	0.37	ng/L	0.0141	335-67-1	J
PFHxS*	Not detected	1.8	0.55	ng/L	0.0141	355-46-4	
PFHxS-LN*	Not detected	1.8	0.55	ng/L	0.0141	355-46-4-LN	
PFHxS-BR*	Not detected	1.8	0.55	ng/L	0.0141	355-46-4-BR	
PFNA*	Not detected	1.8	0.37	ng/L	0.0141	375-95-1	
8:2 FTSA*	Not detected	1.8	0.63	ng/L	0.0141	39108-34-4	
PFHpS*	Not detected	1.8	0.45	ng/L	0.0141	375-92-8	
PFDA*	Not detected	1.8	0.48	ng/L	0.0141	335-76-2	
N-MeFOSAA*	Not detected	1.8	0.30	ng/L	0.0141	2355-31-9	
EtFOSAA*	Not detected	1.8	0.58	ng/L	0.0141	2991-50-6	
PFOS*	Not detected	1.8	0.32	ng/L	0.0141	1763-23-1	
PFOS-LN*	Not detected	1.8	0.32	ng/L	0.0141	1763-23-1-LN	
PFOS-BR*	Not detected	1.8	0.32	ng/L	0.0141	1763-23-1-BR	
PFUnDA*	Not detected	1.8	0.41	ng/L	0.0141	2058-94-8	
PFNS*	Not detected	1.8	0.48	ng/L	0.0141	68259-12-1	
PFDaDA*	Not detected	1.8	0.89	ng/L	0.0141	307-55-1	
PFDS*	Not detected	1.8	0.54	ng/L	0.0141	335-77-3	
PFTTrDA*	Not detected	1.8	0.61	ng/L	0.0141	72629-94-8	
FOSA*	Not detected	1.8	0.51	ng/L	0.0141	754-91-6	
PFTeDA*	Not detected	1.8	0.72	ng/L	0.0141	376-06-7	
11Cl-PF3OUdS*	Not detected	1.8	0.69	ng/L	0.0141	763051-92-9	
9Cl-PF3ONS*	Not detected	1.8	0.38	ng/L	0.0141	756426-58-1	
ADONA*	Not detected	1.8	0.32	ng/L	0.0141	919005-14-4	
HFPO-DA*	Not detected	1.8	0.28	ng/L	0.0141	13252-13-6	
PFDoS*	Not detected	1.8	0.54	ng/L	0.0141	79780-39-5	
NMeFOSAM*	Not detected	1.8	0.54	ng/L	0.0141	31506-32-8	
NEtFOSAM*	Not detected	1.8	0.54	ng/L	0.0141	4151-50-2	

J-Estimated value less than reporting limit, but greater than MDL



# Analytical Laboratory Report

Lab Sample ID: S34091.02 (continued)

Sample Tag: Field Blank

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 14:50, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
NMeFOSE*	Not detected	1.8	0.63	ng/L	0.0141	24448-09-7	
NEtFOSE*	Not detected	1.8	0.69	ng/L	0.0141	1691-99-2	



# Analytical Laboratory Report

Lab Sample ID: S34091.03

Sample Tag: Trip Blank

Collected Date/Time: 03/21/2022 09:00

Matrix: Water

COC Reference: 591074

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	250ml Plastic	Trizma	Yes	3.6	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for DW PFAs*	7	N/A	03/22/22 10:00	KCV	
Initial wt. (g) / Final wt. (g)*	324.86/37.75	WI SPE	03/22/22 10:00	KCV	

### Organics

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 15:06, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	1.7	0.25	ng/L	0.0139	375-22-4	
PFPeA*	Not detected	1.7	0.19	ng/L	0.0139	2706-90-3	
4:2 FTSA*	Not detected	1.7	0.32	ng/L	0.0139	757124-72-4	
PFHxA*	Not detected	1.7	0.22	ng/L	0.0139	307-24-4	
PFBS*	Not detected	1.7	0.17	ng/L	0.0139	375-73-5	
PFHpA*	Not detected	1.7	0.39	ng/L	0.0139	375-85-9	
PFPeS*	Not detected	1.7	0.21	ng/L	0.0139	2706-91-4	
6:2 FTSA*	Not detected	1.7	0.47	ng/L	0.0139	27619-97-2	
PFOA*	0.46	1.7	0.36	ng/L	0.0139	335-67-1	J
PFHxS*	Not detected	1.7	0.54	ng/L	0.0139	355-46-4	
PFHxS-LN*	Not detected	1.7	0.54	ng/L	0.0139	355-46-4-LN	
PFHxS-BR*	Not detected	1.7	0.54	ng/L	0.0139	355-46-4-BR	
PFNA*	Not detected	1.7	0.36	ng/L	0.0139	375-95-1	
8:2 FTSA*	Not detected	1.7	0.63	ng/L	0.0139	39108-34-4	
PFHpS*	Not detected	1.7	0.44	ng/L	0.0139	375-92-8	
PFDA*	Not detected	1.7	0.47	ng/L	0.0139	335-76-2	
N-MeFOSAA*	Not detected	1.7	0.29	ng/L	0.0139	2355-31-9	
EtFOSAA*	Not detected	1.7	0.57	ng/L	0.0139	2991-50-6	
PFOS*	Not detected	1.7	0.32	ng/L	0.0139	1763-23-1	
PFOS-LN*	Not detected	1.7	0.32	ng/L	0.0139	1763-23-1-LN	
PFOS-BR*	Not detected	1.7	0.32	ng/L	0.0139	1763-23-1-BR	
PFUnDA*	Not detected	1.7	0.40	ng/L	0.0139	2058-94-8	
PFNS*	Not detected	1.7	0.47	ng/L	0.0139	68259-12-1	
PFDODA*	Not detected	1.7	0.88	ng/L	0.0139	307-55-1	
PFDS*	Not detected	1.7	0.53	ng/L	0.0139	335-77-3	
PFTTrDA*	Not detected	1.7	0.60	ng/L	0.0139	72629-94-8	
FOSA*	Not detected	1.7	0.50	ng/L	0.0139	754-91-6	
PFTeDA*	Not detected	1.7	0.71	ng/L	0.0139	376-06-7	
11Cl-PF3OUdS*	Not detected	1.7	0.68	ng/L	0.0139	763051-92-9	
9Cl-PF3ONS*	Not detected	1.7	0.38	ng/L	0.0139	756426-58-1	
ADONA*	Not detected	1.7	0.32	ng/L	0.0139	919005-14-4	
HFPO-DA*	Not detected	1.7	0.28	ng/L	0.0139	13252-13-6	
PFDoS*	Not detected	1.7	0.53	ng/L	0.0139	79780-39-5	
NMeFOSAM*	Not detected	1.7	0.53	ng/L	0.0139	31506-32-8	
NEtFOSAM*	Not detected	1.7	0.53	ng/L	0.0139	4151-50-2	

J-Estimated value less than reporting limit, but greater than MDL



# Analytical Laboratory Report

Lab Sample ID: S34091.03 (continued)

Sample Tag: Trip Blank

WI 33 PFAs, Method: WI SPE, Run Date: 03/22/22 15:06, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
NMeFOSE*	Not detected	1.7	0.63	ng/L	0.0139	24448-09-7	
NEtFOSE*	Not detected	1.7	0.68	ng/L	0.0139	1691-99-2	





# Quality Control Report

Report ID: S34091.01(01)+QC01  
Generated on 03/24/2022

Report to  
Attention: Ryan Erickson  
Barr Engineering  
325 South Lake Avenue  
Suite 700  
Duluth, MN 55802

Report Produced by  
Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Phone: 218-529-7112 FAX:

## Report Summary

Lab Sample ID(s): S34091.01-S34091.03  
Project: SRC 49161427.28 100 004  
Submitted Date/Time: 03/22/2022 09:30  
Sampled by: KMJ3  
P.O. #: 8401487925

## QC Report Sections

Cover Page (Page 12)  
Analysis Summary (Pages 13-15)  
Prep Batch Summary (Page 16)  
Surrogates per QC Sample (Page 17)  
Internal Standards per Lab Sample (Pages 18-20)  
Internal Standards per QC Sample (Pages 21-23)  
Batch QC Results (Pages 24-26)

## Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

Lab Sample ID: S34091.01

Sample Tag: POND4WEIR-03212022

Collected Date/Time: 03/21/2022 10:15

Matrix: Surface Water

COC Reference: 591074

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
WI 33 PFAs	WI SPE	03/22/22 14:33	AK220322WISPE	WIS220322W1	Yes	BLK/LCS/LCSD

# QC Report - Analysis Summary

Lab Sample ID: S34091.02

Sample Tag: Field Blank

Collected Date/Time: 03/21/2022 10:05

Matrix: Water

COC Reference: 591074

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
WI 33 PFAs	WI SPE	03/22/22 14:50	AK220322WISPE	WIS220322W1	Yes	BLK/LCS/LCSD

# QC Report - Analysis Summary

Lab Sample ID: S34091.03

Sample Tag: Trip Blank

Collected Date/Time: 03/21/2022 09:00

Matrix: Water

COC Reference: 591074

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
WI 33 PFAs	WI SPE	03/22/22 15:06	AK220322WISPE	WIS220322W1	Yes	BLK/LCS/LCSD

## QC Report - Prep Batch Summary

### Organics - Volatiles, Prep Batch ID: WIS220322W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S34091.01	WI 33 PFAs	WI SPE	03/22/22 14:33	AK220322WISPE
S34091.02	WI 33 PFAs	WI SPE	03/22/22 14:50	AK220322WISPE
S34091.03	WI 33 PFAs	WI SPE	03/22/22 15:06	AK220322WISPE

# QC Report - Surrogates per QC Sample

## Organics - Volatiles, Prep Batch ID: WIS220322W1

QC Types: BLK/LCS/LCSD

### Blank (BLK)

Lab Sample ID: AK220322WISPE.BLK220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 13:44, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
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No Surrogates

### Laboratory Control Sample (LCS)

Lab Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:01, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
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No Surrogates

### Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220322WISPE.LCSD220322, Parent Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:17, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
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No Surrogates

## QC Report - Internal Standards per Lab Sample

Lab Sample ID: S34091.01

Sample Tag: POND4WEIR-03212022

Collected Date/Time: 03/21/2022 10:15

Matrix: Surface Water

COC Reference: 591074

### Organics - Volatiles, Analysis: WI 33 PFAs

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:33, Matrix: WW, Dilution: 0.0149

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	290.6	25	150.0
M2-6:2FTSA		146.3	25	150.0
M2-8:2FTSA	*	216.3	25	150.0
M2PFTeDA		69.2	25	150.0
M3PFBS		106.2	25	150.0
M3PFHxS		113.1	25	150.0
M4PFHpA		102.7	25	150.0
M5PFHxA		99.9	25	150.0
M5PFPeA		90.7	25	150.0
M6PFDA		115.7	25	150.0
M7PFUnDA		106.5	25	150.0
M8FOSA		86.7	10	150.0
M8PFOA		105.1	25	150.0
M8PFOS		95.1	25	150.0
M9-PFNA		127.0	25	150.0
MPFBA		69.2	25	150.0
MPFDoDA		60.9	25	150.0
d3N-MeFOSAA		141.0	25	150.0
d5EtFOSAA		137.5	25	150.0
MHFPODA		84.9	25	150.0
d-N-EtFOSA-M		24.5	10	150.0
d-N-MeFOSA-M		27.6	10	150.0
d7-N-MeFOSE-M		20.8	10	150.0
d9-N-EtFOSE-M		20.8	10	150.0

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S34091.02

Sample Tag: Field Blank

Collected Date/Time: 03/21/2022 10:05

Matrix: Water

COC Reference: 591074

## Organics - Volatiles, Analysis: WI 33 PFAs

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:50, Matrix: WW, Dilution: 0.0141

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		134.7	25	150.0
M2-6:2FTSA		133.9	25	150.0
M2-8:2FTSA		115.6	25	150.0
M2PFTeDA		86.7	25	150.0
M3PFBS		119.7	25	150.0
M3PFHxS		127.2	25	150.0
M4PFHpA		125.1	25	150.0
M5PFHxA		127.5	25	150.0
M5PFPeA		121.2	25	150.0
M6PFDA		115.5	25	150.0
M7PFUnDA		98.7	25	150.0
M8FOSA		68.6	10	150.0
M8PFOA		117.5	25	150.0
M8PFOS		110.9	25	150.0
M9-PFNA		131.2	25	150.0
MPFBA		123.2	25	150.0
MPFDoDA		72.5	25	150.0
d3N-MeFOSAA		106.8	25	150.0
d5EtFOSAA		100.3	25	150.0
MHFPODA		129.7	25	150.0
d-N-EtFOSA-M		21.1	10	150.0
d-N-MeFOSA-M		23.3	10	150.0
d7-N-MeFOSE-M		28.5	10	150.0
d9-N-EtFOSE-M		22.0	10	150.0



# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S34091.03

Sample Tag: Trip Blank

Collected Date/Time: 03/21/2022 09:00

Matrix: Water

COC Reference: 591074

## Organics - Volatiles, Analysis: WI 33 PFAs

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 15:06, Matrix: WW, Dilution: 0.0139

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		122.4	25	150.0
M2-6:2FTSA		108.0	25	150.0
M2-8:2FTSA		106.8	25	150.0
M2PFTeDA		78.1	25	150.0
M3PFBS		126.0	25	150.0
M3PFHxS		126.1	25	150.0
M4PFHpA		128.0	25	150.0
M5PFHxA		120.5	25	150.0
M5PFPeA		124.4	25	150.0
M6PFDA		131.7	25	150.0
M7PFUnDA		103.7	25	150.0
M8FOSA		74.0	10	150.0
M8PFOA		118.4	25	150.0
M8PFOS		119.6	25	150.0
M9-PFNA		131.6	25	150.0
MPFBA		123.7	25	150.0
MPFDoDA		66.1	25	150.0
d3N-MeFOSAA		92.0	25	150.0
d5EtFOSAA		120.8	25	150.0
MHFPODA		118.6	25	150.0
d-N-EtFOSA-M		28.2	10	150.0
d-N-MeFOSA-M		25.9	10	150.0
d7-N-MeFOSE-M		30.8	10	150.0
d9-N-EtFOSE-M		27.6	10	150.0

## QC Report - Internal Standards per QC Sample

**Organics - Volatiles, Prep Batch ID: WIS220322W1**

QC Types: BLK/LCS/LCSD

### Blank (BLK)

Lab Sample ID: AK220322WISPE.BLK220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 13:44, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>117.3</b>	25	150.0
M2-6:2FTSA		<b>96.7</b>	25	150.0
M2-8:2FTSA		<b>107.3</b>	25	150.0
M2PFTeDA		<b>68.2</b>	25	150.0
M3PFBS		<b>114.4</b>	25	150.0
M3PFHxS		<b>119.9</b>	25	150.0
M4PFHpA		<b>111.6</b>	25	150.0
M5PFHxA		<b>118.2</b>	25	150.0
M5PFPeA		<b>113.3</b>	25	150.0
M6PFDA		<b>102.7</b>	25	150.0
M7PFUnDA		<b>85.2</b>	25	150.0
M8FOSA		<b>61.6</b>	10	150.0
M8PFOA		<b>107.1</b>	25	150.0
M8PFOS		<b>94.8</b>	25	150.0
M9-PFNA		<b>122.3</b>	25	150.0
MPFBA		<b>114.4</b>	25	150.0
MPFDoDA		<b>57.0</b>	25	150.0
d3N-MeFOSAA		<b>88.0</b>	25	150.0
d5EtFOSAA		<b>83.5</b>	25	150.0
MHFPODA		<b>113.3</b>	25	150.0
d-N-EtFOSA-M		<b>16.4</b>	10	150.0
d-N-MeFOSA-M		<b>17.5</b>	10	150.0
d7-N-MeFOSE-M		<b>27.1</b>	10	150.0
d9-N-EtFOSE-M		<b>22.9</b>	10	150.0

## QC Report - Internal Standards per QC Sample

### Laboratory Control Sample (LCS)

Lab Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:01, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>117.6</b>	25	150.0
M2-6:2FTSA		<b>83.2</b>	25	150.0
M2-8:2FTSA		<b>111.9</b>	25	150.0
M2PFTeDA		<b>74.4</b>	25	150.0
M3PFBS		<b>111.1</b>	25	150.0
M3PFHxS		<b>115.9</b>	25	150.0
M4PFHpA		<b>122.1</b>	25	150.0
M5PFHxA		<b>110.6</b>	25	150.0
M5PFPeA		<b>111.5</b>	25	150.0
M6PFDA		<b>93.4</b>	25	150.0
M7PFUnDA		<b>75.1</b>	25	150.0
M8FOSA		<b>92.8</b>	10	150.0
M8PFOA		<b>106.9</b>	25	150.0
M8PFOS		<b>93.3</b>	25	150.0
M9-PFNA		<b>125.7</b>	25	150.0
MPFBA		<b>113.6</b>	25	150.0
MPFDoDA		<b>68.7</b>	25	150.0
d3N-MeFOSAA		<b>87.1</b>	25	150.0
d5EtFOSAA		<b>87.4</b>	25	150.0
MHFPODA		<b>113.6</b>	25	150.0
d-N-EtFOSA-M		<b>32.7</b>	10	150.0
d-N-MeFOSA-M		<b>33.4</b>	10	150.0
d7-N-MeFOSE-M		<b>42.6</b>	10	150.0
d9-N-EtFOSE-M		<b>34.6</b>	10	150.0

## QC Report - Internal Standards per QC Sample

### Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220322WISPE.LCSD220322, Parent Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:17, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>134.5</b>	25	150.0
M2-6:2FTSA		<b>88.3</b>	25	150.0
M2-8:2FTSA		<b>116.7</b>	25	150.0
M2PFTeDA		<b>86.8</b>	25	150.0
M3PFBS		<b>126.7</b>	25	150.0
M3PFHxS		<b>120.6</b>	25	150.0
M4PFHpA		<b>125.2</b>	25	150.0
M5PFHxA		<b>129.3</b>	25	150.0
M5PFPeA		<b>121.6</b>	25	150.0
M6PFDA		<b>103.0</b>	25	150.0
M7PFUnDA		<b>105.3</b>	25	150.0
M8FOSA		<b>104.3</b>	10	150.0
M8PFOA		<b>114.8</b>	25	150.0
M8PFOS		<b>113.7</b>	25	150.0
M9-PFNA		<b>132.8</b>	25	150.0
MPFBA		<b>123.4</b>	25	150.0
MPFDoDA		<b>74.3</b>	25	150.0
d3N-MeFOSAA		<b>108.2</b>	25	150.0
d5EtFOSAA		<b>104.2</b>	25	150.0
MHFPODA		<b>129.3</b>	25	150.0
d-N-EtFOSA-M		<b>35.5</b>	10	150.0
d-N-MeFOSA-M		<b>33.3</b>	10	150.0
d7-N-MeFOSE-M		<b>44.8</b>	10	150.0
d9-N-EtFOSE-M		<b>38.8</b>	10	150.0

## QC Report - Batch QC Results

### Organics - Volatiles, Prep Batch ID: WIS220322W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

#### Blank (BLK)

Lab Sample ID: AK220322WISPE.BLK220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 13:44, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	MDL	Units
PFBA		ND	2.00	0.29	ng/l
PFPeA		ND	2.00	0.22	ng/l
4:2 FTSA		ND	2.00	0.37	ng/l
PFHxA		ND	2.00	0.26	ng/l
PFBS		ND	2.00	0.19	ng/l
PFHpA		ND	2.00	0.45	ng/l
PFPeS		ND	2.00	0.24	ng/l
6:2 FTSA		ND	2.00	0.54	ng/l
PFOA		ND	2.00	0.42	ng/l
PFHxS		ND	2.00	0.62	ng/l
PFHxS-LN		ND	2.00	0.62	ng/l
PFHxS-BR		ND	2.00	0.62	ng/l
PFNA		ND	2.00	0.42	ng/l
8:2 FTSA		ND	2.00	0.72	ng/l
PFHpS		ND	2.00	0.51	ng/l
PFDA		ND	2.00	0.54	ng/l
N-MeFOSAA		ND	2.00	0.34	ng/l
EtFOSAA		ND	2.00	0.66	ng/l
PFOS		ND	2.00	0.37	ng/l
PFOS-LN		ND	2.00	0.37	ng/l
PFOS-BR		ND	2.00	0.37	ng/l
PFUnDA		ND	2.00	0.46	ng/l
PFNS		ND	2.00	0.54	ng/l
PFDoDA		ND	2.00	1.0	ng/l
PFDS		ND	2.00	0.61	ng/l
PFTTrDA		ND	2.00	0.69	ng/l
FOSA		ND	2.00	0.58	ng/l
PFTeDA		ND	2.00	0.82	ng/l
11CL-PF3OUdS		ND	2.00	0.78	ng/l
9CL-PF3ONS		ND	2.00	0.43	ng/l
ADONA		ND	2.00	0.37	ng/l
HFPO-DA		ND	2.00	0.3	ng/l
PFDOS		ND	2.00	0.61	ng/l
NMeFOSAM		ND	2.00	0.61	ng/l
NEtFOSAM		ND	2.00	0.61	ng/l
NMeFOSE		ND	2.00	0.72	ng/l
NEtFOSE		ND	2.00	0.78	ng/l

#### Laboratory Control Sample (LCS)

Lab Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:01, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Orig Conc	Spike	LCS Conc	% Rec	LCL	UCL
PFBA		0.00	4.00	3.75	93.8	50	150
PFPeA		0.00	4.00	3.90	97.5	50	150
PFBS		0.00	4.00	3.69	92.3	50	150
4:2 FTSA		0.00	4.00	3.28	82.0	50	150

**QC Report - Batch QC Results**

**Organics - Volatiles, Prep Batch ID: WIS220322W1 (continued)**

Surrogates: Yes, QC Types: BLK/LCS/LCSD

**Laboratory Control Sample (LCS) (continued)**

Lab Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:01, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Orig Conc	Spike	LCS Conc	% Rec	LCL	UCL
PFHxA		0.00	4.00	3.78	94.5	50	150
PFPeS		0.00	4.00	3.64	91.0	50	150
HFPO-DA		0.00	4.00	3.76	94.0	50	150
PFHpA		0.00	4.00	3.68	92.0	50	150
PFHxS		0.00	4.00	3.77	94.3	50	150
ADONA		0.00	4.00	3.41	85.3	50	150
6:2 FTSA		0.00	4.00	3.15	78.8	50	150
PFOA		0.00	4.00	3.62	90.5	50	150
PFHpS		0.00	4.00	3.43	85.8	50	150
PFOS		0.00	4.00	4.37	109.3	50	150
PFNA		0.00	4.00	3.43	85.8	50	150
9CL-PF3ONS		0.00	4.00	3.60	90.0	50	150
PFNS		0.00	4.00	4.15	103.8	50	150
8:2 FTSA		0.00	4.00	3.12	78.0	50	150
PFDA		0.00	4.00	4.46	111.5	50	150
N-MeFOSAA		0.00	4.00	4.16	104.0	50	150
EtFOSAA		0.00	4.00	4.63	115.8	50	150
PFDS		0.00	4.00	2.84	71.0	50	150
PFUnDA		0.00	4.00	4.42	110.5	50	150
FOSA		0.00	4.00	3.82	95.5	50	150
11CL-PF3OUdS		0.00	4.00	3.38	84.5	50	150
PFDoDA		0.00	4.00	2.79	69.8	50	150
PFDOS		0.00	4.00	3.06	76.5	50	150
PFTTrDA		0.00	4.00	4.12	103.0	50	150
NMeFOSAM		0.00	4.00	4.01	100.3	50	150
NMeFOSE		0.00	4.00	3.57	89.3	50	150
PFTeDA		0.00	4.00	4.26	106.5	50	150
NEtFOSAM		0.00	4.00	3.90	97.5	50	150
NEtFOSE		0.00	4.00	4.75	118.8	50	150

**Laboratory Control Sample Duplicate (LCSD)**

Lab Sample ID: AK220322WISPE.LCSD220322, Parent Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:17, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Orig Conc	Spike	LCSD Conc	% Rec	LCL	UCL	LCS Conc	RPD	RPD CL
PFBA		0	4.00	3.82	95.5	50	150	3.75	1.8	50
PFPeA		0	4.00	3.88	97.0	50	150	3.90	0.5	50
PFBS		0	4.00	3.63	90.8	50	150	3.69	1.6	50
4:2 FTSA		0	4.00	3.17	79.3	50	150	3.28	3.4	50
PFHxA		0	4.00	3.54	88.5	50	150	3.78	6.6	50
PFPeS		0	4.00	3.51	87.8	50	150	3.64	3.6	50
HFPO-DA		0	4.00	3.38	84.5	50	150	3.76	10.6	50
PFHpA		0	4.00	3.66	91.5	50	150	3.68	0.5	50
PFHxS		0	4.00	3.82	95.5	50	150	3.77	1.3	50
ADONA		0	4.00	3.61	90.3	50	150	3.41	5.7	50
6:2 FTSA		0	4.00	3.89	97.3	50	150	3.15	21.0	50
PFOA		0	4.00	3.57	89.3	50	150	3.62	1.4	50

## QC Report - Batch QC Results

**Organics - Volatiles, Prep Batch ID: WIS220322W1 (continued)**

Surrogates: Yes, QC Types: BLK/LCS/LCSD

**Laboratory Control Sample Duplicate (LCSD) (continued)**

Lab Sample ID: AK220322WISPE.LCSD220322, Parent Sample ID: AK220322WISPE.LCS220322

Run in Batch: AK220322WISPE, Run Date: 03/22/2022 14:17, Prep Date: 03/22/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Orig Conc	Spike	LCSD Conc	% Rec	LCL	UCL	LCS Conc	RPD	RPD CL
PFHpS	0	4.00	4.00	3.62	90.5	50	150	3.43	5.4	50
PFOS	0	4.00	4.00	3.75	93.8	50	150	4.37	15.3	50
PFNA	0	4.00	4.00	3.76	94.0	50	150	3.43	9.2	50
9CL-PF3ONS	0	4.00	4.00	3.57	89.3	50	150	3.60	0.8	50
PFNS	0	4.00	4.00	3.62	90.5	50	150	4.15	13.6	50
8:2 FTSA	0	4.00	4.00	3.47	86.8	50	150	3.12	10.6	50
PFDA	0	4.00	4.00	4.15	103.8	50	150	4.46	7.2	50
N-MeFOSAA	0	4.00	4.00	3.83	95.8	50	150	4.16	8.3	50
EtFOSAA	0	4.00	4.00	4.05	101.3	50	150	4.63	13.4	50
PFDS	0	4.00	4.00	3.06	76.5	50	150	2.84	7.5	50
PfUnDA	0	4.00	4.00	3.80	95.0	50	150	4.42	15.1	50
FOSA	0	4.00	4.00	3.31	82.8	50	150	3.82	14.3	50
11CL-PF3OUdS	0	4.00	4.00	3.17	79.3	50	150	3.38	6.4	50
PFDoDA	0	4.00	4.00	4.00	100.0	50	150	2.79	35.6	50
PFDOS	0	4.00	4.00	3.69	92.3	50	150	3.06	18.7	50
PFTTrDA	0	4.00	4.00	4.37	109.3	50	150	4.12	5.9	50
NMeFOSAM	0	4.00	4.00	4.04	101.0	50	150	4.01	0.7	50
NMeFOSE	0	4.00	4.00	2.90	72.5	50	150	3.57	20.7	50
PFTeDA	0	4.00	4.00	4.08	102.0	50	150	4.26	4.3	50
NEtFOSAM	0	4.00	4.00	4.18	104.5	50	150	3.90	6.9	50
NEtFOSE	0	4.00	4.00	3.58	89.5	50	150	4.75	28.1	50

# Merit Laboratories Login Checklist

Lab Set ID:S34091

Client:BARR (Barr Engineering)

Project: SRC 49161427.28 100 004

Submitted:03/22/2022 09:30 Login User: JRM

Attention: Ryan Erickson

Address: Barr Engineering  
325 South Lake Avenue  
Suite 700  
Duluth, MN 55802

Phone: 218-529-7112 FAX:

Email: rerickson@barr.com

Selection	Description	Note
<b>Sample Receiving</b>		
01.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples are received at 4C +/- 2C Thermometer # IR 3.6
02.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Received on ice/ cooling process begun
03.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples shipped Fedex
04.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples left in 24 hr. drop box
05.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Are there custody seals/tape or is the drop box locked
<b>Chain of Custody</b>		
06.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC adequately filled out
07.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC signed and relinquished to the lab
08.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample tag on bottles match COC
09.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Subcontracting needed? Subcontracted to:
<b>Preservation</b>		
10.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Do sample have correct chemical preservation
11.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Completed pH checks on preserved samples? (no VOAs)
12.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Did any samples need to be preserved in the lab?
<b>Bottle Conditions</b>		
13.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	All bottles intact
14.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Appropriate analytical bottles are used
15.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Merit bottles used
16.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sufficient sample volume received
17.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples require laboratory filtration
18.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples submitted within holding time
19.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Do water VOC or TOX bottles contain headspace

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: \_\_\_\_\_ Date: \_\_\_\_\_





# Barr Engineering Co. Chain of Custody

**Sample Origination State**

CO  MI  MN  MO  ND  NV  TX  UT  WI  WY  Other: \_\_\_\_\_

REPORT TO	INVOICE TO
Company: <i>Barr Engineering Co.</i>	Company: <i>SRC</i>
Address: <i>325 S. Lake Ave</i>	Address:
Address: <i>Duluth, MN 55802</i>	Address:
Name: <i>Ryan Erickson</i>	Name:
email: <i>verickson@barr.com</i>	email:
Copy to: <i>BarrDM@barr.com</i>	P.O.:
Project Name: <i>SRC</i>	Barr Project No: <i>49161927.28 100 004</i>

Perform MS/MSD	Y / N	Analysis Requested																				
		Water						Soil														
34091.01.02.03	N	250 ml Bottle	K	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

COC Number: **No 591074**  
 COC 1 of 1

<b>Matrix Code:</b>	<b>Preservative Code:</b>
GW = Groundwater	A = None
SW = Surface Water	B = HCl
DW = Drinking Water	C = HNO <sub>3</sub>
PW = Pore Water	D = H <sub>2</sub> SO <sub>4</sub>
WW = Waste Water	E = NaOH
WQ = TB, FB, EB, etc.	F = MeOH
W = Unspecified	G = NaHSO <sub>4</sub>
S = Soil/Solid	H = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
SD = Sediment	I = Ascorbic Acid
SQ = MeOH blank	J = Zn Acetate
OTH = Other (Oil, etc.)	K = Other

Location	Sample Depth			Collection Date (mm/dd/yyyy)	Collection Time (hh:mm)	Matrix Code	Perform MS/MSD	Y / N	Total Number Of Containers	% Solids
	Start	Stop	Unit (m./ft. or in.)							
1. <i>PONDYWEIR-03212022</i>				<i>03/21/2022</i>	<i>1015</i>	<i>SW</i>	<i>N</i>	<i>3</i>	<i>X</i>	
2. <i>Field Blank</i>				↓	<i>1005</i>	<i>SW</i>	<i>N</i>	<i>1</i>	<i>X</i>	
3. <i>Trip Blank</i>					<i>0900</i>	<i>SW</i>	<i>N</i>	<i>2</i>	<i>X</i>	
4.										
5.										
6.										
7.										
8.										
9.										
10.										

Preservative Code  
Field Filtered Y/N

*WI PFAS Method*

↓

*\* 2-day TAT*

<b>BARR USE ONLY</b>		Relinquished by: <i>[Signature]</i>	On Ice? <input checked="" type="checkbox"/> N	Date: <i>3/24/22</i>	Time: <i>1116</i>	Received by:	Date:	Time:
Sampled by: <i>[Signature]</i>		Relinquished by: <i>Fedex</i>	On Ice? <input checked="" type="checkbox"/> N	Date: <i>3/22/22</i>	Time: <i>0930</i>	Received by: <i>[Signature]</i>	Date: <i>3/22/22</i>	Time: <i>0930</i>
Barr Proj. Manager: <i>REE</i>		Samples Shipped VIA: <input type="checkbox"/> Ground Courier <input type="checkbox"/> Air Carrier <input type="checkbox"/> Other: _____				Air Bill Number:		
Barr DQ Manager: <i>JET</i>		<input type="checkbox"/> Sampler <input type="checkbox"/> Other: _____				Requested Due Date: <input type="checkbox"/> Standard Turn Around Time <input checked="" type="checkbox"/> Rush <i>2-day TAT</i> (mm/dd/yyyy)		
Lab Name: <i>ment1</i>		Lab WO: _____ Temperature on Receipt (°C): <i>28.6</i> Custody Seal Intact? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> None						
Lab Location: <i>East Lansing, MI</i>								

H:\RUG\STD\FORMS\Chain of Custody Form 2015 RLG Rev. 01/30/2020