Bay West

Spill Activation Form (ICS 201)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/1/21	**Project #:**	J211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Incident Date:	11/1/21	**State Agency:**	WDNR
Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy			**Site Contact Name:**	Brad Luedtke
City:	Menomonie			**Site Contact Phone:**	715-578-2318
State	WI	**ZIP**	54751	**Site Contact Email:**	bluedtke@mmm.com
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.				

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant			**Chemical Phase:**	☐	Solid	☑	Liquid	☐	Gas
Quantity Involved:	100-400 gallons			**Duration of Release:**	15-20 Minutes					
Chemical Released:				**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:				**Duration of Release:**						
Chemical Released:				**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:				**Duration of Release:**						
☐ **Residential**	☑	**Commercial**	☐	**Inside**	☑	**Outside**				
Released onto what surface:	☐	Air	☑	Pavement/ Impervious	☑	Soil / pervious	☐	Sewer	☐	On Water
Is it contained?	☑	Yes	☐	No	**Has 911 been called?**		☐	Yes	☑	No

SITUATION SUMMARY

11/1/21 - Assess and document, develop work plan, verify no immediate threats
11/8/21 - Remedial excavation, removal concrete pad, removal of impacted grass, place in lined, covered dumpster awaiting disposal by CleanHarbors

RESPONSE OBJECTIVES

- ☑ Investigation extent and magnitude of release
- ☑ Contain spilled material on land
- ☐ Contain spilled material on water
- ☑ Recover/excavate spilled material/ contaminated soil
- ☐ Package waste for disposal
- ☐ **Other:**
- ☑ Transport and dispose of waste material
- ☑ Collect samples and analyze for contamination / confirmation of cleanup
- ☑ Clean and restore of impacted area(s)
- ☐ Provide shelter / utilities / water for impacted public
- ☑ Document activities and generate closure report

ADDITIONAL CLIENT INFORMATION

Billing Contact:	Brad Luedtke	**Account #**	J211100			
Billing Phone:	715-578-2318	**MSA:**	◉	Yes	○	No
Billing Email:	bluedtke@mmm.com	**ER Retainer:**	◉	Yes	○	No

GENERAL INFORMATION

Date:	11/1/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Safety Officer Completing HEF:			

CHEMICAL INFORMATION

Chemical Released:	Water with PFAS Containing Fire Suppressant		
Quantity Involved:	100-400 gallons		
Physical State:	☐ Solid ☑ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor
TLV or PEL	No Data (0.00037 mg/L EPA DWEL)		
IDLH	No Data		
Odor threshold	None		
Flash Point	Not Applicable °F	°F	°F
Lower Expl. Limit	Not Applicable %	%	%
Vapor Pressure	2.48x10-6 mmHg at 20°C mmHg	mmHg	mmHg
Ionization Potential	Unknown (varies) eV	eV	eV
Exposure Route(s)	☒ Inhalation ☒ Absorption ☒ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact
SDS / printed safety material available? MSDSonline; NIOSH	◉ Yes ○ No	Is the SDS attached?	○ Yes ◉ No

SYMPTOMS/EFFECTS OF EXPOSURE

☒ Carcinogen	☒ Headache	☒ Vertigo	☒ Nose/Throat Irritation
☒ Confusion	☐ Inebriation	☒ Vomiting	☒ Labored Breathing
☐ Dermatitis	☐ Skin Burns	☒ Skin Irritation	☐
☒ Dizziness	☐ Narcosis	☒ Eye Irritation	☐
☒ Fatigue	☒ Sensitization	☒ Lightheadedness	☐

PHYSICAL / BIOLOGICAL HAZARDS

☐ Fire/Explosion	☐ Confined Space	☐ Topography / Terrain	☐ Infectious Materials
☐ Corrosive	☐ Traffic	☐ Working at Heights	☐ Blood and Bodily Fluids
☐ Slips/Trips/Falls	☐ On/Near Water	☐ Lifting / Ergonomics	☐ Biological Warfare Agents
☐ Electrical	☐ Adverse Weather		
☐ Noise	☐ Plant/Animals/Insects		
☐ Utilities (Overhead / Buried)	☐ Sharps/Needles		

DECONTAMINATION

Decontamination Solution	Decontamination Materials	
☒ Water	☒ Plastic sheeting	☒ Garbage bags
☒ Detergent (Alconox)	☒ Tubs/basins	☒ Drums/containers
☐ Soda ash solution	☒ Sprayers	☐ Sorbent pads
☐	☒ Brushes	☐

Disposal Considerations:

MONITORING PLAN

Monitoring required? ○ Yes ◉ No

Monitor Type	Action Level	Response	Action Level	Response
☐ 4-Gas Monitor	> 5% LEL	Monitor Continuously	> 10% LEL	Evacuate
	< 19.5 % or >%23.5	Ventilate and upgrade to Level B		Evacuate
	> 35 ppm CO	Upgrade to Level B	> 1200 ppm CO	Evacuate
	> 1 ppm H_2S	Upgrade to Level C	> 10 ppm H_2S	Upgrade to Level B
☐ Photoionization Detector (PID) [10.6 eV Lamp]				
☐ Dräger Tubes				
☐ pH Paper				
☐ Lumex				
☐				

PERSONAL PROTECTIVE EQUIPMENT

Initial PPE Level ▣ Level D ▣ Level C ☐ Level B ☐ Level A

Head, Eye, Face Protection	Hand Protection / Gloves	Skin Protection / Suits
▣ Hard hat	☐ Thermax liner gloves	▣ Coveralls
☐ Face-shield	☐ Cut-resistant chore gloves	▣ Insulated overall (cold wx gear)
▣ Safety glasses	▣ Insulated gloves (cold weather)	☐ Nomex suit
▣ Chemical goggles	☐ PVC (Monkey Grips)	☐ Firefighter turn-out gear
▣ Hearing protection	▣ Nitrile inner – sampling gloves	▣ Tyvek 400
▣ Insulated hat (cold weather)	▣ Nitrile outer	▣ TyChem SL (Stitched Saranex)
☐	☐ PVA glove	☐ TyChem 4000 (Sealed Saranex)
	☐ Neoprene	☐ Barricade – Level B
	☐ Natural rubber	☐ TyChem Proshield Fully Encapsulated
	☐ Butyl rubber	☐ TyChem TK Suit - Level A
	☐ Silvershield / 4H	☐
	☐	☐

Feet Protection	Respiratory Protection	Other Emergency Equipment
▣ Safety-toe boots	☐ SCBA	☐ First aid/BBP kit
☐ Insulated Safety-Toe boots	☐ SAR	☐ Fire extinguisher, 20 lb ABC
☐ Tingley boots	☐ SAR with escape bottle	☐ Personal flotation device
▣ Chemical boots	☐ Full Face APR	☐ Reflective Traffic Vest
▣ Tyvek boot covers	☐ Half Face APR	▣ Eye wash:
▣ Rubber boot covers	Cartridge:	☐ 1 L Bottles Qty:
☐ Latex boot covers	☐ Multi-gas 6006	☐ 15-minute station
☐ Waders	☐ Multi-gas / P100 - Combo	☐ Calcium gluconate (for HF)
☐	☐ Mercury 6009	☐ Grounding & Bonding Equipment
	☐ P100 7093	☐
	☐	

GENERAL INFORMATION

Date:	11/1/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Site Contact:	Brad Luedtke	**Site Contact Phone:**	715-578-2318
Time of day:		**Weather:**	

GENERAL SAFETY MESSAGE

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

ITEMS DISCUSSED

Contact / Check in Procedures / Communications	Tools / Equipment Operation	Contingencies
☒ Client ☒ Security ☐ Emergency ☐ AHAs ☐ Work Zones ☐	☒ Hand Tools ☐ Vehicle Inspections ☐ Lift gate ☐ Ventilation ☒ Heavy Equipment ☐ Air Monitoring ☐ Bond/Grounding	☒ Hospital Map ☐ Fire ☐ Inclement Weather ☒ SDS ☒ Route Hazards ☒ Eye Wash ☒ Stop Work ☒ Spill Kit ☒ First Aid Kit ☐ Theft/threats of violence

Chemical Hazards	Physical Hazards	Biological Hazards
☐ Corrosive ☐ VOCs ☒ SVOCs ☐ Heavy Metals ☒ Acute Toxics ☒ Particulates ☐ PCBs ☐ Pesticides	☒ Noise (>85dBA) ☐ Heat Stress ☒ Cold Stress ☐ Lighting ☒ Pinch Points ☒ Slips/Trips/Falls ☒ Distractions ☐ Ergonomics ☐ Flammables	☐ Biological Warfare Agents ☐ Infectious Materials ☐ Sharps/Needles ☐ Blood and Bodily Fluids

Personnel Protection Requirements	Decontamination Procedures	Waste
☒ Competent Person ☐ Medical Clearance ☒ Eye Protection ☒ Foot Protection ☐ Decontamination ☒ Incident Reports	☐ Fire Extinguisher ☒ PPE ☒ Site Specific ☐ HazCom ☐ Respirators ☐ Safe Lifting ☐ Lab packing	☒ Safe handling/ packaging of wastes ☒ Labeling and Manifests containers ☒ Securing/ Transporting

SITE COMMUNICATION

Communication between the Project Manager, Client, Site Supervisor, and Field Techs shall be by:

☒ Voice ☒ Visual ☐ Telephone ☐ Radio ☐ Emergency warning device:

☐ Other:

Other Safety Information Discussed

**** IF ANY HAZARD OR CONDITIONS CHANGE, CONTACT THE PROJECT MANAGER AND RE-EVALUATE THE SAFETY OF THE JOB ****

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

Emergency Response Guidebook

Safety Concerns	Corrective Action(s)

MEDICAL AND EMERGENCY INFORMATION					
Hospital Name Hospital Locator	Please see Site Safety and Health and Safety Plan			Phone Number	
Address	Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021				
Police	911	Fire	911	Site Emergency Number	

HOSPITAL LOCATION / MAP

BAY WEST PERSONNEL

Your signature below indicates that you were present, coherent, and responsive during the meeting, that you're aware of site specific hazards, and agree to stop work when an uncontrolled hazard presents itself.

Role	Name	Signature	Time/Date signed
Project Manager	Mark Gretebeck	Mark Gretebeck	5/6/21
Safety and Health Officer	Griffin Kyger	Griffin Kyger	
Site Supervisor	Mark Gretebeck	Mark Gretebeck	
Field Technician	Mark Gretebeck	Mark Gretebeck	
Field Technician			
Field Technician			

Bay West

Daily Activity Log (ICS 214)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/1/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**State Agency:**	WDNR
Agency Case #:	Report #198536	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy					**Site Contact Name:**	Brad Luedtke
City:	Menomonie	**State:**	WI	**ZIP:**	54751	**Site Contact Phone:**	715-578-2318
Latitude/Longitude:	See Figures 1 and 2					**Bay West Time Notified/Arrived:**	
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.						
Bay West Response Team (denote role PM, SS, Tech):	Mark Gretebeck - PM and SS						
Weather:	Partly Sunny, 39 Degrees F, Winds from the West at 12 MPH						

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant			**Chemical Phase:**	☐	Solid	☑	Liquid	☐	Gas
Quantity Involved:	100-400 gallons			**Duration of Release:**	15-20 Minutes					
Chemical Released:				**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:				**Duration of Release:**						
Chemical Released:				**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:				**Duration of Release:**						
☐ **Residential**	☑ **Commercial**			☐ **Inside**	☑ **Outside**					
Released onto what surface:	☐ Air	☑ Pavement/ Impervious		☑ Soil / pervious	☐ Sewer		☐ On Water			
Is it contained?	☑ Yes	☐ No	**Has 911 been called?**		☐ Yes		☑ No			

INITIAL INCIDENT ASSESSMENT

(Describe incident as found upon arrival):

There was a 15-20 minute release of fire suppression water from a 2" outside valve for their sprinkler system. The water has PFOS foam in it. The fire suppression water discharged onto a concrete pad and the grass adjacent to the building. A remedial excavation is necessary to reomove the material. 3M indicated that they will have CleanHarbors handle the waste. We advised 3M to mark off the extent of the impacted area that will need to be excavated.

MONITORING RESULTS

Location	Parameter	Time	Result	Location	Parameter	Time	Result

ENVIRONMENTAL IMPACTS

(Discuss size and magnitude of impacts)

☐ Air	☐ Sanitary Sewer
☐ Groundwater	☐ Secondary Containment
☐ Indoor Commercial	☑ Soil/Porous Material
☐ Indoor Residential	☐ Storm Sewer
☑ Pavement/Impervious	☐ Surface Water
	☐ Wetland

All impacted material was removed. No additional remedial action related to this release is recommended and/or warranted.

DETAILED DESCRIPTION OF REMEDIAL ACTIONS

Bay West completed the following activities:

- Removed small concrete pad in landscape area (see Figures 1 and 2 - attached)
- Lined roll-off container with plastic sheeting
- Excavated grass, topsoil and sand in a 17' half circle area to an average depth of 14"
- Placed soil in lined roll-off awaiting transport by CleanHarbors
- 3M collected 4 confirmation soil samples at base of excavation
- Samples 101-104 submitted by 3M to Pace Analytical Labs in SC. Analysis for PFAS. Results attached. No PFAS results exceed applicable standards (see Table 1 - attached)
- Waste transported at a later date by CleanHarbors to their Kimball Incineration Facility located at 2247 South Highway 71, Kimball, NE 69145, Phone Number 308-235-4012, EPA ID NED981723513
- 22,100 pounds (11.05 tons) was incinerated (waste documentation attached)
- Photos 1-10 attached

WASTE

Description of waste generated	Volume	Destination
PFAS impacted soil and grass	11.05 tons	CleanHarbors Kimball NE Incineration Facility

RECOMMENDATIONS

Recommended for site closure: (●) Yes ( ) No

All impacted areas were removed and incinerated, therefore, all aspects of this release have been properly addressed and no further remedial action associated with this release is recommended or warranted.

PROJECT COMPLETION CHECKLIST

☑	Photos Taken	☑	Site Restoration Complete	☑	Confirmation Samples	☑	Waste Profile Samples
☐	Field Sketch	☑	Manifests Complete	☑	Waste Secured	☑	Chain of Custody Maintained
☐		☐		☐		☐	Internal Disposal Request

Report Preparer:	Mark Gretebeck		
Signature:	Mark Gretebeck	**Date:**	5/24/22

Photo # 1 **:** View of plastic covering grass/landscape gravel in release area immediately adjacent to building between galvanized electrical conduits

Photo # 2**:** New, Unused, 40-Yard Roll-Off Container

Photo # 3 **:** Close up view of plastic covering grass/landscape gravel in release area immediately adjacent to building

Photo # 4**:** Start of excavation activities

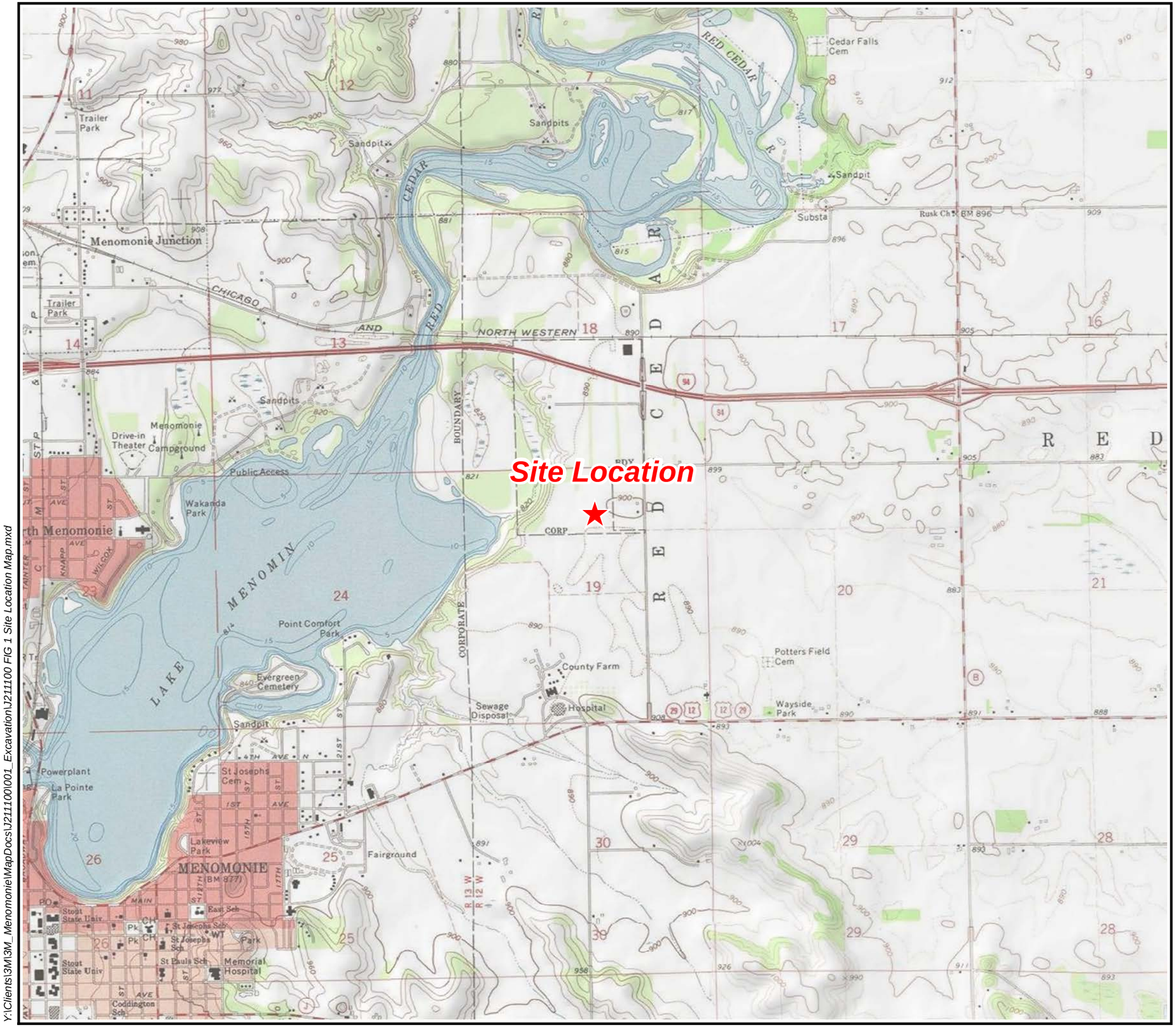
Photo # 5 **:** Plastic lining applied to new, unused, 40-yard roll-off container

Photo # 6**:** Continuing with excavation of impacted grass and sand

Photo # : Continuing with excavation of impacted grass and sand

Photo # : Impacted grass, landscape gravel and sand in roll-off. Approx. 7.5 cubic yards final volume.

Figures



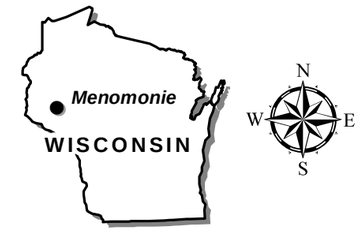
Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 1 Site Location Map.mxd

Figure 1

Site Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: ESRI USA Topo Maps WMS

0 2,000 4,000 Feet
0 600 1,200 Meters

1 inch = 2,000 feet

★ Site Location

Bay West
Customer-Focused Environmental & Industrial Solutions

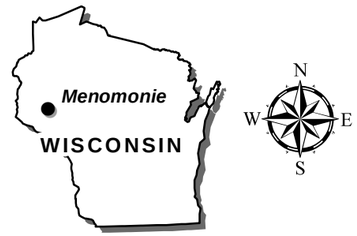
Drawn By: N.J. Date Drawn/Revised:2/21/2022 Project No.J211100

Figure 2

Excavation Extent & Sample Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: Wisconsin DNR Aerial Imagery WMS, 2010

0 10 20 Feet
0 2 4 6 Meters

Soil Sample

Excavation Extent

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised: 2/24/2022 Project No.J211100

Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 2 Excavation Extent & Sample Location Map.mxd

Tables

Table 1
Soil Analytical Results

PFAS release at 3M Menomonie

	Sample ID	Industrial	101	102	103	104
	Date Sampled	RCL	11/8/2021	11/8/2021	11/8/2021	11/8/2021
11-Cl-PF3OUdS (11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid)	763051-92-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
4:2 FTS (4:2 fluorotelomersulfonic acid)	757124-72-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
6:2 FTS (6:2 fluorotelomersulfonic acid)	27619-97-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
8:2 FTS (8:2 fluorotelomersulfonic acid)	39108-34-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
9-Cl-PF3ON (9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid)	756426-58-1	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
DONA (4,8-dioxa-3H-perfluorononanoic acid)	919005-14-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSAm (N-Ethylperfluorooctanesulfonamide)	4151-50-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSE (N-Ethylperfluorooctanesulfonamidoethanol)	1691-99-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
HFPO-DA (2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid)	13252-13-6	NE	< 0.0039	< 0.0041	< 0.0038	< 0.0043
MeFOSA (N-Methylperfluorooctanesulfonamide)	31506-32-8	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSAA (N-Methyl perfluorooctanesulfonamidoacetic acid)	2355-31-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSE (N-Methylperfluorooctanesulfonamidoethanol)	24448-09-7	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
N-EtFOSAA (N-Ethyl perfluorooctanesulfonamidoacetic acid)	2991-50-6	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
PFBA (Perfluorobutyric acid)	375-22-4	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFBS (Perfluorobutanesulfonic acid)	375-73-5	16400	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDA (Perfluorodecanoic acid)	335-76-2	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDOA (Perfluorododecanoic acid)	307-55-1	NE	< 0.00097	< 0.0010	< 0.00096	**0.0011**
PFDoS (Perfluorododecanesulfonic acid)	79780-39-5	NE	**0.0028**	**0.0075**	**0.0041**	**0.0091**
PFDS (Perfluorodecanesulfonic acid)	335-77-3	NE	**0.0044**	**0.0081**	**0.0026**	**0.0055**
PFHpA (Perfluoroheptanoic acid)	375-85-9	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFHpS (Perfluoroheptanesulfonic acid)	375-92-8	NE	< 0.00097	< 0.0010	**0.0039**	**0.0014**
PFHxA (Perfluorohexanoic acid)	307-24-4	NE	< 0.00097	< 0.0010	**0.0052**	**0.0024**
PFHxS (Perfluorohexanesulfonic acid)	355-46-4	NE	**0.0021**	**0.013**	**0.025**	**0.016**
PFNA (Perfluorononanoic acid)	375-95-1	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFNS (Perfluorononanesulfonic acid)	68259-12-1	NE	**0.0069**	**0.0047**	**0.0031**	**0.0020**
PFOA (Perfluorooctanoic acid)	335-67-1	16.4	< 0.00097	**0.0014**	**0.0066**	**0.0023**
PFOS (Perfluorooctanesulfonate)	1763-23-1	16.4	**1.0**	**0.60**	**0.83**	**0.15**
PFOSAm (Perfluorooctanesulfonamide)	754-91-6	NE	**0.068**	**0.048**	**0.014**	**0.020**
PFPeA (Perfluoropentanoic acid)	2706-90-3	NE	< 0.00097	< 0.0010	**0.00096**	< 0.0011
PFPeS (Perfluoropentanesulfonic acid)	2706-91-4	NE	< 0.00097	< 0.0010	**0.0018**	< 0.0011
PFTeDA (Perfluorotetradecanoic acid)	376-06-7	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFTrDA (Perfluorotridecanoic acid)	72629-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFUnDA (Perfluoroundecanoic acid)	2058-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011

Notes:
All results in milligrams per kilogram
WIDNR – Wisconsin Department of Natural Resources
RCL – Residual Contaminant Lvels, as published December 2018
NE – Action level not established for this analyte
< – Less than the laboratory Limit of Quantitation
Bold – Analyte detected
Blue – Result exceeds the Industrial RCL

Analytical Data

Report of Analysis

3M
3M Center
260-05-N-17
St. Paul, MN 55144
Attention: Susan Wolf

Project Name: 3M Menomonie

Project Number: E21-2079

Lot Number:**WK15017**

Date Completed:12/13/2021
Revision Date: 12/15/2021

12/16/2021 2:46 PM
Approved and released by:
Project Manager II: **Cathy S. Dover**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
3M
Lot Number: WK15017

Report Revision 12/15/2021:
This report has been revised to include the parent/original sample amount on the MS/MSD forms. These results were not reported in the original report due to LIMS issue. All other sample results are as reported in the original PDF report. This report supersedes and replaces any prior reports issued under this lot number.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample. All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below. Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

PFAS by Isotope Dilution
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. The extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene auto sampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

For solid samples:
CF = DF * FV / Ws/S/1000

FV is volume of extract (mL)
Ws is initial sample weight (gram)
S is %Solids
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Concentration (ug/kg) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Samples WK15017-001 (101), WK15017-002 (102), WK15017-003 (103), and WK15017-004 (104) were collected in client-provided bottles which do not conform to method requirements.

The MS/MSD for batch 23612 and parent sample WK15017-004 (104), recovered outside control limits for PFOS. The associated LCS passed acceptance criteria.

In addition to the references above, samples associated with this report were performed in accordance with the 3M Technical Specifications Manual Revision 1, July 17, 2020.

The following SOP applies: ME003NI Determination of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS (Isotope Dilution).

Cathy Dover, Project Manager

Sample Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	101	Solid	11/08/2021 1045	11/12/2021
002	102	Solid	11/08/2021 1048	11/12/2021
003	103	Solid	11/08/2021 1100	11/12/2021
004	104	Solid	11/08/2021 1203	11/12/2021

(4 samples)

Detection Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	101	Solid	PFDS	PFAS by ID	4.4		ug/kg	5
001	101	Solid	PFNS	PFAS by ID	6.9		ug/kg	5
001	101	Solid	PFOSA	PFAS by ID	68		ug/kg	5
001	101	Solid	PFDOS	PFAS by ID	2.8		ug/kg	5
001	101	Solid	PFHxS	PFAS by ID	2.1		ug/kg	5
001	101	Solid	PFOS	PFAS by ID	1000		ug/kg	5
002	102	Solid	PFDS	PFAS by ID	8.1		ug/kg	7
002	102	Solid	PFNS	PFAS by ID	4.7		ug/kg	7
002	102	Solid	PFOSA	PFAS by ID	48		ug/kg	7
002	102	Solid	PFDOS	PFAS by ID	7.5		ug/kg	7
002	102	Solid	PFHxS	PFAS by ID	13		ug/kg	7
002	102	Solid	PFOA	PFAS by ID	1.4		ug/kg	7
002	102	Solid	PFOS	PFAS by ID	600		ug/kg	7
003	103	Solid	PFDS	PFAS by ID	2.6		ug/kg	9
003	103	Solid	PFHpS	PFAS by ID	3.9		ug/kg	9
003	103	Solid	PFNS	PFAS by ID	3.1		ug/kg	9
003	103	Solid	PFOSA	PFAS by ID	14		ug/kg	9
003	103	Solid	PFPeS	PFAS by ID	1.8		ug/kg	9
003	103	Solid	PFDOS	PFAS by ID	4.1		ug/kg	9
003	103	Solid	PFHxS	PFAS by ID	25		ug/kg	9
003	103	Solid	PFHxA	PFAS by ID	5.2		ug/kg	9
003	103	Solid	PFOA	PFAS by ID	6.6		ug/kg	9
003	103	Solid	PFPeA	PFAS by ID	0.96		ug/kg	9
003	103	Solid	PFOS	PFAS by ID	830		ug/kg	9
004	104	Solid	PFDS	PFAS by ID	5.5		ug/kg	11
004	104	Solid	PFHpS	PFAS by ID	1.4		ug/kg	11
004	104	Solid	PFNS	PFAS by ID	2.0		ug/kg	11
004	104	Solid	PFOSA	PFAS by ID	20		ug/kg	11
004	104	Solid	PFDOS	PFAS by ID	9.1		ug/kg	11
004	104	Solid	PFHxS	PFAS by ID	16		ug/kg	11
004	104	Solid	PFDoA	PFAS by ID	1.1		ug/kg	11
004	104	Solid	PFHxA	PFAS by ID	2.4		ug/kg	11
004	104	Solid	PFOA	PFAS by ID	2.3		ug/kg	11
004	104	Solid	PFOS	PFAS by ID	150	S	ug/kg	11

(34 detections)

PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1611	MMM	11/24/2021 1322	23612	1.16	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1044	MMM	11/24/2021 1322	23612	1.16	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.9	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**4.4**		**0.97**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**6.9**		**0.97**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**68**		**0.97**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**2.8**		**0.97**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.1**		**0.97**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1000**		**9.7**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		127	50-150
13C2_6:2FTS		123	50-150		129	50-150
13C2_8:2FTS		113	50-150		122	50-150
13C2_PFDoA		101	50-150		101	50-150
13C2_PFTeDA		106	50-150		101	50-150
13C3_PFBS		101	50-150		104	50-150
13C3_PFHxS		103	50-150		107	50-150
13C3-HFPO-DA		115	50-150		105	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		101	50-150
13C4_PFHpA		97	50-150		102	50-150
13C5_PFHxA		100	50-150		105	50-150
13C5_PFPeA		102	50-150		104	50-150
13C6_PFDA		104	50-150		106	50-150
13C7_PFUdA		113	50-150		118	50-150
13C8_PFOA		100	50-150		109	50-150
13C8_PFOS		77	50-150		104	50-150
13C8_PFOSA		112	50-150		115	50-150
13C9_PFNA		75	50-150		96	50-150
d-EtFOSA		94	50-150		103	50-150
d5-EtFOSAA		117	50-150		117	50-150
d9-EtFOSE		99	50-150		102	50-150
d-MeFOSA		91	50-150		94	50-150
d3-MeFOSAA		112	50-150		120	50-150
d7-MeFOSE		95	50-150		100	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-002**

Description: **102** | Matrix: **Solid**

Date Sampled: **11/08/2021 1048** | Project Name: **3M Menomonie** | % Solids: **94.0** **11/23/2021 0106**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1622	MMM	11/24/2021 1322	23612	1.04	10.00
2	SOP SPE	PFAS by ID SOP (3M)	5	12/01/2021 1054	MMM	11/24/2021 1322	23612	1.04	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.0	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**8.1**		**1.0**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**4.7**		**1.0**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**48**		**1.0**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**7.5**		**1.0**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**13**		**1.0**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.4**		**1.0**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**600**		**5.1**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		130	50-150
13C2_6:2FTS		116	50-150		131	50-150
13C2_8:2FTS		124	50-150		129	50-150
13C2_PFDoA		103	50-150		108	50-150
13C2_PFTeDA		103	50-150		106	50-150
13C3_PFBS		98	50-150		110	50-150
13C3_PFHxS		96	50-150		114	50-150
13C3-HFPO-DA		102	50-150		108	50-150

LOQ = Limit of Quantitation | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | Q = Surrogate failure

ND = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | L = LCS/LCSD failure

H = Out of holding time | W = Reported on wet weight basis | S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-002**	
Description: **102**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1048**	Project Name: **3M Menomonie**	% Solids: **94.0**	**11/23/2021 0106**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		108	50-150
13C4_PFHpA		97	50-150		105	50-150
13C5_PFHxA		98	50-150		110	50-150
13C5_PFPeA		108	50-150		103	50-150
13C6_PFDA		114	50-150		110	50-150
13C7_PFUdA		109	50-150		117	50-150
13C8_PFOA		95	50-150		110	50-150
13C8_PFOS		87	50-150		104	50-150
13C8_PFOSA		112	50-150		122	50-150
13C9_PFNA		84	50-150		99	50-150
d-EtFOSA		107	50-150		101	50-150
d5-EtFOSAA		109	50-150		128	50-150
d9-EtFOSE		100	50-150		105	50-150
d-MeFOSA		95	50-150		98	50-150
d3-MeFOSAA		118	50-150		124	50-150
d7-MeFOSE		109	50-150		117	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-003**

Description: **103** | Matrix: **Solid**

Date Sampled: **11/08/2021 1100** | Project Name: **3M Menomonie** | % Solids: **93.1** **11/29/2021 2339**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1632	MMM	11/24/2021 1322	23612	1.12	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1105	MMM	11/24/2021 1322	23612	1.12	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.8	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**2.6**		**0.96**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**3.9**		**0.96**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**3.1**		**0.96**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**14**		**0.96**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.8**		**0.96**	**ug/kg**	**1**
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**4.1**		**0.96**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**25**		**0.96**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.2**		**0.96**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.6**		**0.96**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.96**		**0.96**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**830**		**9.6**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		108	50-150		114	50-150
13C2_6:2FTS		113	50-150		132	50-150
13C2_8:2FTS		126	50-150		122	50-150
13C2_PFDoA		102	50-150		112	50-150
13C2_PFTeDA		106	50-150		100	50-150
13C3_PFBS		98	50-150		111	50-150
13C3_PFHxS		102	50-150		111	50-150
13C3-HFPO-DA		113	50-150		107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
Q = Surrogate failure
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-003**	
Description: **103**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1100**	Project Name: **3M Menomonie**	% Solids: **93.1**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		106	50-150
13C4_PFHpA		100	50-150		103	50-150
13C5_PFHxA		103	50-150		113	50-150
13C5_PFPeA		99	50-150		105	50-150
13C6_PFDA		106	50-150		116	50-150
13C7_PFUdA		106	50-150		110	50-150
13C8_PFOA		98	50-150		114	50-150
13C8_PFOS		80	50-150		108	50-150
13C8_PFOSA		123	50-150		125	50-150
13C9_PFNA		80	50-150		101	50-150
d-EtFOSA		96	50-150		103	50-150
d5-EtFOSAA		115	50-150		125	50-150
d9-EtFOSE		100	50-150		108	50-150
d-MeFOSA		94	50-150		95	50-150
d3-MeFOSAA		110	50-150		127	50-150
d7-MeFOSE		110	50-150		109	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-004**
Description: **104** | Matrix: **Solid**
Date Sampled: **11/08/2021 1203** | Project Name: **3M Menomonie** | % Solids: **92.0** **11/29/2021 2339**
Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	12/01/2021 1115	MMM	11/24/2021 1322	23612	1.01	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**5.5**		**1.1**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**1.4**		**1.1**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**2.0**		**1.1**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**20**		**1.1**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**9.1**		**1.1**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**		**1.1**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**1.1**		**1.1**	**ug/kg**	**1**
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.4**		**1.1**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**		**1.1**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**150**	**S**	**1.1**	**ug/kg**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		133	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		133	50-150
13C2_PFDoA		108	50-150
13C2_PFTeDA		106	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		104	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-004**	
Description: **104**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1203**	Project Name: **3M Menomonie**	% Solids: **92.0**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		105	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		115	50-150
13C7_PFUdA		118	50-150
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C8_PFOSA		124	50-150
13C9_PFNA		101	50-150
d-EtFOSA		116	50-150
d5-EtFOSAA		133	50-150
d9-EtFOSE		102	50-150
d-MeFOSA		104	50-150
d3-MeFOSAA		127	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1508
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1508
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
GenX	ND		1	4.0	ug/kg	11/30/2021 1508
ADONA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
PFBS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1508
PFNS	ND		1	1.0	ug/kg	11/30/2021 1508
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1508
PFBA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1508
PFNA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOS	ND		1	1.0	ug/kg	11/30/2021 1508

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		127	50-150
13C2_PFDoA		117	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		109	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		105	50-150
13C8_PFOSA		116	50-150
13C9_PFNA		103	50-150
d-EtFOSA		111	50-150
d5-EtFOSAA		122	50-150
d9-EtFOSE		117	50-150
d-MeFOSA		98	50-150
d3-MeFOSAA		116	50-150
d7-MeFOSE		116	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1518
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1518
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
GenX	ND		1	4.0	ug/kg	11/30/2021 1518
ADONA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
PFBS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1518
PFNS	ND		1	1.0	ug/kg	11/30/2021 1518
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1518
PFBA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1518
PFNA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOS	ND		1	1.0	ug/kg	11/30/2021 1518

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		110	50-150
13C2_PFTeDA		109	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		106	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		112	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		106	50-150
d-EtFOSA		108	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		110	50-150
d-MeFOSA		102	50-150
d3-MeFOSAA		131	50-150
d7-MeFOSE		121	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1529
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1529
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
GenX	ND		1	4.0	ug/kg	11/30/2021 1529
ADONA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
PFBS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1529
PFNS	ND		1	1.0	ug/kg	11/30/2021 1529
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1529
PFBA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1529
PFNA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOS	ND		1	1.0	ug/kg	11/30/2021 1529

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		123	50-150
13C2_PFDoA		107	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		105	50-150
13C8_PFOS		113	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		103	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		107	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		120	50-150
d7-MeFOSE		102	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	5.1	5.5		1	107	70-130	11/30/2021 1539
11Cl-PF3OUdS	5.2	5.6		1	108	70-130	11/30/2021 1539
8:2 FTS	5.3	4.7		1	90	70-130	11/30/2021 1539
6:2 FTS	5.2	5.4		1	104	70-130	11/30/2021 1539
4:2 FTS	5.1	4.8		1	93	70-130	11/30/2021 1539
GenX	11	11		1	97	70-130	11/30/2021 1539
ADONA	5.2	5.3		1	102	70-130	11/30/2021 1539
EtFOSA	5.5	5.4		1	98	70-130	11/30/2021 1539
EtFOSAA	5.5	5.3		1	96	70-130	11/30/2021 1539
EtFOSE	5.5	5.2		1	95	70-130	11/30/2021 1539
MeFOSA	5.5	5.0		1	91	70-130	11/30/2021 1539
MeFOSAA	5.5	4.9		1	90	70-130	11/30/2021 1539
MeFOSE	5.5	4.3		1	79	70-130	11/30/2021 1539
PFBS	4.9	4.6		1	95	70-130	11/30/2021 1539
PFDS	5.3	6.1		1	114	70-130	11/30/2021 1539
PFHpS	5.2	5.1		1	97	70-130	11/30/2021 1539
PFNS	5.3	5.6		1	107	70-130	11/30/2021 1539
PFOSA	5.5	5.2		1	95	70-130	11/30/2021 1539
PFPeS	5.2	5.0		1	97	70-130	11/30/2021 1539
PFDOS	5.3	5.8		1	110	70-130	11/30/2021 1539
PFHxS	5.0	5.1		1	101	70-130	11/30/2021 1539
PFBA	5.5	5.4		1	99	70-130	11/30/2021 1539
PFDA	5.5	5.3		1	96	70-130	11/30/2021 1539
PFDoA	5.5	4.8		1	87	70-130	11/30/2021 1539
PFHpA	5.5	5.8		1	105	70-130	11/30/2021 1539
PFHxA	5.5	5.6		1	101	70-130	11/30/2021 1539
PFNA	5.5	5.5		1	99	70-130	11/30/2021 1539
PFOA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFPeA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTeDA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTrDA	5.5	4.8		1	88	70-130	11/30/2021 1539
PFUdA	5.5	5.0		1	92	70-130	11/30/2021 1539
PFOS	5.1	5.7		1	112	70-130	11/30/2021 1539

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		118	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		99	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		112	50-150
13C8_PFOA		105	50-150
13C8_PFOS		96	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		102	50-150
d-EtFOSA		102	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		105	50-150
d-MeFOSA		105	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		117	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	51	51		1	100	70-130	11/30/2021 1550
11Cl-PF3OUdS	52	56		1	107	70-130	11/30/2021 1550
8:2 FTS	53	49		1	94	70-130	11/30/2021 1550
6:2 FTS	52	50		1	95	70-130	11/30/2021 1550
4:2 FTS	51	44		1	85	70-130	11/30/2021 1550
GenX	110	100		1	95	70-130	11/30/2021 1550
ADONA	52	49		1	96	70-130	11/30/2021 1550
EtFOSA	55	45		1	82	70-130	11/30/2021 1550
EtFOSAA	55	54		1	98	70-130	11/30/2021 1550
EtFOSE	55	49		1	90	70-130	11/30/2021 1550
MeFOSA	55	56		1	101	70-130	11/30/2021 1550
MeFOSAA	55	49		1	89	70-130	11/30/2021 1550
MeFOSE	55	45		1	83	70-130	11/30/2021 1550
PFBS	49	48		1	98	70-130	11/30/2021 1550
PFDS	53	54		1	101	70-130	11/30/2021 1550
PFHpS	52	47		1	89	70-130	11/30/2021 1550
PFNS	53	49		1	93	70-130	11/30/2021 1550
PFOSA	55	51		1	93	70-130	11/30/2021 1550
PFPeS	52	52		1	101	70-130	11/30/2021 1550
PFDOS	53	55		1	103	70-130	11/30/2021 1550
PFHxS	50	48		1	96	70-130	11/30/2021 1550
PFBA	55	53		1	97	70-130	11/30/2021 1550
PFDA	55	52		1	95	70-130	11/30/2021 1550
PFDoA	55	52		1	95	70-130	11/30/2021 1550
PFHpA	55	56		1	103	70-130	11/30/2021 1550
PFHxA	55	51		1	93	70-130	11/30/2021 1550
PFNA	55	51		1	93	70-130	11/30/2021 1550
PFOA	55	55		1	100	70-130	11/30/2021 1550
PFPeA	55	55		1	99	70-130	11/30/2021 1550
PFTeDA	55	54		1	99	70-130	11/30/2021 1550
PFTrDA	55	54		1	99	70-130	11/30/2021 1550
PFUdA	55	55		1	100	70-130	11/30/2021 1550
PFOS	51	52		1	102	70-130	11/30/2021 1550

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		119	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		96	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		107	50-150
13C9_PFNA		103	50-150
d-EtFOSA		103	50-150
d5-EtFOSAA		111	50-150
d9-EtFOSE		103	50-150
d-MeFOSA		88	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RSD	%Rec Limit	% RSD Limit	Analysis Date
9Cl-PF3ONS	140	140		1	99	4.3	70-130	20	11/30/2021 1600
11Cl-PF3OUdS	140	150		1	103	2.6	70-130	20	11/30/2021 1600
8:2 FTS	140	120		1	83	6.3	70-130	20	11/30/2021 1600
6:2 FTS	140	120		1	81	12	70-130	20	11/30/2021 1600
4:2 FTS	140	130		1	96	6.1	70-130	20	11/30/2021 1600
GenX	300	300		1	99	2.0	70-130	20	11/30/2021 1600
ADONA	140	140		1	99	3.5	70-130	20	11/30/2021 1600
EtFOSA	150	130		1	89	8.9	70-130	20	11/30/2021 1600
EtFOSAA	150	150		1	102	2.7	70-130	20	11/30/2021 1600
EtFOSE	150	150		1	99	5.1	70-130	20	11/30/2021 1600
MeFOSA	150	160		1	106	7.6	70-130	20	11/30/2021 1600
MeFOSAA	150	140		1	94	3.1	70-130	20	11/30/2021 1600
MeFOSE	150	120		1	83	3.0	70-130	20	11/30/2021 1600
PFBS	130	130		1	98	1.6	70-130	20	11/30/2021 1600
PFDS	140	140		1	99	7.7	70-130	20	11/30/2021 1600
PFHpS	140	140		1	97	4.5	70-130	20	11/30/2021 1600
PFNS	140	130		1	90	9.2	70-130	20	11/30/2021 1600
PFOSA	150	130		1	89	3.4	70-130	20	11/30/2021 1600
PFPeS	140	150		1	103	3.4	70-130	20	11/30/2021 1600
PFDOS	150	140		1	99	5.1	70-130	20	11/30/2021 1600
PFHxS	140	130		1	98	2.7	70-130	20	11/30/2021 1600
PFBA	150	150		1	97	1.2	70-130	20	11/30/2021 1600
PFDA	150	160		1	104	4.8	70-130	20	11/30/2021 1600
PFDoA	150	140		1	91	4.5	70-130	20	11/30/2021 1600
PFHpA	150	150		1	100	2.4	70-130	20	11/30/2021 1600
PFHxA	150	140		1	93	4.8	70-130	20	11/30/2021 1600
PFNA	150	140		1	94	3.6	70-130	20	11/30/2021 1600
PFOA	150	150		1	100	2.3	70-130	20	11/30/2021 1600
PFPeA	150	150		1	99	2.8	70-130	20	11/30/2021 1600
PFTeDA	150	140		1	96	4.0	70-130	20	11/30/2021 1600
PFTrDA	150	140		1	95	6.2	70-130	20	11/30/2021 1600
PFUdA	150	150		1	97	4.4	70-130	20	11/30/2021 1600
PFOS	140	140		1	99	6.3	70-130	20	11/30/2021 1600

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		103	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		91	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		111	50-150
13C9_PFNA		98	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		103	50-150
d9-EtFOSE		98	50-150
d-MeFOSA		91	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		114	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	48	41		1	85	70-130	11/30/2021 1653
11Cl-PF3OUdS	ND	49	45		1	91	70-130	11/30/2021 1653
8:2 FTS	ND	50	37		1	75	70-130	11/30/2021 1653
6:2 FTS	ND	49	41		1	83	70-130	11/30/2021 1653
4:2 FTS	ND	49	38		1	79	70-130	11/30/2021 1653
GenX	ND	100	96		1	92	70-130	11/30/2021 1653
ADONA	ND	49	43		1	88	70-130	11/30/2021 1653
EtFOSA	ND	52	41		1	80	70-130	11/30/2021 1653
EtFOSAA	ND	52	43		1	83	70-130	11/30/2021 1653
EtFOSE	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSA	ND	52	52		1	99	70-130	11/30/2021 1653
MeFOSAA	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSE	ND	52	40		1	78	70-130	11/30/2021 1653
PFBS	ND	46	41		1	89	70-130	11/30/2021 1653
PFDS	5.5	50	49		1	86	70-130	11/30/2021 1653
PFHpS	1.4	50	45		1	87	70-130	11/30/2021 1653
PFNS	2.0	50	42		1	81	70-130	11/30/2021 1653
PFOSA	20	52	60		1	76	70-130	11/30/2021 1653
PFPeS	ND	49	42		1	87	70-130	11/30/2021 1653
PFDOS	9.1	50	51		1	83	70-130	11/30/2021 1653
PFHxS	16	47	54		1	81	70-130	11/30/2021 1653
PFBA	ND	52	46		1	88	70-130	11/30/2021 1653
PFDA	ND	52	42		1	81	70-130	11/30/2021 1653
PFDoA	1.1	52	45		1	86	70-130	11/30/2021 1653
PFHpA	ND	52	45		1	87	70-130	11/30/2021 1653
PFHxA	2.4	52	49		1	89	70-130	11/30/2021 1653
PFNA	ND	52	47		1	90	70-130	11/30/2021 1653
PFOA	2.3	52	45		1	83	70-130	11/30/2021 1653
PFPeA	ND	52	46		1	89	70-130	11/30/2021 1653
PFTeDA	ND	52	46		1	88	70-130	11/30/2021 1653
PFTrDA	ND	52	48		1	93	70-130	11/30/2021 1653
PFUdA	ND	52	42		1	80	70-130	11/30/2021 1653
PFOS	150	48	180	N	1	52	70-130	11/30/2021 1653

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		108	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		95	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		106	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		91	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		112	50-150
d9-EtFOSE		99	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		125	50-150
d7-MeFOSE		100	50-150

LOQ = Limit of Quantitation

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P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	47	41		1	86	1.8	70-130	30	11/30/2021 1704
11Cl-PF3OUdS	ND	48	40		1	84	11	70-130	30	11/30/2021 1704
8:2 FTS	ND	49	36		1	74	3.5	70-130	30	11/30/2021 1704
6:2 FTS	ND	48	42		1	87	2.6	70-130	30	11/30/2021 1704
4:2 FTS	ND	47	39		1	83	2.3	70-130	30	11/30/2021 1704
GenX	ND	100	84		1	83	13	70-130	30	11/30/2021 1704
ADONA	ND	48	40		1	84	6.6	70-130	30	11/30/2021 1704
EtFOSA	ND	51	39		1	77	6.5	70-130	30	11/30/2021 1704
EtFOSAA	ND	51	46		1	91	6.8	70-130	30	11/30/2021 1704
EtFOSE	ND	51	43		1	85	8.3	70-130	30	11/30/2021 1704
MeFOSA	ND	51	48		1	95	7.3	70-130	30	11/30/2021 1704
MeFOSAA	ND	51	41		1	81	2.6	70-130	30	11/30/2021 1704
MeFOSE	ND	51	38		1	76	5.2	70-130	30	11/30/2021 1704
PFBS	ND	45	40		1	88	3.2	70-130	30	11/30/2021 1704
PFDS	5.5	49	48		1	87	0.97	70-130	30	11/30/2021 1704
PFHpS	1.4	48	42		1	84	5.5	70-130	30	11/30/2021 1704
PFNS	2.0	49	43		1	85	2.7	70-130	30	11/30/2021 1704
PFOSA	20	51	64		1	86	6.1	70-130	30	11/30/2021 1704
PFPeS	ND	48	42		1	89	0.49	70-130	30	11/30/2021 1704
PFDOS	9.1	49	54		1	91	4.9	70-130	30	11/30/2021 1704
PFHxS	16	46	55		1	83	0.36	70-130	30	11/30/2021 1704
PFBA	ND	51	43		1	85	5.8	70-130	30	11/30/2021 1704
PFDA	ND	51	47		1	94	13	70-130	30	11/30/2021 1704
PFDoA	1.1	51	46		1	90	1.6	70-130	30	11/30/2021 1704
PFHpA	ND	51	45		1	89	0.064	70-130	30	11/30/2021 1704
PFHxA	2.4	51	45		1	85	7.8	70-130	30	11/30/2021 1704
PFNA	ND	51	43		1	85	7.7	70-130	30	11/30/2021 1704
PFOA	2.3	51	46		1	87	1.7	70-130	30	11/30/2021 1704
PFPeA	ND	51	45		1	89	3.2	70-130	30	11/30/2021 1704
PFTeDA	ND	51	46		1	90	0.77	70-130	30	11/30/2021 1704
PFTrDA	ND	51	45		1	90	6.2	70-130	30	11/30/2021 1704
PFUdA	ND	51	38		1	75	8.9	70-130	30	11/30/2021 1704
PFOS	150	47	190		1	82	7.3	70-130	30	11/30/2021 1704

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		102	50-150

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PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		87	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		101	50-150
13C9_PFNA		88	50-150
d-EtFOSA		99	50-150
d5-EtFOSAA		100	50-150
d9-EtFOSE		97	50-150
d-MeFOSA		83	50-150
d3-MeFOSAA		105	50-150
d7-MeFOSE		101	50-150

LOQ = Limit of Quantitation

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

3M EHS Laboratory Managed Outsourced Testing

Chain of Custody / Request for Laboratory Analytical Services

3M EHS Lab Project # (For Internal Use Only): E21-2079

Shipping Address: Pace Analytical Services, LLC, 106 Vantage Point Drive, West Columbia, SC 29172 — **Telephone:** Pace Project Manager: Cally Dover

Project ID/Project Name: 3M Menomonie Environmental Release	
Template #: NA	Final Report Due Date: Standard TAT
Project Lead: Sue Wolf	Internal Due Date: NA
Dept. # (main): 125962	Class/Job/Project #: NA

Report Results To:
Contact Name: Brad Luedtke
Company: 3M Menomonie
Mailing Address:
City, State, Zip:
Telephone #: FAX #:

Date Available:
Date Due:
Contract Lab:

Special Instructions and/or Specific Regulatory Requirements: Questions regarding the analysis of these samples should be directed to the 3M Project Lead: Susan Wolf 651-733-8851, slwolf@mmm.com

For water samples, collect: 2, 250-mL bottles.

Preservatives: HNO_3, H_2SO_4, VOCs, None, Other

Total Number of Containers

Analysis Requested: Complete below. Attach any associated information.

Contact 3M EHS Lab project lead for target analytes, reporting limit and reporting units

(Enter an 'X' in the box below to indicate request)

Item #	Client Sample Identification	3M LIMS #	Date Sampled	Time Sampled	Matrix/ media	Enter the number of containers of each					Total Number of Containers	
1.	P01		11/8/21	10:45					X			
2.	P02		11/8/21	10:48					X			
3.	P03		11/8/21	11:00					X			
4.	P04		11/8/21	12:03					X			
5.												
6.												
7.												
8.												
9.												
10.												

WK15017

Chain of Custody

Collected by (print): Brad Luedtke — Collector's signature: Brad Luedtke

Item #	Relinquished by/Affiliation	Time	Date	Shipped Via:	Received By/ Affiliation	Time	Date
1-4	Brad Luedtke/3M	11:30	11/9/21	UPS			
	UPS	1000	11/10/21			1000	11/10/21

Sample Condition Upon Receipt: O Acceptable O Other:

Temperature: °C O Received on Ice

Other Associated CoCs:

Copies to:

Comments: TC 6.4°C

Page 1 Of 1 — Original - Accompanying Samples — Last Page - Originator — See Reverse Side for Instructions

PACE ANALYTICAL SERVICES, LLC

PaceAnalytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: 3M

Cooler Inspected by/date: KSC / 10/15/2021

Lot #: WK15017

Means of receipt: ☐ Pace ☐ Client ☑ UPS ☐ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-266

6.4 / 6.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☑ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KSC Date: 10/15/2021

Comments: ice was melted

Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WID078673084	1	(800) 483-3718	010502241 FLE

GENERATOR

5. Generator's Name and Mailing Address
3M Corp
1425 Stokke Pkwy Dept 128 Attn Karen Donnelly
Menomonie, WI 54751
Generator's Phone: (715) 578 2415 ATTN David Cotts

Generator's Site Address (if different than mailing address)
1425 Stokke Pkwy Dept 128
Menomonie, WI 54751
OKD000314492

6. Transporter 1 Company Name: ~~Clean Harbors Environmental Services, Inc~~ BASO
U.S. EPA ID Number: ~~MAD039322250~~

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Environmental Services Inc
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number: NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-REGULATED SOLID, (LITE WATER)	1	CM	DRC 22,100	DRC Lbs	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
David R. Cotts	David R. Cotts	01	11	2022

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Ron Murphy	Ron Murphy	1	11	22

Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

From: Schrank, Jayson S - DNR
Sent: Friday, June 10, 2022 9:11 AM
To: Bradley Luedtke
Cc: LiJane Brunner
Subject: RE: 3M Menomonie 11/3/21 AFFF Water Release Final Report

Thank you for taking the time yesterday to discuss the response report for the release that occurred on November 3rd, 2021. The DNR is asking for further evaluation of impacts to ensure the site was appropriately remediated and to confirm no impacts to groundwater have occurred or potentially may occur in the future. Additional actions we would like to see are as follows:

1. Define vertical extent- Collect deeper samples below ground surface to ensure no contamination in groundwater pathway. If samples show detects, we may require future groundwater samples.
2. Define horizontal extent- collect samples within and around excavation area to show contamination is removed. No side wall samples were collected during the initial excavation effort.
3. Based on that new data, provide an evaluation and justification for proposed next steps (no further action or additional work needed)
4. Correct dates on the report used for initial response.

Please let me know if you have any questions.

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Jayson Schrank
He/ Him/ His
Regional Spills Coordinator / Hydrogeologist
Remediation & Redevelopment Program
Wisconsin Dept. of Natural Resources
890 Spruce Street, Baldwin, WI 54002
Cell Phone: 715-410-8841
Jayson.Schrank@wisconsin.gov
dnr.wi.gov

From: Bradley Luedtke <bdluedtke@mmm.com>
Sent: Wednesday, June 1, 2022 6:51 AM
To: Schrank, Jayson S - DNR <jayson.schrank@wisconsin.gov>
Cc: LiJane Brunner <lhbrunner@mmm.com>
Subject: 3M Menomonie 11/3/21 AFFF Water Release Final Report

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

Jayson,

Attached is the final report from the AFFF water release on November 3rd 2021, please let me know if you have any questions.

Thanks

3M Science. Applied to Life.™

Brad Luedtke | Environmental Engineer
USAC EHS Operations
3M Menomonie | Menomonie, WI 54751 | United States
Office: +1 715 578 2318
bdluedtke@mmm.com

3M.com

Bay West

Spill Activation Form (ICS 201)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Incident Date:	11/3/21	**State Agency:**	WDNR
Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy			**Site Contact Name:**	Brad Luedtke
City:	Menomonie			**Site Contact Phone:**	715-578-2318
State	WI	**ZIP**	54751	**Site Contact Email:**	bluedtke@mmm.com
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.				

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant			**Chemical Phase:**	☐ Solid	☑ Liquid	☐ Gas		
Quantity Involved:	100-400 gallons			**Duration of Release:**	15-20 Minutes				
Chemical Released:				**Chemical Phase:**	☐ Solid	☐ Liquid	☐ Gas		
Quantity Involved:				**Duration of Release:**					
Chemical Released:				**Chemical Phase:**	☐ Solid	☐ Liquid	☐ Gas		
Quantity Involved:				**Duration of Release:**					
☐ **Residential**	☑ **Commercial**			☐ **Inside**	☑ **Outside**				
Released onto what surface:	☐ Air	☑ Pavement/ Impervious	☑ Soil / pervious		☐ Sewer	☐ On Water			
Is it contained?	☑ Yes	☐ No	**Has 911 been called?**		☐ Yes	☑ No			

SITUATION SUMMARY

11/3/21 - Assess and document, develop work plan, verify no immediate threats
11/8/21 - Remedial excavation, removal concrete pad, removal of impacted grass, place in lined, covered dumpster awaiting disposal by CleanHarbors

RESPONSE OBJECTIVES

- ☑ Investigation extent and magnitude of release
- ☑ Contain spilled material on land
- ☐ Contain spilled material on water
- ☑ Recover/excavate spilled material/ contaminated soil
- ☐ Package waste for disposal
- ☐ **Other:**
- ☑ Transport and dispose of waste material
- ☑ Collect samples and analyze for contamination / confirmation of cleanup
- ☑ Clean and restore of impacted area(s)
- ☐ Provide shelter / utilities / water for impacted public
- ☑ Document activities and generate closure report

ADDITIONAL CLIENT INFORMATION

Billing Contact:	Brad Luedtke	**Account #**	J211100			
Billing Phone:	715-578-2318	**MSA:**	◉ Yes	○ No		
Billing Email:	bluedtke@mmm.com	**ER Retainer:**	◉ Yes	○ No		

Bay West

Hazard Evaluation Form (ICS 215)

GENERAL INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Safety Officer Completing HEF:			

CHEMICAL INFORMATION

Chemical Released:	Water with PFAS Containing Fire Suppressant		
Quantity Involved:	100-400 gallons		
Physical State:	☐ Solid ☑ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor
TLV or PEL	No Data (0.00037 mg/L EPA DWEL)		
IDLH	No Data		
Odor threshold	None		
Flash Point	Not Applicable °F	°F	°F
Lower Expl. Limit	Not Applicable %	%	%
Vapor Pressure	2.48x10-6 mmHg at 20°C mmHg	mmHg	mmHg
Ionization Potential	Unknown (varies) eV	eV	eV
Exposure Route(s)	☑ Inhalation ☑ Absorption ☑ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact
SDS / printed safety material available? MSDSonline; NIOSH	◉ Yes ○ No	Is the SDS attached?	○ Yes ◉ No

SYMPTOMS/EFFECTS OF EXPOSURE

☑ Carcinogen	☑ Headache	☑ Vertigo	☑ Nose/Throat Irritation
☑ Confusion	☐ Inebriation	☑ Vomiting	☑ Labored Breathing
☐ Dermatitis	☐ Skin Burns	☑ Skin Irritation	☐
☑ Dizziness	☐ Narcosis	☑ Eye Irritation	☐
☑ Fatigue	☑ Sensitization	☑ Lightheadedness	☐

PHYSICAL / BIOLOGICAL HAZARDS

☐ Fire/Explosion	☐ Confined Space	☐ Topography / Terrain	☐ Infectious Materials
☐ Corrosive	☐ Traffic	☐ Working at Heights	☐ Blood and Bodily Fluids
☐ Slips/Trips/Falls	☐ On/Near Water	☐ Lifting / Ergonomics	☐ Biological Warfare Agents
☐ Electrical	☐ Adverse Weather		
☐ Noise	☐ Plant/Animals/Insects		
☐ Utilities (Overhead / Buried)	☐ Sharps/Needles		

DECONTAMINATION

Decontamination Solution	Decontamination Materials	
☑ Water	☑ Plastic sheeting	☑ Garbage bags
☑ Detergent (Alconox)	☑ Tubs/basins	☑ Drums/containers
☐ Soda ash solution	☑ Sprayers	☐ Sorbent pads
☐	☑ Brushes	☐

Disposal Considerations:

MONITORING PLAN

Monitoring required? ○ Yes ◉ No

Monitor Type	Action Level	Response	Action Level	Response
☐ 4-Gas Monitor	> 5% LEL	Monitor Continuously	> 10% LEL	Evacuate
	< 19.5 % or >%23.5	Ventilate and upgrade to Level B		Evacuate
	> 35 ppm CO	Upgrade to Level B	> 1200 ppm CO	Evacuate
	> 1 ppm H_2S	Upgrade to Level C	> 10 ppm H_2S	Upgrade to Level B
☐ Photoionization Detector (PID) [10.6 eV Lamp]				
☐ Dräger Tubes				
☐ pH Paper				
☐ Lumex				
☐				

PERSONAL PROTECTIVE EQUIPMENT

Initial PPE Level ▣ Level D ▣ Level C ☐ Level B ☐ Level A

Head, Eye, Face Protection	Hand Protection / Gloves	Skin Protection / Suits
▣ Hard hat	☐ Thermax liner gloves	▣ Coveralls
☐ Face-shield	☐ Cut-resistant chore gloves	▣ Insulated overall (cold wx gear)
▣ Safety glasses	▣ Insulated gloves (cold weather)	☐ Nomex suit
▣ Chemical goggles	☐ PVC (Monkey Grips)	☐ Firefighter turn-out gear
▣ Hearing protection	▣ Nitrile inner – sampling gloves	▣ Tyvek 400
▣ Insulated hat (cold weather)	▣ Nitrile outer	▣ TyChem SL (Stitched Saranex)
☐	☐ PVA glove	☐ TyChem 4000 (Sealed Saranex)
	☐ Neoprene	☐ Barricade – Level B
	☐ Natural rubber	☐ TyChem Proshield Fully Encapsulated
	☐ Butyl rubber	☐ TyChem TK Suit - Level A
	☐ Silvershield / 4H	☐
	☐	☐

Feet Protection	Respiratory Protection	Other Emergency Equipment
▣ Safety-toe boots	☐ SCBA	☐ First aid/BBP kit
☐ Insulated Safety-Toe boots	☐ SAR	☐ Fire extinguisher, 20 lb ABC
☐ Tingley boots	☐ SAR with escape bottle	☐ Personal flotation device
▣ Chemical boots	☐ Full Face APR	☐ Reflective Traffic Vest
▣ Tyvek boot covers	☐ Half Face APR	▣ Eye wash:
▣ Rubber boot covers	Cartridge:	☐ 1 L Bottles Qty:
☐ Latex boot covers	☐ Multi-gas 6006	☐ 15-minute station
☐ Waders	☐ Multi-gas / P100 - Combo	☐ Calcium gluconate (for HF)
☐	☐ Mercury 6009	☐ Grounding & Bonding Equipment
	☐ P100 7093	☐
	☐	

GENERAL INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Site Contact:	Brad Luedtke	**Site Contact Phone:**	715-578-2318
Time of day:		**Weather:**	

GENERAL SAFETY MESSAGE

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

ITEMS DISCUSSED

Contact / Check in Procedures / Communications	Tools / Equipment Operation	Contingencies
☒ Client ☒ Security ☐ Emergency ☐ AHAs ☐ Work Zones ☐	☒ Hand Tools ☐ Vehicle Inspections ☐ Lift gate ☐ Ventilation ☒ Heavy Equipment ☐ Air Monitoring ☐ Bond/Grounding	☒ Hospital Map ☐ Fire ☐ Inclement Weather ☒ SDS ☒ Route Hazards ☒ Eye Wash ☒ Stop Work ☒ Spill Kit ☒ First Aid Kit ☐ Theft/threats of violence

Chemical Hazards	Physical Hazards	Biological Hazards
☐ Corrosive ☐ VOCs ☒ SVOCs ☐ Heavy Metals ☒ Acute Toxics ☒ Particulates ☐ PCBs ☐ Pesticides	☒ Noise (>85dBA) ☐ Heat Stress ☒ Cold Stress ☐ Lighting ☒ Pinch Points ☒ Slips/Trips/Falls ☒ Distractions ☐ Ergonomics ☐ Flammables	☐ Biological Warfare Agents ☐ Infectious Materials ☐ Sharps/Needles ☐ Blood and Bodily Fluids

Personnel Protection Requirements	Decontamination Procedures	Waste
☒ Competent Person ☐ Medical Clearance ☒ Eye Protection ☒ Foot Protection ☐ Decontamination ☒ Incident Reports	☐ Fire Extinguisher ☒ PPE ☒ Site Specific ☐ HazCom ☐ Respirators ☐ Safe Lifting ☐ Lab packing	☒ Safe handling/ packaging of wastes ☒ Labeling and Manifests containers ☒ Securing/ Transporting

SITE COMMUNICATION

Communication between the Project Manager, Client, Site Supervisor, and Field Techs shall be by:

☒ Voice ☒ Visual ☐ Telephone ☐ Radio ☐ Emergency warning device:

☐ Other:

Other Safety Information Discussed

**** IF ANY HAZARD OR CONDITIONS CHANGE, CONTACT THE PROJECT MANAGER AND RE-EVALUATE THE SAFETY OF THE JOB ****

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

Emergency Response Guidebook

Safety Concerns	Corrective Action(s)

MEDICAL AND EMERGENCY INFORMATION					
Hospital Name Hospital Locator	Please see Site Safety and Health and Safety Plan			Phone Number	
Address	Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021				
Police	911	Fire	911	Site Emergency Number	

HOSPITAL LOCATION / MAP

BAY WEST PERSONNEL

Your signature below indicates that you were present, coherent, and responsive during the meeting, that you're aware of site specific hazards, and agree to stop work when an uncontrolled hazard presents itself.

Role	Name	Signature	Time/Date signed
Project Manager	Mark Gretebeck	Mark Gretebeck	5/6/21
Safety and Health Officer	Griffin Kyger	Griffin Kyger	
Site Supervisor	Mark Gretebeck	Mark Gretebeck	
Field Technician	Mark Gretebeck	Mark Gretebeck	
Field Technician			
Field Technician			

Bay West

Daily Activity Log (ICS 214)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**State Agency:**	WDNR
Agency Case #:	Report #198536	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy					**Site Contact Name:**	Brad Luedtke
City:	Menomonie	**State:**	WI	**ZIP:**	54751	**Site Contact Phone:**	715-578-2318
Latitude/Longitude:	See Figures 1 and 2					**Bay West Time Notified/Arrived:**	
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.						
Bay West Response Team (denote role PM, SS, Tech):	Mark Gretebeck - PM and SS						
Weather:	Partly Sunny, 39 Degrees F, Winds from the West at 12 MPH						

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant				**Chemical Phase:**	☐	Solid	☑	Liquid	☐	Gas
Quantity Involved:	100-400 gallons				**Duration of Release:**	15-20 Minutes					
Chemical Released:					**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:					**Duration of Release:**						
Chemical Released:					**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:					**Duration of Release:**						
☐	**Residential**	☑	**Commercial**	☐	**Inside**	☑	**Outside**				
Released onto what surface:	☐	Air	☑	Pavement/ Impervious	☑	Soil / pervious	☐	Sewer	☐	On Water	
Is it contained?	☑	Yes	☐	No	**Has 911 been called?**	☐	Yes	☑	No		

INITIAL INCIDENT ASSESSMENT

(Describe incident as found upon arrival):

There was a 15-20 minute release of fire suppression water from a 2" outside valve for their sprinkler system. The water has PFOS foam in it. The fire suppression water discharged onto a concrete pad and the grass adjacent to the building. A remedial excavation is necessary to reomove the material. 3M indicated that they will have CleanHarbors handle the waste. We advised 3M to mark off the extent of the impacted area that will need to be excavated.

MONITORING RESULTS

Location	Parameter	Time	Result	Location	Parameter	Time	Result

ENVIRONMENTAL IMPACTS

(Discuss size and magnitude of impacts)

☐ Air	☐ Sanitary Sewer
☐ Groundwater	☐ Secondary Containment
☐ Indoor Commercial	☑ Soil/Porous Material
☐ Indoor Residential	☐ Storm Sewer
☑ Pavement/Impervious	☐ Surface Water
	☐ Wetland

All impacted material was removed. No additional remedial action related to this release is recommended and/or warranted.

DETAILED DESCRIPTION OF REMEDIAL ACTIONS

Bay West completed the following activities:

- Removed small concrete pad in landscape area (see Figures 1 and 2 - attached)
- Lined roll-off container with plastic sheeting
- Excavated grass, topsoil and sand in a 17' half circle area to an average depth of 14"
- Placed soil in lined roll-off awaiting transport by CleanHarbors
- 3M collected 4 confirmation soil samples at base of excavation
- Samples 101-104 submitted by 3M to Pace Analytical Labs in SC. Analysis for PFAS. Results attached. No PFAS results exceed applicable standards (see Table 1 - attached)
- Waste transported at a later date by CleanHarbors to their Kimball Incineration Facility located at 2247 South Highway 71, Kimball, NE 69145, Phone Number 308-235-4012, EPA ID NED981723513
- 22,100 pounds (11.05 tons) was incinerated (waste documentation attached)
- Photos 1-10 attached

WASTE

Description of waste generated	Volume	Destination
PFAS impacted soil and grass	11.05 tons	CleanHarbors Kimball NE Incineration Facility

RECOMMENDATIONS

Recommended for site closure: (●) Yes ( ) No

All impacted areas were removed and incinerated, therefore, all aspects of this release have been properly addressed and no further remedial action associated with this release is recommended or warranted.

PROJECT COMPLETION CHECKLIST

☑	Photos Taken	☑	Site Restoration Complete	☑	Confirmation Samples	☑	Waste Profile Samples
☐	Field Sketch	☑	Manifests Complete	☑	Waste Secured	☑	Chain of Custody Maintained
☐		☐		☐		☐	Internal Disposal Request

Report Preparer:	Mark Gretebeck		
Signature:	Mark Gretebeck	**Date:**	5/24/22

Photo # 1 **:** View of plastic covering grass/landscape gravel in release area immediately adjacent to building between galvanized electrical conduits

Photo # 2**:** New, Unused, 40-Yard Roll-Off Container

Photo # 3 **:** Close up view of plastic covering grass/landscape gravel in release area immediately adjacent to building

Photo # 4**:** Start of excavation activities

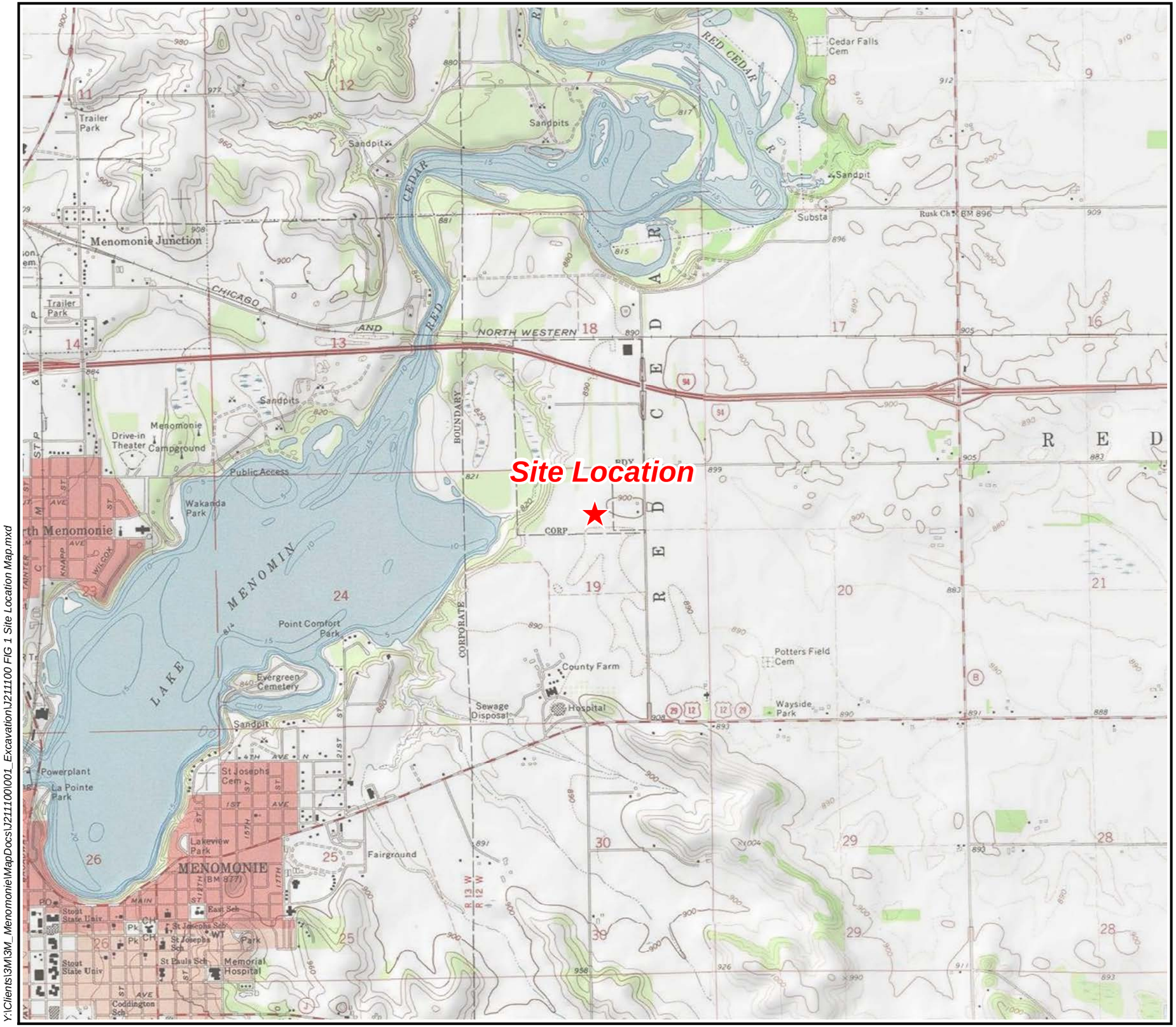
Photo # 5 **:** Plastic lining applied to new, unused, 40-yard roll-off container

Photo # 6**:** Continuing with excavation of impacted grass and sand

Photo # : Continuing with excavation of impacted grass and sand

Photo # : Impacted grass, landscape gravel and sand in roll-off. Approx. 7.5 cubic yards final volume.

Figures



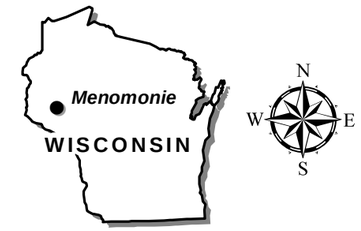
Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 1 Site Location Map.mxd

Figure 1

Site Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: ESRI USA Topo Maps WMS

0 2,000 4,000 Feet
0 600 1,200 Meters

1 inch = 2,000 feet

★ Site Location

Bay West
Customer-Focused Environmental & Industrial Solutions

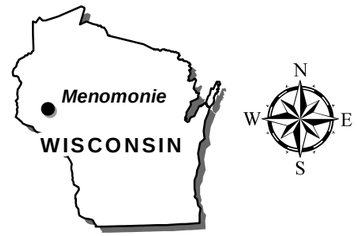
Drawn By: N.J. Date Drawn/Revised:2/21/2022 Project No.J211100

Figure 2

Excavation Extent & Sample Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: Wisconsin DNR Aerial Imagery WMS, 2010

0 10 20 Feet
0 2 4 6 Meters

Soil Sample

Excavation Extent

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised: 2/24/2022 Project No.J211100

Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 2 Excavation Extent & Sample Location Map.mxd

Tables

Table 1
Soil Analytical Results

PFAS release at 3M Menomonie

	Sample ID	Industrial	101	102	103	104
	Date Sampled	RCL	11/8/2021	11/8/2021	11/8/2021	11/8/2021
11-Cl-PF3OUdS (11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid)	763051-92-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
4:2 FTS (4:2 fluorotelomersulfonic acid)	757124-72-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
6:2 FTS (6:2 fluorotelomersulfonic acid)	27619-97-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
8:2 FTS (8:2 fluorotelomersulfonic acid)	39108-34-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
9-Cl-PF3ON (9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid)	756426-58-1	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
DONA (4,8-dioxa-3H-perfluorononanoic acid)	919005-14-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSAm (N-Ethylperfluorooctanesulfonamide)	4151-50-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSE (N-Ethylperfluorooctanesulfonamidoethanol)	1691-99-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
HFPO-DA (2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid)	13252-13-6	NE	< 0.0039	< 0.0041	< 0.0038	< 0.0043
MeFOSA (N-Methylperfluorooctanesulfonamide)	31506-32-8	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSAA (N-Methyl perfluorooctanesulfonamidoacetic acid)	2355-31-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSE (N-Methylperfluorooctanesulfonamidoethanol)	24448-09-7	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
N-EtFOSAA (N-Ethyl perfluorooctanesulfonamidoacetic acid)	2991-50-6	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
PFBA (Perfluorobutyric acid)	375-22-4	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFBS (Perfluorobutanesulfonic acid)	375-73-5	16400	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDA (Perfluorodecanoic acid)	335-76-2	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDOA (Perfluorododecanoic acid)	307-55-1	NE	< 0.00097	< 0.0010	< 0.00096	**0.0011**
PFDoS (Perfluorododecanesulfonic acid)	79780-39-5	NE	**0.0028**	**0.0075**	**0.0041**	**0.0091**
PFDS (Perfluorodecanesulfonic acid)	335-77-3	NE	**0.0044**	**0.0081**	**0.0026**	**0.0055**
PFHpA (Perfluoroheptanoic acid)	375-85-9	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFHpS (Perfluoroheptanesulfonic acid)	375-92-8	NE	< 0.00097	< 0.0010	**0.0039**	**0.0014**
PFHxA (Perfluorohexanoic acid)	307-24-4	NE	< 0.00097	< 0.0010	**0.0052**	**0.0024**
PFHxS (Perfluorohexanesulfonic acid)	355-46-4	NE	**0.0021**	**0.013**	**0.025**	**0.016**
PFNA (Perfluorononanoic acid)	375-95-1	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFNS (Perfluorononanesulfonic acid)	68259-12-1	NE	**0.0069**	**0.0047**	**0.0031**	**0.0020**
PFOA (Perfluorooctanoic acid)	335-67-1	16.4	< 0.00097	**0.0014**	**0.0066**	**0.0023**
PFOS (Perfluorooctanesulfonate)	1763-23-1	16.4	**1.0**	**0.60**	**0.83**	**0.15**
PFOSAm (Perfluorooctanesulfonamide)	754-91-6	NE	**0.068**	**0.048**	**0.014**	**0.020**
PFPeA (Perfluoropentanoic acid)	2706-90-3	NE	< 0.00097	< 0.0010	**0.00096**	< 0.0011
PFPeS (Perfluoropentanesulfonic acid)	2706-91-4	NE	< 0.00097	< 0.0010	**0.0018**	< 0.0011
PFTeDA (Perfluorotetradecanoic acid)	376-06-7	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFTrDA (Perfluorotridecanoic acid)	72629-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFUnDA (Perfluoroundecanoic acid)	2058-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011

Notes:
All results in milligrams per kilogram
WIDNR – Wisconsin Department of Natural Resources
RCL – Residual Contaminant Lvels, as published December 2018
NE – Action level not established for this analyte
< – Less than the laboratory Limit of Quantitation
Bold – Analyte detected
Blue – Result exceeds the Industrial RCL

Analytical Data

Report of Analysis

3M
3M Center
260-05-N-17
St. Paul, MN 55144
Attention: Susan Wolf

Project Name: 3M Menomonie

Project Number: E21-2079

Lot Number:**WK15017**

Date Completed:12/13/2021
Revision Date: 12/15/2021

12/16/2021 2:46 PM
Approved and released by:
Project Manager II: **Cathy S. Dover**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
3M
Lot Number: WK15017

Report Revision 12/15/2021:
This report has been revised to include the parent/original sample amount on the MS/MSD forms. These results were not reported in the original report due to LIMS issue. All other sample results are as reported in the original PDF report. This report supersedes and replaces any prior reports issued under this lot number.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample. All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below. Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

PFAS by Isotope Dilution
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. The extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene auto sampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

For solid samples:
CF = DF * FV / Ws/S/1000

FV is volume of extract (mL)
Ws is initial sample weight (gram)
S is %Solids
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Concentration (ug/kg) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Samples WK15017-001 (101), WK15017-002 (102), WK15017-003 (103), and WK15017-004 (104) were collected in client-provided bottles which do not conform to method requirements.

The MS/MSD for batch 23612 and parent sample WK15017-004 (104), recovered outside control limits for PFOS. The associated LCS passed acceptance criteria.

In addition to the references above, samples associated with this report were performed in accordance with the 3M Technical Specifications Manual Revision 1, July 17, 2020.

The following SOP applies: ME003NI Determination of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS (Isotope Dilution).

Cathy Dover, Project Manager

Sample Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	101	Solid	11/08/2021 1045	11/12/2021
002	102	Solid	11/08/2021 1048	11/12/2021
003	103	Solid	11/08/2021 1100	11/12/2021
004	104	Solid	11/08/2021 1203	11/12/2021

(4 samples)

Detection Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	101	Solid	PFDS	PFAS by ID	4.4		ug/kg	5
001	101	Solid	PFNS	PFAS by ID	6.9		ug/kg	5
001	101	Solid	PFOSA	PFAS by ID	68		ug/kg	5
001	101	Solid	PFDOS	PFAS by ID	2.8		ug/kg	5
001	101	Solid	PFHxS	PFAS by ID	2.1		ug/kg	5
001	101	Solid	PFOS	PFAS by ID	1000		ug/kg	5
002	102	Solid	PFDS	PFAS by ID	8.1		ug/kg	7
002	102	Solid	PFNS	PFAS by ID	4.7		ug/kg	7
002	102	Solid	PFOSA	PFAS by ID	48		ug/kg	7
002	102	Solid	PFDOS	PFAS by ID	7.5		ug/kg	7
002	102	Solid	PFHxS	PFAS by ID	13		ug/kg	7
002	102	Solid	PFOA	PFAS by ID	1.4		ug/kg	7
002	102	Solid	PFOS	PFAS by ID	600		ug/kg	7
003	103	Solid	PFDS	PFAS by ID	2.6		ug/kg	9
003	103	Solid	PFHpS	PFAS by ID	3.9		ug/kg	9
003	103	Solid	PFNS	PFAS by ID	3.1		ug/kg	9
003	103	Solid	PFOSA	PFAS by ID	14		ug/kg	9
003	103	Solid	PFPeS	PFAS by ID	1.8		ug/kg	9
003	103	Solid	PFDOS	PFAS by ID	4.1		ug/kg	9
003	103	Solid	PFHxS	PFAS by ID	25		ug/kg	9
003	103	Solid	PFHxA	PFAS by ID	5.2		ug/kg	9
003	103	Solid	PFOA	PFAS by ID	6.6		ug/kg	9
003	103	Solid	PFPeA	PFAS by ID	0.96		ug/kg	9
003	103	Solid	PFOS	PFAS by ID	830		ug/kg	9
004	104	Solid	PFDS	PFAS by ID	5.5		ug/kg	11
004	104	Solid	PFHpS	PFAS by ID	1.4		ug/kg	11
004	104	Solid	PFNS	PFAS by ID	2.0		ug/kg	11
004	104	Solid	PFOSA	PFAS by ID	20		ug/kg	11
004	104	Solid	PFDOS	PFAS by ID	9.1		ug/kg	11
004	104	Solid	PFHxS	PFAS by ID	16		ug/kg	11
004	104	Solid	PFDoA	PFAS by ID	1.1		ug/kg	11
004	104	Solid	PFHxA	PFAS by ID	2.4		ug/kg	11
004	104	Solid	PFOA	PFAS by ID	2.3		ug/kg	11
004	104	Solid	PFOS	PFAS by ID	150	S	ug/kg	11

(34 detections)

PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1611	MMM	11/24/2021 1322	23612	1.16	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1044	MMM	11/24/2021 1322	23612	1.16	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.9	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**4.4**		**0.97**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**6.9**		**0.97**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**68**		**0.97**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**2.8**		**0.97**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.1**		**0.97**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1000**		**9.7**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		127	50-150
13C2_6:2FTS		123	50-150		129	50-150
13C2_8:2FTS		113	50-150		122	50-150
13C2_PFDoA		101	50-150		101	50-150
13C2_PFTeDA		106	50-150		101	50-150
13C3_PFBS		101	50-150		104	50-150
13C3_PFHxS		103	50-150		107	50-150
13C3-HFPO-DA		115	50-150		105	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		101	50-150
13C4_PFHpA		97	50-150		102	50-150
13C5_PFHxA		100	50-150		105	50-150
13C5_PFPeA		102	50-150		104	50-150
13C6_PFDA		104	50-150		106	50-150
13C7_PFUdA		113	50-150		118	50-150
13C8_PFOA		100	50-150		109	50-150
13C8_PFOS		77	50-150		104	50-150
13C8_PFOSA		112	50-150		115	50-150
13C9_PFNA		75	50-150		96	50-150
d-EtFOSA		94	50-150		103	50-150
d5-EtFOSAA		117	50-150		117	50-150
d9-EtFOSE		99	50-150		102	50-150
d-MeFOSA		91	50-150		94	50-150
d3-MeFOSAA		112	50-150		120	50-150
d7-MeFOSE		95	50-150		100	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-002**

Description: **102** | Matrix: **Solid**

Date Sampled: **11/08/2021 1048** | Project Name: **3M Menomonie** | % Solids: **94.0** **11/23/2021 0106**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1622	MMM	11/24/2021 1322	23612	1.04	10.00
2	SOP SPE	PFAS by ID SOP (3M)	5	12/01/2021 1054	MMM	11/24/2021 1322	23612	1.04	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.0	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**8.1**		**1.0**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**4.7**		**1.0**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**48**		**1.0**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**7.5**		**1.0**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**13**		**1.0**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.4**		**1.0**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**600**		**5.1**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		130	50-150
13C2_6:2FTS		116	50-150		131	50-150
13C2_8:2FTS		124	50-150		129	50-150
13C2_PFDoA		103	50-150		108	50-150
13C2_PFTeDA		103	50-150		106	50-150
13C3_PFBS		98	50-150		110	50-150
13C3_PFHxS		96	50-150		114	50-150
13C3-HFPO-DA		102	50-150		108	50-150

LOQ = Limit of Quantitation | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | Q = Surrogate failure

ND = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | L = LCS/LCSD failure

H = Out of holding time | W = Reported on wet weight basis | S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-002**	
Description: **102**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1048**	Project Name: **3M Menomonie**	% Solids: **94.0**	**11/23/2021 0106**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		108	50-150
13C4_PFHpA		97	50-150		105	50-150
13C5_PFHxA		98	50-150		110	50-150
13C5_PFPeA		108	50-150		103	50-150
13C6_PFDA		114	50-150		110	50-150
13C7_PFUdA		109	50-150		117	50-150
13C8_PFOA		95	50-150		110	50-150
13C8_PFOS		87	50-150		104	50-150
13C8_PFOSA		112	50-150		122	50-150
13C9_PFNA		84	50-150		99	50-150
d-EtFOSA		107	50-150		101	50-150
d5-EtFOSAA		109	50-150		128	50-150
d9-EtFOSE		100	50-150		105	50-150
d-MeFOSA		95	50-150		98	50-150
d3-MeFOSAA		118	50-150		124	50-150
d7-MeFOSE		109	50-150		117	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-003**

Description: **103** | Matrix: **Solid**

Date Sampled: **11/08/2021 1100** | Project Name: **3M Menomonie** | % Solids: **93.1** **11/29/2021 2339**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1632	MMM	11/24/2021 1322	23612	1.12	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1105	MMM	11/24/2021 1322	23612	1.12	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.8	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**2.6**		**0.96**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**3.9**		**0.96**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**3.1**		**0.96**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**14**		**0.96**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.8**		**0.96**	**ug/kg**	**1**
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**4.1**		**0.96**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**25**		**0.96**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.2**		**0.96**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.6**		**0.96**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.96**		**0.96**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**830**		**9.6**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		108	50-150		114	50-150
13C2_6:2FTS		113	50-150		132	50-150
13C2_8:2FTS		126	50-150		122	50-150
13C2_PFDoA		102	50-150		112	50-150
13C2_PFTeDA		106	50-150		100	50-150
13C3_PFBS		98	50-150		111	50-150
13C3_PFHxS		102	50-150		111	50-150
13C3-HFPO-DA		113	50-150		107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
Q = Surrogate failure
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-003**	
Description: **103**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1100**	Project Name: **3M Menomonie**	% Solids: **93.1**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		106	50-150
13C4_PFHpA		100	50-150		103	50-150
13C5_PFHxA		103	50-150		113	50-150
13C5_PFPeA		99	50-150		105	50-150
13C6_PFDA		106	50-150		116	50-150
13C7_PFUdA		106	50-150		110	50-150
13C8_PFOA		98	50-150		114	50-150
13C8_PFOS		80	50-150		108	50-150
13C8_PFOSA		123	50-150		125	50-150
13C9_PFNA		80	50-150		101	50-150
d-EtFOSA		96	50-150		103	50-150
d5-EtFOSAA		115	50-150		125	50-150
d9-EtFOSE		100	50-150		108	50-150
d-MeFOSA		94	50-150		95	50-150
d3-MeFOSAA		110	50-150		127	50-150
d7-MeFOSE		110	50-150		109	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-004**
Description: **104** | Matrix: **Solid**
Date Sampled: **11/08/2021 1203** | Project Name: **3M Menomonie** | % Solids: **92.0** **11/29/2021 2339**
Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	12/01/2021 1115	MMM	11/24/2021 1322	23612	1.01	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**5.5**		**1.1**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**1.4**		**1.1**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**2.0**		**1.1**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**20**		**1.1**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**9.1**		**1.1**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**		**1.1**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**1.1**		**1.1**	**ug/kg**	**1**
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.4**		**1.1**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**		**1.1**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**150**	**S**	**1.1**	**ug/kg**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		133	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		133	50-150
13C2_PFDoA		108	50-150
13C2_PFTeDA		106	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		104	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-004**	
Description: **104**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1203**	Project Name: **3M Menomonie**	% Solids: **92.0**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		105	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		115	50-150
13C7_PFUdA		118	50-150
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C8_PFOSA		124	50-150
13C9_PFNA		101	50-150
d-EtFOSA		116	50-150
d5-EtFOSAA		133	50-150
d9-EtFOSE		102	50-150
d-MeFOSA		104	50-150
d3-MeFOSAA		127	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1508
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1508
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
GenX	ND		1	4.0	ug/kg	11/30/2021 1508
ADONA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
PFBS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1508
PFNS	ND		1	1.0	ug/kg	11/30/2021 1508
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1508
PFBA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1508
PFNA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOS	ND		1	1.0	ug/kg	11/30/2021 1508

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		127	50-150
13C2_PFDoA		117	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		109	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		105	50-150
13C8_PFOSA		116	50-150
13C9_PFNA		103	50-150
d-EtFOSA		111	50-150
d5-EtFOSAA		122	50-150
d9-EtFOSE		117	50-150
d-MeFOSA		98	50-150
d3-MeFOSAA		116	50-150
d7-MeFOSE		116	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1518
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1518
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
GenX	ND		1	4.0	ug/kg	11/30/2021 1518
ADONA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
PFBS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1518
PFNS	ND		1	1.0	ug/kg	11/30/2021 1518
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1518
PFBA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1518
PFNA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOS	ND		1	1.0	ug/kg	11/30/2021 1518

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		110	50-150
13C2_PFTeDA		109	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		106	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		112	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		106	50-150
d-EtFOSA		108	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		110	50-150
d-MeFOSA		102	50-150
d3-MeFOSAA		131	50-150
d7-MeFOSE		121	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1529
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1529
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
GenX	ND		1	4.0	ug/kg	11/30/2021 1529
ADONA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
PFBS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1529
PFNS	ND		1	1.0	ug/kg	11/30/2021 1529
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1529
PFBA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1529
PFNA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOS	ND		1	1.0	ug/kg	11/30/2021 1529

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		123	50-150
13C2_PFDoA		107	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		105	50-150
13C8_PFOS		113	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		103	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		107	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		120	50-150
d7-MeFOSE		102	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	5.1	5.5		1	107	70-130	11/30/2021 1539
11Cl-PF3OUdS	5.2	5.6		1	108	70-130	11/30/2021 1539
8:2 FTS	5.3	4.7		1	90	70-130	11/30/2021 1539
6:2 FTS	5.2	5.4		1	104	70-130	11/30/2021 1539
4:2 FTS	5.1	4.8		1	93	70-130	11/30/2021 1539
GenX	11	11		1	97	70-130	11/30/2021 1539
ADONA	5.2	5.3		1	102	70-130	11/30/2021 1539
EtFOSA	5.5	5.4		1	98	70-130	11/30/2021 1539
EtFOSAA	5.5	5.3		1	96	70-130	11/30/2021 1539
EtFOSE	5.5	5.2		1	95	70-130	11/30/2021 1539
MeFOSA	5.5	5.0		1	91	70-130	11/30/2021 1539
MeFOSAA	5.5	4.9		1	90	70-130	11/30/2021 1539
MeFOSE	5.5	4.3		1	79	70-130	11/30/2021 1539
PFBS	4.9	4.6		1	95	70-130	11/30/2021 1539
PFDS	5.3	6.1		1	114	70-130	11/30/2021 1539
PFHpS	5.2	5.1		1	97	70-130	11/30/2021 1539
PFNS	5.3	5.6		1	107	70-130	11/30/2021 1539
PFOSA	5.5	5.2		1	95	70-130	11/30/2021 1539
PFPeS	5.2	5.0		1	97	70-130	11/30/2021 1539
PFDOS	5.3	5.8		1	110	70-130	11/30/2021 1539
PFHxS	5.0	5.1		1	101	70-130	11/30/2021 1539
PFBA	5.5	5.4		1	99	70-130	11/30/2021 1539
PFDA	5.5	5.3		1	96	70-130	11/30/2021 1539
PFDoA	5.5	4.8		1	87	70-130	11/30/2021 1539
PFHpA	5.5	5.8		1	105	70-130	11/30/2021 1539
PFHxA	5.5	5.6		1	101	70-130	11/30/2021 1539
PFNA	5.5	5.5		1	99	70-130	11/30/2021 1539
PFOA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFPeA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTeDA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTrDA	5.5	4.8		1	88	70-130	11/30/2021 1539
PFUdA	5.5	5.0		1	92	70-130	11/30/2021 1539
PFOS	5.1	5.7		1	112	70-130	11/30/2021 1539

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		118	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		99	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		112	50-150
13C8_PFOA		105	50-150
13C8_PFOS		96	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		102	50-150
d-EtFOSA		102	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		105	50-150
d-MeFOSA		105	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		117	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	51	51		1	100	70-130	11/30/2021 1550
11Cl-PF3OUdS	52	56		1	107	70-130	11/30/2021 1550
8:2 FTS	53	49		1	94	70-130	11/30/2021 1550
6:2 FTS	52	50		1	95	70-130	11/30/2021 1550
4:2 FTS	51	44		1	85	70-130	11/30/2021 1550
GenX	110	100		1	95	70-130	11/30/2021 1550
ADONA	52	49		1	96	70-130	11/30/2021 1550
EtFOSA	55	45		1	82	70-130	11/30/2021 1550
EtFOSAA	55	54		1	98	70-130	11/30/2021 1550
EtFOSE	55	49		1	90	70-130	11/30/2021 1550
MeFOSA	55	56		1	101	70-130	11/30/2021 1550
MeFOSAA	55	49		1	89	70-130	11/30/2021 1550
MeFOSE	55	45		1	83	70-130	11/30/2021 1550
PFBS	49	48		1	98	70-130	11/30/2021 1550
PFDS	53	54		1	101	70-130	11/30/2021 1550
PFHpS	52	47		1	89	70-130	11/30/2021 1550
PFNS	53	49		1	93	70-130	11/30/2021 1550
PFOSA	55	51		1	93	70-130	11/30/2021 1550
PFPeS	52	52		1	101	70-130	11/30/2021 1550
PFDOS	53	55		1	103	70-130	11/30/2021 1550
PFHxS	50	48		1	96	70-130	11/30/2021 1550
PFBA	55	53		1	97	70-130	11/30/2021 1550
PFDA	55	52		1	95	70-130	11/30/2021 1550
PFDoA	55	52		1	95	70-130	11/30/2021 1550
PFHpA	55	56		1	103	70-130	11/30/2021 1550
PFHxA	55	51		1	93	70-130	11/30/2021 1550
PFNA	55	51		1	93	70-130	11/30/2021 1550
PFOA	55	55		1	100	70-130	11/30/2021 1550
PFPeA	55	55		1	99	70-130	11/30/2021 1550
PFTeDA	55	54		1	99	70-130	11/30/2021 1550
PFTrDA	55	54		1	99	70-130	11/30/2021 1550
PFUdA	55	55		1	100	70-130	11/30/2021 1550
PFOS	51	52		1	102	70-130	11/30/2021 1550

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		119	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		96	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		107	50-150
13C9_PFNA		103	50-150
d-EtFOSA		103	50-150
d5-EtFOSAA		111	50-150
d9-EtFOSE		103	50-150
d-MeFOSA		88	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RSD	%Rec Limit	% RSD Limit	Analysis Date
9Cl-PF3ONS	140	140		1	99	4.3	70-130	20	11/30/2021 1600
11Cl-PF3OUdS	140	150		1	103	2.6	70-130	20	11/30/2021 1600
8:2 FTS	140	120		1	83	6.3	70-130	20	11/30/2021 1600
6:2 FTS	140	120		1	81	12	70-130	20	11/30/2021 1600
4:2 FTS	140	130		1	96	6.1	70-130	20	11/30/2021 1600
GenX	300	300		1	99	2.0	70-130	20	11/30/2021 1600
ADONA	140	140		1	99	3.5	70-130	20	11/30/2021 1600
EtFOSA	150	130		1	89	8.9	70-130	20	11/30/2021 1600
EtFOSAA	150	150		1	102	2.7	70-130	20	11/30/2021 1600
EtFOSE	150	150		1	99	5.1	70-130	20	11/30/2021 1600
MeFOSA	150	160		1	106	7.6	70-130	20	11/30/2021 1600
MeFOSAA	150	140		1	94	3.1	70-130	20	11/30/2021 1600
MeFOSE	150	120		1	83	3.0	70-130	20	11/30/2021 1600
PFBS	130	130		1	98	1.6	70-130	20	11/30/2021 1600
PFDS	140	140		1	99	7.7	70-130	20	11/30/2021 1600
PFHpS	140	140		1	97	4.5	70-130	20	11/30/2021 1600
PFNS	140	130		1	90	9.2	70-130	20	11/30/2021 1600
PFOSA	150	130		1	89	3.4	70-130	20	11/30/2021 1600
PFPeS	140	150		1	103	3.4	70-130	20	11/30/2021 1600
PFDOS	150	140		1	99	5.1	70-130	20	11/30/2021 1600
PFHxS	140	130		1	98	2.7	70-130	20	11/30/2021 1600
PFBA	150	150		1	97	1.2	70-130	20	11/30/2021 1600
PFDA	150	160		1	104	4.8	70-130	20	11/30/2021 1600
PFDoA	150	140		1	91	4.5	70-130	20	11/30/2021 1600
PFHpA	150	150		1	100	2.4	70-130	20	11/30/2021 1600
PFHxA	150	140		1	93	4.8	70-130	20	11/30/2021 1600
PFNA	150	140		1	94	3.6	70-130	20	11/30/2021 1600
PFOA	150	150		1	100	2.3	70-130	20	11/30/2021 1600
PFPeA	150	150		1	99	2.8	70-130	20	11/30/2021 1600
PFTeDA	150	140		1	96	4.0	70-130	20	11/30/2021 1600
PFTrDA	150	140		1	95	6.2	70-130	20	11/30/2021 1600
PFUdA	150	150		1	97	4.4	70-130	20	11/30/2021 1600
PFOS	140	140		1	99	6.3	70-130	20	11/30/2021 1600

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		103	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		91	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		111	50-150
13C9_PFNA		98	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		103	50-150
d9-EtFOSE		98	50-150
d-MeFOSA		91	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		114	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	48	41		1	85	70-130	11/30/2021 1653
11Cl-PF3OUdS	ND	49	45		1	91	70-130	11/30/2021 1653
8:2 FTS	ND	50	37		1	75	70-130	11/30/2021 1653
6:2 FTS	ND	49	41		1	83	70-130	11/30/2021 1653
4:2 FTS	ND	49	38		1	79	70-130	11/30/2021 1653
GenX	ND	100	96		1	92	70-130	11/30/2021 1653
ADONA	ND	49	43		1	88	70-130	11/30/2021 1653
EtFOSA	ND	52	41		1	80	70-130	11/30/2021 1653
EtFOSAA	ND	52	43		1	83	70-130	11/30/2021 1653
EtFOSE	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSA	ND	52	52		1	99	70-130	11/30/2021 1653
MeFOSAA	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSE	ND	52	40		1	78	70-130	11/30/2021 1653
PFBS	ND	46	41		1	89	70-130	11/30/2021 1653
PFDS	5.5	50	49		1	86	70-130	11/30/2021 1653
PFHpS	1.4	50	45		1	87	70-130	11/30/2021 1653
PFNS	2.0	50	42		1	81	70-130	11/30/2021 1653
PFOSA	20	52	60		1	76	70-130	11/30/2021 1653
PFPeS	ND	49	42		1	87	70-130	11/30/2021 1653
PFDOS	9.1	50	51		1	83	70-130	11/30/2021 1653
PFHxS	16	47	54		1	81	70-130	11/30/2021 1653
PFBA	ND	52	46		1	88	70-130	11/30/2021 1653
PFDA	ND	52	42		1	81	70-130	11/30/2021 1653
PFDoA	1.1	52	45		1	86	70-130	11/30/2021 1653
PFHpA	ND	52	45		1	87	70-130	11/30/2021 1653
PFHxA	2.4	52	49		1	89	70-130	11/30/2021 1653
PFNA	ND	52	47		1	90	70-130	11/30/2021 1653
PFOA	2.3	52	45		1	83	70-130	11/30/2021 1653
PFPeA	ND	52	46		1	89	70-130	11/30/2021 1653
PFTeDA	ND	52	46		1	88	70-130	11/30/2021 1653
PFTrDA	ND	52	48		1	93	70-130	11/30/2021 1653
PFUdA	ND	52	42		1	80	70-130	11/30/2021 1653
PFOS	150	48	180	N	1	52	70-130	11/30/2021 1653

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		108	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		95	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		106	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		91	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		112	50-150
d9-EtFOSE		99	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		125	50-150
d7-MeFOSE		100	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	47	41		1	86	1.8	70-130	30	11/30/2021 1704
11Cl-PF3OUdS	ND	48	40		1	84	11	70-130	30	11/30/2021 1704
8:2 FTS	ND	49	36		1	74	3.5	70-130	30	11/30/2021 1704
6:2 FTS	ND	48	42		1	87	2.6	70-130	30	11/30/2021 1704
4:2 FTS	ND	47	39		1	83	2.3	70-130	30	11/30/2021 1704
GenX	ND	100	84		1	83	13	70-130	30	11/30/2021 1704
ADONA	ND	48	40		1	84	6.6	70-130	30	11/30/2021 1704
EtFOSA	ND	51	39		1	77	6.5	70-130	30	11/30/2021 1704
EtFOSAA	ND	51	46		1	91	6.8	70-130	30	11/30/2021 1704
EtFOSE	ND	51	43		1	85	8.3	70-130	30	11/30/2021 1704
MeFOSA	ND	51	48		1	95	7.3	70-130	30	11/30/2021 1704
MeFOSAA	ND	51	41		1	81	2.6	70-130	30	11/30/2021 1704
MeFOSE	ND	51	38		1	76	5.2	70-130	30	11/30/2021 1704
PFBS	ND	45	40		1	88	3.2	70-130	30	11/30/2021 1704
PFDS	5.5	49	48		1	87	0.97	70-130	30	11/30/2021 1704
PFHpS	1.4	48	42		1	84	5.5	70-130	30	11/30/2021 1704
PFNS	2.0	49	43		1	85	2.7	70-130	30	11/30/2021 1704
PFOSA	20	51	64		1	86	6.1	70-130	30	11/30/2021 1704
PFPeS	ND	48	42		1	89	0.49	70-130	30	11/30/2021 1704
PFDOS	9.1	49	54		1	91	4.9	70-130	30	11/30/2021 1704
PFHxS	16	46	55		1	83	0.36	70-130	30	11/30/2021 1704
PFBA	ND	51	43		1	85	5.8	70-130	30	11/30/2021 1704
PFDA	ND	51	47		1	94	13	70-130	30	11/30/2021 1704
PFDoA	1.1	51	46		1	90	1.6	70-130	30	11/30/2021 1704
PFHpA	ND	51	45		1	89	0.064	70-130	30	11/30/2021 1704
PFHxA	2.4	51	45		1	85	7.8	70-130	30	11/30/2021 1704
PFNA	ND	51	43		1	85	7.7	70-130	30	11/30/2021 1704
PFOA	2.3	51	46		1	87	1.7	70-130	30	11/30/2021 1704
PFPeA	ND	51	45		1	89	3.2	70-130	30	11/30/2021 1704
PFTeDA	ND	51	46		1	90	0.77	70-130	30	11/30/2021 1704
PFTrDA	ND	51	45		1	90	6.2	70-130	30	11/30/2021 1704
PFUdA	ND	51	38		1	75	8.9	70-130	30	11/30/2021 1704
PFOS	150	47	190		1	82	7.3	70-130	30	11/30/2021 1704

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		102	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		87	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		101	50-150
13C9_PFNA		88	50-150
d-EtFOSA		99	50-150
d5-EtFOSAA		100	50-150
d9-EtFOSE		97	50-150
d-MeFOSA		83	50-150
d3-MeFOSAA		105	50-150
d7-MeFOSE		101	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

3M EHS Laboratory Managed Outsourced Testing

Chain of Custody / Request for Laboratory Analytical Services

3M EHS Lab Project # (For Internal Use Only): E21-2079

Shipping Address: Pace Analytical Services, LLC, 106 Vantage Point Drive, West Columbia, SC 29172 — **Telephone:** Pace Project Manager: Cally Dover

Project ID/Project Name: 3M Menomonie Environmental Release	
Template #: NA	Final Report Due Date: Standard TAT
Project Lead: Sue Wolf	Internal Due Date: NA
Dept. # (main): 125962	Class/Job/Project #: NA

Report Results To:
Contact Name: Brad Luedtke
Company: 3M Menomonie
Mailing Address:
City, State, Zip:
Telephone #: FAX #:

Date Available:
Date Due:
Contract Lab:

Special Instructions and/or Specific Regulatory Requirements: Questions regarding the analysis of these samples should be directed to the 3M Project Lead: Susan Wolf 651-733-8851, slwolf@mmm.com

For water samples, collect: 2, 250-mL bottles.

Preservatives: HNO_3, H_2SO_4, VOCs, None, Other

Total Number of Containers

Analysis Requested: Complete below. Attach any associated information.

Contact 3M EHS Lab project lead for target analytes, reporting limit and reporting units

(Enter an 'X' in the box below to indicate request)

Item #	Client Sample Identification	3M LIMS #	Date Sampled	Time Sampled	Matrix/ media	Enter the number of containers of each					Total Number of Containers	
1.	P01		11/8/21	10:45					X			
2.	P02		11/8/21	10:48					X			
3.	P03		11/8/21	11:00					X			
4.	P04		11/8/21	12:03					X			
5.												
6.												
7.												
8.												
9.												
10.												

WK15017

Chain of Custody

Collected by (print): Brad Luedtke — Collector's signature: Brad Luedtke

Item #	Relinquished by/Affiliation	Time	Date	Shipped Via:	Received By/ Affiliation	Time	Date
1-4	Brad Luedtke/3M	11:30	11/9/21	UPS			
	UPS	1000	11/10/21			1000	11/10/21

Sample Condition Upon Receipt: O Acceptable O Other:

Temperature: °C O Received on Ice

Other Associated CoCs:

Copies to:

Comments: TC 6.4°C

Page 1 Of 1 — Original - Accompanying Samples — Last Page - Originator — See Reverse Side for Instructions

PACE ANALYTICAL SERVICES, LLC

PaceAnalytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: 3M

Cooler Inspected by/date: KSC / 10/15/2021

Lot #: WK15017

Means of receipt: ☐ Pace ☐ Client ☑ UPS ☐ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-266

6.4 / 6.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☑ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KSC Date: 10/15/2021

Comments: ice was melted

Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WID078673084	1	(800) 483-3718	010502241 FLE

5. Generator's Name and Mailing Address
3M Corp
1425 Stokke Pkwy Dept 128 Attn Karen Donnelly
Menomonie, WI 54751
Generator's Phone: (715) 578 2415 ATTN David Cotts

Generator's Site Address (if different than mailing address)
1425 Stokke Pkwy Dept 128
Menomonie, WI 54751
OKL000031492

6. Transporter 1 Company Name
~~Clean Harbors Environmental Services, Inc~~ BASCO
U.S. EPA ID Number ~~MAD039322250~~

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Environmental Services Inc
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON REGULATED SOLID, (LITE WATER)	1	CM	DRC 22,100	DRC Lbs	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
David R. Cotts	David R. Cotts	01	11	2022

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

	Printed/Typed Name	Signature	Month	Day	Year
Transporter 1	Ron Murphy	Ron Murphy	1	11	22
Transporter 2					

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR · TRANSPORTER · INT'L · DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. GENERATOR'S INITIAL COPY

From: Britta Chambers <bchambers2@mmm.com>
Sent: Thursday, September 15, 2022 4:28 PM
To: Schrank, Jayson S - DNR
Cc: Bradley Luedtke; LiJane Brunner; Kristin Colberg
Subject: 3M Menomonie: 2021 AFFF Release & Site Assessment
Attachments: 3M Menomonie_AFFF Release Response to WI DNR Comments_09.15.22.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

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

Mr. Schrank:

My name is Britta Chambers and I would like to introduce myself as the new project manager for environmental remediation activities 3M Menomonie. I understand you have been coordinating with Brad Luedtke and LiJane Brunner on remediation of an AFFF release that occurred at the site in November 2021. In June 2022, 3M submitted to you a summary report prepared by Bay West and received your comments on our response actions shortly thereafter.

3M is respectfully submitting the attached letter in response to your comments. We understand your request for further evaluation of conditions in the vicinity of the release and have identified several actions to address your concerns. 3M anticipates investigative activities and supplemental sampling will be initiated in Q4 2022. The findings will be provided to you in a letter report following 3M's receipt of the analytical results.

Please let me know if you have any questions or concerns relating to response actions at 3M Menomonie. I look forward to working with you on this project.

Britta

3M Science. Applied to Life.™

Britta Chambers | Advanced Environmental Scientist
3M Environment, Health, Safety and Product Stewardship - Corporate Environment
3M Center, 225-1N-22 | St. Paul, MN 55144-1000 | United States
Mobile: +1 952.913.8348
bchambers2@mmm.com

3M Environment, Health Safety and Product Stewardship
3M Center 225-1N-22
St. Paul, MN 55144-1000

September 15, 2022

Mr. Jayson Schrank
Regional Spills Coordinator/Hydrogeologist
Remediation & Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce Street, Baldwin, Wisconsin 54002

RE: 3M Menomonie AFFF Release, WI DNR Agency Case #198536

Mr. Schrank:

3M Company (3M) respectfully submits this response to the Wisconsin Department of Natural Resources' (WI DNR) June 10, 2022 email correspondence and comments on the Spill Report prepared by Bay West regarding the release of Aqueous Film Forming Foam (AFFF) at 3M Menomonie on November 3, 2021. 3M understands your request for further evaluation of environmental conditions within the vicinity of the release to ensure the site was appropriately remediated. The following actions will be taken by 3M:

1. 3M will collect deeper soil samples at the location of the release to confirm that no impacts to groundwater have occurred.

2. 3M will collect soil samples within and around the excavation area to show that contamination was removed and that the site of the release has been appropriately delineated.

3. All soil samples will be analyzed for Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537.1 Modified. Samples will be analyzed for the same 18 PFAS constituents for which the Wisconsin Department of Health has recommended groundwater health standards. 3M will provide an evaluation and justification for proposed next steps (no further action or additional work needed) based on the supplemental sampling results. The findings will be provided to you in a letter report following 3M's receipt of the analytical results.

4. 3M has voluntarily conducted an internal inventory of AFFF use at 3M Menomonie. 3M plans to conduct a site-wide Phase II Environmental Assessment to further investigate areas of the facility where AFFF may have potentially been present. The findings will be evaluated to confirm that no other environmental impacts due to AFFF have occurred.

3M anticipates investigative activities and supplemental sampling will take place in Q4 2022. As requested in your email correspondence, the Spill Report prepared by Bay West describing the initial response actions has been revised to reflect the correct date of the release and is enclosed for your immediate review. Please contact me via email at bchambers2@mmm.com should you have any questions or concerns.

Sincerely,

Britta Chambers
Advanced Environmental Scientist
3M Corporate Environment

Enclosure

CC: Kristen Colberg, 3M Corporate Environment
LiJane Brunner, 3M Menomonie
Brad Luedtke, 3M Menomonie

Bay West

Spill Activation Form (ICS 201)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Incident Date:	11/3/21	**State Agency:**	WDNR
Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy			**Site Contact Name:**	Brad Luedtke
City:	Menomonie			**Site Contact Phone:**	715-578-2318
State	WI	**ZIP**	54751	**Site Contact Email:**	bluedtke@mmm.com
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.				

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant			**Chemical Phase:**	☐ Solid	☑ Liquid	☐ Gas		
Quantity Involved:	100-400 gallons			**Duration of Release:**	15-20 Minutes				
Chemical Released:				**Chemical Phase:**	☐ Solid	☐ Liquid	☐ Gas		
Quantity Involved:				**Duration of Release:**					
Chemical Released:				**Chemical Phase:**	☐ Solid	☐ Liquid	☐ Gas		
Quantity Involved:				**Duration of Release:**					
☐ **Residential**	☑ **Commercial**			☐ **Inside**	☑ **Outside**				
Released onto what surface:	☐ Air	☑ Pavement/ Impervious	☑ Soil / pervious		☐ Sewer	☐ On Water			
Is it contained?	☑ Yes	☐ No	**Has 911 been called?**		☐ Yes	☑ No			

SITUATION SUMMARY

11/3/21 - Assess and document, develop work plan, verify no immediate threats
11/8/21 - Remedial excavation, removal concrete pad, removal of impacted grass, place in lined, covered dumpster awaiting disposal by CleanHarbors

RESPONSE OBJECTIVES

- ☑ Investigation extent and magnitude of release
- ☑ Contain spilled material on land
- ☐ Contain spilled material on water
- ☑ Recover/excavate spilled material/ contaminated soil
- ☐ Package waste for disposal
- ☐ **Other:**
- ☑ Transport and dispose of waste material
- ☑ Collect samples and analyze for contamination / confirmation of cleanup
- ☑ Clean and restore of impacted area(s)
- ☐ Provide shelter / utilities / water for impacted public
- ☑ Document activities and generate closure report

ADDITIONAL CLIENT INFORMATION

Billing Contact:	Brad Luedtke	**Account #**	J211100			
Billing Phone:	715-578-2318	**MSA:**	◉ Yes	○ No		
Billing Email:	bluedtke@mmm.com	**ER Retainer:**	◉ Yes	○ No		

Bay West

Hazard Evaluation Form (ICS 215)

GENERAL INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Safety Officer Completing HEF:			

CHEMICAL INFORMATION

Chemical Released:	Water with PFAS Containing Fire Suppressant		
Quantity Involved:	100-400 gallons		
Physical State:	☐ Solid ☑ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor	☐ Solid ☐ Liquid ☐ Gas/Vapor
TLV or PEL	No Data (0.00037 mg/L EPA DWEL)		
IDLH	No Data		
Odor threshold	None		
Flash Point	Not Applicable °F	°F	°F
Lower Expl. Limit	Not Applicable %	%	%
Vapor Pressure	2.48x10-6 mmHg at 20°C mmHg	mmHg	mmHg
Ionization Potential	Unknown (varies) eV	eV	eV
Exposure Route(s)	☑ Inhalation ☑ Absorption ☑ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact	☐ Inhalation ☐ Absorption ☐ Skin Contact
SDS / printed safety material available? MSDSonline; NIOSH	◉ Yes ○ No	Is the SDS attached?	○ Yes ◉ No

SYMPTOMS/EFFECTS OF EXPOSURE

☑ Carcinogen	☑ Headache	☑ Vertigo	☑ Nose/Throat Irritation
☑ Confusion	☐ Inebriation	☑ Vomiting	☑ Labored Breathing
☐ Dermatitis	☐ Skin Burns	☑ Skin Irritation	☐
☑ Dizziness	☐ Narcosis	☑ Eye Irritation	☐
☑ Fatigue	☑ Sensitization	☑ Lightheadedness	☐

PHYSICAL / BIOLOGICAL HAZARDS

☐ Fire/Explosion	☐ Confined Space	☐ Topography / Terrain	☐ Infectious Materials
☐ Corrosive	☐ Traffic	☐ Working at Heights	☐ Blood and Bodily Fluids
☐ Slips/Trips/Falls	☐ On/Near Water	☐ Lifting / Ergonomics	☐ Biological Warfare Agents
☐ Electrical	☐ Adverse Weather		
☐ Noise	☐ Plant/Animals/Insects		
☐ Utilities (Overhead / Buried)	☐ Sharps/Needles		

DECONTAMINATION

Decontamination Solution	Decontamination Materials	
☑ Water	☑ Plastic sheeting	☑ Garbage bags
☑ Detergent (Alconox)	☑ Tubs/basins	☑ Drums/containers
☐ Soda ash solution	☑ Sprayers	☐ Sorbent pads
☐	☑ Brushes	☐

Disposal Considerations:

MONITORING PLAN

Monitoring required? ○ Yes ◉ No

Monitor Type	Action Level	Response	Action Level	Response
☐ 4-Gas Monitor	> 5% LEL	Monitor Continuously	> 10% LEL	Evacuate
	< 19.5 % or >%23.5	Ventilate and upgrade to Level B		Evacuate
	> 35 ppm CO	Upgrade to Level B	> 1200 ppm CO	Evacuate
	> 1 ppm H_2S	Upgrade to Level C	> 10 ppm H_2S	Upgrade to Level B
☐ Photoionization Detector (PID) [10.6 eV Lamp]				
☐ Dräger Tubes				
☐ pH Paper				
☐ Lumex				
☐				

PERSONAL PROTECTIVE EQUIPMENT

Initial PPE Level ▣ Level D ▣ Level C ☐ Level B ☐ Level A

Head, Eye, Face Protection	Hand Protection / Gloves	Skin Protection / Suits
▣ Hard hat	☐ Thermax liner gloves	▣ Coveralls
☐ Face-shield	☐ Cut-resistant chore gloves	▣ Insulated overall (cold wx gear)
▣ Safety glasses	▣ Insulated gloves (cold weather)	☐ Nomex suit
▣ Chemical goggles	☐ PVC (Monkey Grips)	☐ Firefighter turn-out gear
▣ Hearing protection	▣ Nitrile inner – sampling gloves	▣ Tyvek 400
▣ Insulated hat (cold weather)	▣ Nitrile outer	▣ TyChem SL (Stitched Saranex)
☐	☐ PVA glove	☐ TyChem 4000 (Sealed Saranex)
	☐ Neoprene	☐ Barricade – Level B
	☐ Natural rubber	☐ TyChem Proshield Fully Encapsulated
	☐ Butyl rubber	☐ TyChem TK Suit - Level A
	☐ Silvershield / 4H	☐
	☐	☐

Feet Protection	Respiratory Protection	Other Emergency Equipment
▣ Safety-toe boots	☐ SCBA	☐ First aid/BBP kit
☐ Insulated Safety-Toe boots	☐ SAR	☐ Fire extinguisher, 20 lb ABC
☐ Tingley boots	☐ SAR with escape bottle	☐ Personal flotation device
▣ Chemical boots	☐ Full Face APR	☐ Reflective Traffic Vest
▣ Tyvek boot covers	☐ Half Face APR	▣ Eye wash:
▣ Rubber boot covers	Cartridge:	☐ 1 L Bottles Qty:
☐ Latex boot covers	☐ Multi-gas 6006	☐ 15-minute station
☐ Waders	☐ Multi-gas / P100 - Combo	☐ Calcium gluconate (for HF)
☐	☐ Mercury 6009	☐ Grounding & Bonding Equipment
	☐ P100 7093	☐
	☐	

GENERAL INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client Contact:	Brad Luedtke	**Bay West PM:**	Mark Gretebeck
Site Contact:	Brad Luedtke	**Site Contact Phone:**	715-578-2318
Time of day:		**Weather:**	

GENERAL SAFETY MESSAGE

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

ITEMS DISCUSSED

Contact / Check in Procedures / Communications	Tools / Equipment Operation	Contingencies
☒ Client ☒ Security ☐ Emergency ☐ AHAs ☐ Work Zones ☐	☒ Hand Tools ☐ Vehicle Inspections ☐ Lift gate ☐ Ventilation ☒ Heavy Equipment ☐ Air Monitoring ☐ Bond/Grounding	☒ Hospital Map ☐ Fire ☐ Inclement Weather ☒ SDS ☒ Route Hazards ☒ Eye Wash ☒ Stop Work ☒ Spill Kit ☒ First Aid Kit ☐ Theft/threats of violence

Chemical Hazards	Physical Hazards	Biological Hazards
☐ Corrosive ☐ VOCs ☒ SVOCs ☐ Heavy Metals ☒ Acute Toxics ☒ Particulates ☐ PCBs ☐ Pesticides	☒ Noise (>85dBA) ☐ Heat Stress ☒ Cold Stress ☐ Lighting ☒ Pinch Points ☒ Slips/Trips/Falls ☒ Distractions ☐ Ergonomics ☐ Flammables	☐ Biological Warfare Agents ☐ Infectious Materials ☐ Sharps/Needles ☐ Blood and Bodily Fluids

Personnel Protection Requirements	Decontamination Procedures	Waste
☒ Competent Person ☐ Medical Clearance ☒ Eye Protection ☒ Foot Protection ☐ Decontamination ☒ Incident Reports	☐ Fire Extinguisher ☒ PPE ☒ Site Specific ☐ HazCom ☐ Respirators ☐ Safe Lifting ☐ Lab packing	☒ Safe handling/ packaging of wastes ☒ Labeling and Manifests containers ☒ Securing/ Transporting

SITE COMMUNICATION

Communication between the Project Manager, Client, Site Supervisor, and Field Techs shall be by:

☒ Voice ☒ Visual ☐ Telephone ☐ Radio ☐ Emergency warning device:

☐ Other:

Other Safety Information Discussed

**** IF ANY HAZARD OR CONDITIONS CHANGE, CONTACT THE PROJECT MANAGER AND RE-EVALUATE THE SAFETY OF THE JOB ****

Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021

Emergency Response Guidebook

Safety Concerns	Corrective Action(s)

MEDICAL AND EMERGENCY INFORMATION					
Hospital Name Hospital Locator	Please see Site Safety and Health and Safety Plan			Phone Number	
Address	Please see Site Safety and Health Plan for Excavation, Excavation Oversight and Soil Sampling at 3M Fire Suppression System Release Excavation 3M Menomonie, WI Bay West - November 2021				
Police	911	Fire	911	Site Emergency Number	

HOSPITAL LOCATION / MAP

BAY WEST PERSONNEL

Your signature below indicates that you were present, coherent, and responsive during the meeting, that you're aware of site specific hazards, and agree to stop work when an uncontrolled hazard presents itself.

Role	Name	Signature	Time/Date signed
Project Manager	Mark Gretebeck	Mark Gretebeck	5/6/21
Safety and Health Officer	Griffin Kyger	Griffin Kyger	
Site Supervisor	Mark Gretebeck	Mark Gretebeck	
Field Technician	Mark Gretebeck	Mark Gretebeck	
Field Technician			
Field Technician			

Bay West

Daily Activity Log (ICS 214)

CLIENT AND PROPERTY OWNER INFORMATION

Date:	11/3/21	**Project #:**	J 211100
Project Name:	3M - Menomonie		
Client:	3M	**Bay West PM:**	Mark Gretebeck
Client Contact:	Brad Luedtke	**Property Owner:**	3M
Client Phone:	715-578-2318	**Property Owner Phone:**	715-578-2318
Client Email:	bluedtke@mmm.com	**Property Owner Email:**	bluedtke@mmm.com

NOTIFICATIONS

Duty Officer #:	WDNR SERTS ID # 20211103WC17-1	**State Agency:**	WDNR
Agency Case #:	Report #198536	**Agency Contact:**	WDNR Regional Spills Coordinator Jayson Schrank

INCIDENT LOCATION AND RESPONSE

Site Address:	1425 Stokke Pkwy					**Site Contact Name:**	Brad Luedtke
City:	Menomonie	**State:**	WI	**ZIP:**	54751	**Site Contact Phone:**	715-578-2318
Latitude/Longitude:	See Figures 1 and 2					**Bay West Time Notified/Arrived:**	
Location Description (mile marker, location on property, etc.):	Please see Figures 1 and 2.						
Bay West Response Team (denote role PM, SS, Tech):	Mark Gretebeck - PM and SS						
Weather:	Partly Sunny, 39 Degrees F, Winds from the West at 12 MPH						

MATERIALS RELEASED

Chemical Released:	Water with PFAS Containing Fire Suppressant				**Chemical Phase:**	☐	Solid	☑	Liquid	☐	Gas
Quantity Involved:	100-400 gallons				**Duration of Release:**	15-20 Minutes					
Chemical Released:					**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:					**Duration of Release:**						
Chemical Released:					**Chemical Phase:**	☐	Solid	☐	Liquid	☐	Gas
Quantity Involved:					**Duration of Release:**						
☐	**Residential**	☑	**Commercial**	☐	**Inside**	☑	**Outside**				
Released onto what surface:	☐	Air	☑	Pavement/ Impervious	☑	Soil / pervious	☐	Sewer	☐	On Water	
Is it contained?	☑	Yes	☐	No	**Has 911 been called?**	☐	Yes	☑	No		

INITIAL INCIDENT ASSESSMENT

(Describe incident as found upon arrival):

There was a 15-20 minute release of fire suppression water from a 2" outside valve for their sprinkler system. The water has PFOS foam in it. The fire suppression water discharged onto a concrete pad and the grass adjacent to the building. A remedial excavation is necessary to reomove the material. 3M indicated that they will have CleanHarbors handle the waste. We advised 3M to mark off the extent of the impacted area that will need to be excavated.

MONITORING RESULTS

Location	Parameter	Time	Result	Location	Parameter	Time	Result

ENVIRONMENTAL IMPACTS

(Discuss size and magnitude of impacts)

☐ Air	☐ Sanitary Sewer
☐ Groundwater	☐ Secondary Containment
☐ Indoor Commercial	☑ Soil/Porous Material
☐ Indoor Residential	☐ Storm Sewer
☑ Pavement/Impervious	☐ Surface Water
	☐ Wetland

All impacted material was removed. No additional remedial action related to this release is recommended and/or warranted.

DETAILED DESCRIPTION OF REMEDIAL ACTIONS

Bay West completed the following activities:

- Removed small concrete pad in landscape area (see Figures 1 and 2 - attached)
- Lined roll-off container with plastic sheeting
- Excavated grass, topsoil and sand in a 17' half circle area to an average depth of 14"
- Placed soil in lined roll-off awaiting transport by CleanHarbors
- 3M collected 4 confirmation soil samples at base of excavation
- Samples 101-104 submitted by 3M to Pace Analytical Labs in SC. Analysis for PFAS. Results attached. No PFAS results exceed applicable standards (see Table 1 - attached)
- Waste transported at a later date by CleanHarbors to their Kimball Incineration Facility located at 2247 South Highway 71, Kimball, NE 69145, Phone Number 308-235-4012, EPA ID NED981723513
- 22,100 pounds (11.05 tons) was incinerated (waste documentation attached)
- Photos 1-10 attached

WASTE

Description of waste generated	Volume	Destination
PFAS impacted soil and grass	11.05 tons	CleanHarbors Kimball NE Incineration Facility

RECOMMENDATIONS

Recommended for site closure: (●) Yes ( ) No

All impacted areas were removed and incinerated, therefore, all aspects of this release have been properly addressed and no further remedial action associated with this release is recommended or warranted.

PROJECT COMPLETION CHECKLIST

☑	Photos Taken	☑	Site Restoration Complete	☑	Confirmation Samples	☑	Waste Profile Samples
☐	Field Sketch	☑	Manifests Complete	☑	Waste Secured	☑	Chain of Custody Maintained
☐		☐		☐		☐	Internal Disposal Request

Report Preparer:	Mark Gretebeck		
Signature:	Mark Gretebeck	**Date:**	5/24/22

Photo # 1 **:** View of plastic covering grass/landscape gravel in release area immediately adjacent to building between galvanized electrical conduits

Photo # 2**:** New, Unused, 40-Yard Roll-Off Container

Photo # 3 **:** Close up view of plastic covering grass/landscape gravel in release area immediately adjacent to building

Photo # 4**:** Start of excavation activities

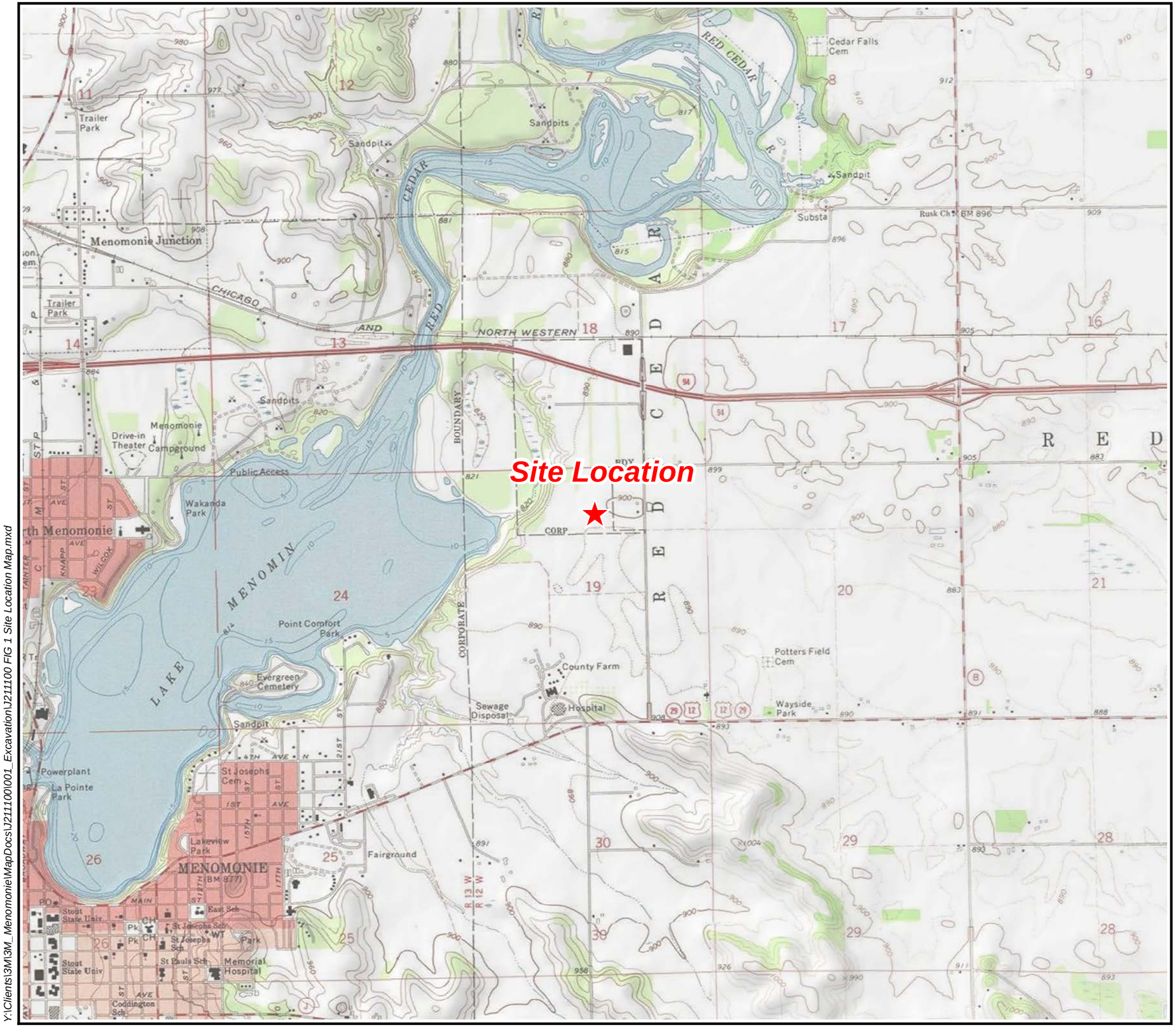
Photo # 5 **:** Plastic lining applied to new, unused, 40-yard roll-off container

Photo # 6**:** Continuing with excavation of impacted grass and sand

Photo # : Continuing with excavation of impacted grass and sand

Photo # : Impacted grass, landscape gravel and sand in roll-off. Approx. 7.5 cubic yards final volume.

Figures



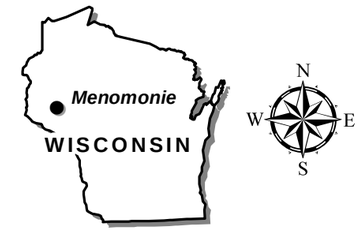
Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 1 Site Location Map.mxd

Figure 1

Site Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: ESRI USA Topo Maps WMS

0 2,000 4,000 Feet
0 600 1,200 Meters

1 inch = 2,000 feet

★ Site Location

Bay West
Customer-Focused Environmental & Industrial Solutions

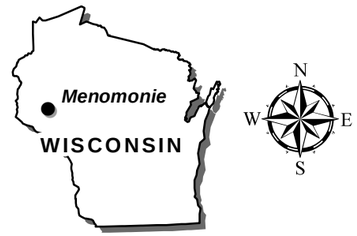
Drawn By: N.J. Date Drawn/Revised:2/21/2022 Project No.J211100

Figure 2

Excavation Extent & Sample Location Map

ER Excavation

1425 Stokke Pkwy
Menomonie, WI 54751



Map Projection: NAD 1983 UTM Zone 15 N, Meters
Basemap: Wisconsin DNR Aerial Imagery WMS, 2010

0 10 20 Feet
0 2 4 6 Meters

Soil Sample

Excavation Extent

Bay West
Customer-Focused Environmental & Industrial Solutions

Drawn By: N.J. Date Drawn/Revised: 2/24/2022 Project No.J211100

Y:\Clients\3M\3M_Menomonie\MapDocs\J211100\001_Excavation\J211100 FIG 2 Excavation Extent & Sample Location Map.mxd

Tables

Table 1
Soil Analytical Results

PFAS release at 3M Menomonie

	Sample ID	Industrial	101	102	103	104
	Date Sampled	RCL	11/8/2021	11/8/2021	11/8/2021	11/8/2021
11-Cl-PF3OUdS (11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid)	763051-92-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
4:2 FTS (4:2 fluorotelomersulfonic acid)	757124-72-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
6:2 FTS (6:2 fluorotelomersulfonic acid)	27619-97-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
8:2 FTS (8:2 fluorotelomersulfonic acid)	39108-34-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
9-Cl-PF3ON (9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid)	756426-58-1	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
DONA (4,8-dioxa-3H-perfluorononanoic acid)	919005-14-4	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSAm (N-Ethylperfluorooctanesulfonamide)	4151-50-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
EtFOSE (N-Ethylperfluorooctanesulfonamidoethanol)	1691-99-2	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
HFPO-DA (2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid)	13252-13-6	NE	< 0.0039	< 0.0041	< 0.0038	< 0.0043
MeFOSA (N-Methylperfluorooctanesulfonamide)	31506-32-8	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSAA (N-Methyl perfluorooctanesulfonamidoacetic acid)	2355-31-9	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
MeFOSE (N-Methylperfluorooctanesulfonamidoethanol)	24448-09-7	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
N-EtFOSAA (N-Ethyl perfluorooctanesulfonamidoacetic acid)	2991-50-6	NE	< 0.0019	< 0.0020	< 0.0019	< 0.0022
PFBA (Perfluorobutyric acid)	375-22-4	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFBS (Perfluorobutanesulfonic acid)	375-73-5	16400	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDA (Perfluorodecanoic acid)	335-76-2	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFDOA (Perfluorododecanoic acid)	307-55-1	NE	< 0.00097	< 0.0010	< 0.00096	**0.0011**
PFDoS (Perfluorododecanesulfonic acid)	79780-39-5	NE	**0.0028**	**0.0075**	**0.0041**	**0.0091**
PFDS (Perfluorodecanesulfonic acid)	335-77-3	NE	**0.0044**	**0.0081**	**0.0026**	**0.0055**
PFHpA (Perfluoroheptanoic acid)	375-85-9	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFHpS (Perfluoroheptanesulfonic acid)	375-92-8	NE	< 0.00097	< 0.0010	**0.0039**	**0.0014**
PFHxA (Perfluorohexanoic acid)	307-24-4	NE	< 0.00097	< 0.0010	**0.0052**	**0.0024**
PFHxS (Perfluorohexanesulfonic acid)	355-46-4	NE	**0.0021**	**0.013**	**0.025**	**0.016**
PFNA (Perfluorononanoic acid)	375-95-1	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFNS (Perfluorononanesulfonic acid)	68259-12-1	NE	**0.0069**	**0.0047**	**0.0031**	**0.0020**
PFOA (Perfluorooctanoic acid)	335-67-1	16.4	< 0.00097	**0.0014**	**0.0066**	**0.0023**
PFOS (Perfluorooctanesulfonate)	1763-23-1	16.4	**1.0**	**0.60**	**0.83**	**0.15**
PFOSAm (Perfluorooctanesulfonamide)	754-91-6	NE	**0.068**	**0.048**	**0.014**	**0.020**
PFPeA (Perfluoropentanoic acid)	2706-90-3	NE	< 0.00097	< 0.0010	**0.00096**	< 0.0011
PFPeS (Perfluoropentanesulfonic acid)	2706-91-4	NE	< 0.00097	< 0.0010	**0.0018**	< 0.0011
PFTeDA (Perfluorotetradecanoic acid)	376-06-7	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFTrDA (Perfluorotridecanoic acid)	72629-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011
PFUnDA (Perfluoroundecanoic acid)	2058-94-8	NE	< 0.00097	< 0.0010	< 0.00096	< 0.0011

Notes:
All results in milligrams per kilogram
WIDNR – Wisconsin Department of Natural Resources
RCL – Residual Contaminant Lvels, as published December 2018
NE – Action level not established for this analyte
< – Less than the laboratory Limit of Quantitation
Bold – Analyte detected
Blue – Result exceeds the Industrial RCL

Analytical Data

Report of Analysis

3M
3M Center
260-05-N-17
St. Paul, MN 55144
Attention: Susan Wolf

Project Name: 3M Menomonie

Project Number: E21-2079

Lot Number:**WK15017**

Date Completed:12/13/2021
Revision Date: 12/15/2021

12/16/2021 2:46 PM
Approved and released by:
Project Manager II: **Cathy S. Dover**

The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
3M
Lot Number: WK15017

Report Revision 12/15/2021:
This report has been revised to include the parent/original sample amount on the MS/MSD forms. These results were not reported in the original report due to LIMS issue. All other sample results are as reported in the original PDF report. This report supersedes and replaces any prior reports issued under this lot number.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample. All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below. Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

PFAS by Isotope Dilution
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. The extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene auto sampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

For solid samples:
CF = DF * FV / Ws/S/1000

FV is volume of extract (mL)
Ws is initial sample weight (gram)
S is %Solids
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Concentration (ug/kg) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Samples WK15017-001 (101), WK15017-002 (102), WK15017-003 (103), and WK15017-004 (104) were collected in client-provided bottles which do not conform to method requirements.

The MS/MSD for batch 23612 and parent sample WK15017-004 (104), recovered outside control limits for PFOS. The associated LCS passed acceptance criteria.

In addition to the references above, samples associated with this report were performed in accordance with the 3M Technical Specifications Manual Revision 1, July 17, 2020.

The following SOP applies: ME003NI Determination of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS (Isotope Dilution).

Cathy Dover, Project Manager

Sample Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	101	Solid	11/08/2021 1045	11/12/2021
002	102	Solid	11/08/2021 1048	11/12/2021
003	103	Solid	11/08/2021 1100	11/12/2021
004	104	Solid	11/08/2021 1203	11/12/2021

(4 samples)

Detection Summary

3M

Lot Number: WK15017

Project Name: 3M Menomonie

Project Number: E21-2079

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	101	Solid	PFDS	PFAS by ID	4.4		ug/kg	5
001	101	Solid	PFNS	PFAS by ID	6.9		ug/kg	5
001	101	Solid	PFOSA	PFAS by ID	68		ug/kg	5
001	101	Solid	PFDOS	PFAS by ID	2.8		ug/kg	5
001	101	Solid	PFHxS	PFAS by ID	2.1		ug/kg	5
001	101	Solid	PFOS	PFAS by ID	1000		ug/kg	5
002	102	Solid	PFDS	PFAS by ID	8.1		ug/kg	7
002	102	Solid	PFNS	PFAS by ID	4.7		ug/kg	7
002	102	Solid	PFOSA	PFAS by ID	48		ug/kg	7
002	102	Solid	PFDOS	PFAS by ID	7.5		ug/kg	7
002	102	Solid	PFHxS	PFAS by ID	13		ug/kg	7
002	102	Solid	PFOA	PFAS by ID	1.4		ug/kg	7
002	102	Solid	PFOS	PFAS by ID	600		ug/kg	7
003	103	Solid	PFDS	PFAS by ID	2.6		ug/kg	9
003	103	Solid	PFHpS	PFAS by ID	3.9		ug/kg	9
003	103	Solid	PFNS	PFAS by ID	3.1		ug/kg	9
003	103	Solid	PFOSA	PFAS by ID	14		ug/kg	9
003	103	Solid	PFPeS	PFAS by ID	1.8		ug/kg	9
003	103	Solid	PFDOS	PFAS by ID	4.1		ug/kg	9
003	103	Solid	PFHxS	PFAS by ID	25		ug/kg	9
003	103	Solid	PFHxA	PFAS by ID	5.2		ug/kg	9
003	103	Solid	PFOA	PFAS by ID	6.6		ug/kg	9
003	103	Solid	PFPeA	PFAS by ID	0.96		ug/kg	9
003	103	Solid	PFOS	PFAS by ID	830		ug/kg	9
004	104	Solid	PFDS	PFAS by ID	5.5		ug/kg	11
004	104	Solid	PFHpS	PFAS by ID	1.4		ug/kg	11
004	104	Solid	PFNS	PFAS by ID	2.0		ug/kg	11
004	104	Solid	PFOSA	PFAS by ID	20		ug/kg	11
004	104	Solid	PFDOS	PFAS by ID	9.1		ug/kg	11
004	104	Solid	PFHxS	PFAS by ID	16		ug/kg	11
004	104	Solid	PFDoA	PFAS by ID	1.1		ug/kg	11
004	104	Solid	PFHxA	PFAS by ID	2.4		ug/kg	11
004	104	Solid	PFOA	PFAS by ID	2.3		ug/kg	11
004	104	Solid	PFOS	PFAS by ID	150	S	ug/kg	11

(34 detections)

PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1611	MMM	11/24/2021 1322	23612	1.16	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1044	MMM	11/24/2021 1322	23612	1.16	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.9	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**4.4**		**0.97**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**6.9**		**0.97**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**68**		**0.97**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**2.8**		**0.97**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.1**		**0.97**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1000**		**9.7**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		127	50-150
13C2_6:2FTS		123	50-150		129	50-150
13C2_8:2FTS		113	50-150		122	50-150
13C2_PFDoA		101	50-150		101	50-150
13C2_PFTeDA		106	50-150		101	50-150
13C3_PFBS		101	50-150		104	50-150
13C3_PFHxS		103	50-150		107	50-150
13C3-HFPO-DA		115	50-150		105	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-001**	
Description: **101**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1045**	Project Name: **3M Menomonie**	% Solids: **89.2**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		101	50-150
13C4_PFHpA		97	50-150		102	50-150
13C5_PFHxA		100	50-150		105	50-150
13C5_PFPeA		102	50-150		104	50-150
13C6_PFDA		104	50-150		106	50-150
13C7_PFUdA		113	50-150		118	50-150
13C8_PFOA		100	50-150		109	50-150
13C8_PFOS		77	50-150		104	50-150
13C8_PFOSA		112	50-150		115	50-150
13C9_PFNA		75	50-150		96	50-150
d-EtFOSA		94	50-150		103	50-150
d5-EtFOSAA		117	50-150		117	50-150
d9-EtFOSE		99	50-150		102	50-150
d-MeFOSA		91	50-150		94	50-150
d3-MeFOSAA		112	50-150		120	50-150
d7-MeFOSE		95	50-150		100	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-002**

Description: **102** | Matrix: **Solid**

Date Sampled: **11/08/2021 1048** | Project Name: **3M Menomonie** | % Solids: **94.0** **11/23/2021 0106**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1622	MMM	11/24/2021 1322	23612	1.04	10.00
2	SOP SPE	PFAS by ID SOP (3M)	5	12/01/2021 1054	MMM	11/24/2021 1322	23612	1.04	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.0	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**8.1**		**1.0**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**4.7**		**1.0**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**48**		**1.0**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**7.5**		**1.0**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**13**		**1.0**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.4**		**1.0**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**600**		**5.1**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		115	50-150		130	50-150
13C2_6:2FTS		116	50-150		131	50-150
13C2_8:2FTS		124	50-150		129	50-150
13C2_PFDoA		103	50-150		108	50-150
13C2_PFTeDA		103	50-150		106	50-150
13C3_PFBS		98	50-150		110	50-150
13C3_PFHxS		96	50-150		114	50-150
13C3-HFPO-DA		102	50-150		108	50-150

LOQ = Limit of Quantitation | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | Q = Surrogate failure

ND = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | L = LCS/LCSD failure

H = Out of holding time | W = Reported on wet weight basis | S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-002**	
Description: **102**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1048**	Project Name: **3M Menomonie**	% Solids: **94.0**	**11/23/2021 0106**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		108	50-150
13C4_PFHpA		97	50-150		105	50-150
13C5_PFHxA		98	50-150		110	50-150
13C5_PFPeA		108	50-150		103	50-150
13C6_PFDA		114	50-150		110	50-150
13C7_PFUdA		109	50-150		117	50-150
13C8_PFOA		95	50-150		110	50-150
13C8_PFOS		87	50-150		104	50-150
13C8_PFOSA		112	50-150		122	50-150
13C9_PFNA		84	50-150		99	50-150
d-EtFOSA		107	50-150		101	50-150
d5-EtFOSAA		109	50-150		128	50-150
d9-EtFOSE		100	50-150		105	50-150
d-MeFOSA		95	50-150		98	50-150
d3-MeFOSAA		118	50-150		124	50-150
d7-MeFOSE		109	50-150		117	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-003**

Description: **103** | Matrix: **Solid**

Date Sampled: **11/08/2021 1100** | Project Name: **3M Menomonie** | % Solids: **93.1** **11/29/2021 2339**

Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	11/30/2021 1632	MMM	11/24/2021 1322	23612	1.12	10.00
2	SOP SPE	PFAS by ID SOP (3M)	10	12/01/2021 1105	MMM	11/24/2021 1322	23612	1.12	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.8	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**2.6**		**0.96**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**3.9**		**0.96**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**3.1**		**0.96**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**14**		**0.96**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.8**		**0.96**	**ug/kg**	**1**
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**4.1**		**0.96**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**25**		**0.96**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.2**		**0.96**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.6**		**0.96**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.96**		**0.96**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.96	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**830**		**9.6**	**ug/kg**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		108	50-150		114	50-150
13C2_6:2FTS		113	50-150		132	50-150
13C2_8:2FTS		126	50-150		122	50-150
13C2_PFDoA		102	50-150		112	50-150
13C2_PFTeDA		106	50-150		100	50-150
13C3_PFBS		98	50-150		111	50-150
13C3_PFHxS		102	50-150		111	50-150
13C3-HFPO-DA		113	50-150		107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
Q = Surrogate failure
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-003**	
Description: **103**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1100**	Project Name: **3M Menomonie**	% Solids: **93.1**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		99	50-150		106	50-150
13C4_PFHpA		100	50-150		103	50-150
13C5_PFHxA		103	50-150		113	50-150
13C5_PFPeA		99	50-150		105	50-150
13C6_PFDA		106	50-150		116	50-150
13C7_PFUdA		106	50-150		110	50-150
13C8_PFOA		98	50-150		114	50-150
13C8_PFOS		80	50-150		108	50-150
13C8_PFOSA		123	50-150		125	50-150
13C9_PFNA		80	50-150		101	50-150
d-EtFOSA		96	50-150		103	50-150
d5-EtFOSAA		115	50-150		125	50-150
d9-EtFOSE		100	50-150		108	50-150
d-MeFOSA		94	50-150		95	50-150
d3-MeFOSAA		110	50-150		127	50-150
d7-MeFOSE		110	50-150		109	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **3M** | Laboratory ID: **WK15017-004**
Description: **104** | Matrix: **Solid**
Date Sampled: **11/08/2021 1203** | Project Name: **3M Menomonie** | % Solids: **92.0** **11/29/2021 2339**
Date Received: **11/12/2021** | Project Number: **E21-2079**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)	Final Vol. (mL)
1	SOP SPE	PFAS by ID SOP (3M)	1	12/01/2021 1115	MMM	11/24/2021 1322	23612	1.01	10.00

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**5.5**		**1.1**	**ug/kg**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**1.4**		**1.1**	**ug/kg**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**2.0**		**1.1**	**ug/kg**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**20**		**1.1**	**ug/kg**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	**79780-39-5**	**PFAS by ID SOP**	**9.1**		**1.1**	**ug/kg**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**		**1.1**	**ug/kg**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**1.1**		**1.1**	**ug/kg**	**1**
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.4**		**1.1**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**		**1.1**	**ug/kg**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**150**	**S**	**1.1**	**ug/kg**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		133	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		133	50-150
13C2_PFDoA		108	50-150
13C2_PFTeDA		106	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		104	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **3M**		Laboratory ID: **WK15017-004**	
Description: **104**		Matrix: **Solid**	
Date Sampled: **11/08/2021 1203**	Project Name: **3M Menomonie**	% Solids: **92.0**	**11/29/2021 2339**
Date Received: **11/12/2021**	Project Number: **E21-2079**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		105	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		115	50-150
13C7_PFUdA		118	50-150
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C8_PFOSA		124	50-150
13C9_PFNA		101	50-150
d-EtFOSA		116	50-150
d5-EtFOSAA		133	50-150
d9-EtFOSE		102	50-150
d-MeFOSA		104	50-150
d3-MeFOSAA		127	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	Q = Surrogate failure
ND = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis		S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1508
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1508
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1508
GenX	ND		1	4.0	ug/kg	11/30/2021 1508
ADONA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1508
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1508
PFBS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1508
PFNS	ND		1	1.0	ug/kg	11/30/2021 1508
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1508
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1508
PFBA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1508
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1508
PFNA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOA	ND		1	1.0	ug/kg	11/30/2021 1508
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1508
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1508
PFOS	ND		1	1.0	ug/kg	11/30/2021 1508

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		127	50-150
13C2_PFDoA		117	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-001
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		109	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		105	50-150
13C8_PFOSA		116	50-150
13C9_PFNA		103	50-150
d-EtFOSA		111	50-150
d5-EtFOSAA		122	50-150
d9-EtFOSE		117	50-150
d-MeFOSA		98	50-150
d3-MeFOSAA		116	50-150
d7-MeFOSE		116	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1518
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1518
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1518
GenX	ND		1	4.0	ug/kg	11/30/2021 1518
ADONA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1518
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1518
PFBS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1518
PFNS	ND		1	1.0	ug/kg	11/30/2021 1518
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1518
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1518
PFBA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1518
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1518
PFNA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOA	ND		1	1.0	ug/kg	11/30/2021 1518
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1518
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1518
PFOS	ND		1	1.0	ug/kg	11/30/2021 1518

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		110	50-150
13C2_PFTeDA		109	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-101
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		106	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		107	50-150
13C8_PFOS		112	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		106	50-150
d-EtFOSA		108	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		110	50-150
d-MeFOSA		102	50-150
d3-MeFOSAA		131	50-150
d7-MeFOSE		121	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/30/2021 1529
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/30/2021 1529
8:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
6:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
4:2 FTS	ND		1	2.0	ug/kg	11/30/2021 1529
GenX	ND		1	4.0	ug/kg	11/30/2021 1529
ADONA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
EtFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSAA	ND		1	2.0	ug/kg	11/30/2021 1529
MeFOSE	ND		1	2.0	ug/kg	11/30/2021 1529
PFBS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpS	ND		1	1.0	ug/kg	11/30/2021 1529
PFNS	ND		1	1.0	ug/kg	11/30/2021 1529
PFOSA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeS	ND		1	1.0	ug/kg	11/30/2021 1529
PFDOS	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxS	ND		1	1.0	ug/kg	11/30/2021 1529
PFBA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFDoA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHpA	ND		1	1.0	ug/kg	11/30/2021 1529
PFHxA	ND		1	1.0	ug/kg	11/30/2021 1529
PFNA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOA	ND		1	1.0	ug/kg	11/30/2021 1529
PFPeA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTeDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFTrDA	ND		1	1.0	ug/kg	11/30/2021 1529
PFUdA	ND		1	1.0	ug/kg	11/30/2021 1529
PFOS	ND		1	1.0	ug/kg	11/30/2021 1529

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		120	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		123	50-150
13C2_PFDoA		107	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		110	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ23612-201
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		105	50-150
13C8_PFOS		113	50-150
13C8_PFOSA		120	50-150
13C9_PFNA		103	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		107	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		120	50-150
d7-MeFOSE		102	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	5.1	5.5		1	107	70-130	11/30/2021 1539
11Cl-PF3OUdS	5.2	5.6		1	108	70-130	11/30/2021 1539
8:2 FTS	5.3	4.7		1	90	70-130	11/30/2021 1539
6:2 FTS	5.2	5.4		1	104	70-130	11/30/2021 1539
4:2 FTS	5.1	4.8		1	93	70-130	11/30/2021 1539
GenX	11	11		1	97	70-130	11/30/2021 1539
ADONA	5.2	5.3		1	102	70-130	11/30/2021 1539
EtFOSA	5.5	5.4		1	98	70-130	11/30/2021 1539
EtFOSAA	5.5	5.3		1	96	70-130	11/30/2021 1539
EtFOSE	5.5	5.2		1	95	70-130	11/30/2021 1539
MeFOSA	5.5	5.0		1	91	70-130	11/30/2021 1539
MeFOSAA	5.5	4.9		1	90	70-130	11/30/2021 1539
MeFOSE	5.5	4.3		1	79	70-130	11/30/2021 1539
PFBS	4.9	4.6		1	95	70-130	11/30/2021 1539
PFDS	5.3	6.1		1	114	70-130	11/30/2021 1539
PFHpS	5.2	5.1		1	97	70-130	11/30/2021 1539
PFNS	5.3	5.6		1	107	70-130	11/30/2021 1539
PFOSA	5.5	5.2		1	95	70-130	11/30/2021 1539
PFPeS	5.2	5.0		1	97	70-130	11/30/2021 1539
PFDOS	5.3	5.8		1	110	70-130	11/30/2021 1539
PFHxS	5.0	5.1		1	101	70-130	11/30/2021 1539
PFBA	5.5	5.4		1	99	70-130	11/30/2021 1539
PFDA	5.5	5.3		1	96	70-130	11/30/2021 1539
PFDoA	5.5	4.8		1	87	70-130	11/30/2021 1539
PFHpA	5.5	5.8		1	105	70-130	11/30/2021 1539
PFHxA	5.5	5.6		1	101	70-130	11/30/2021 1539
PFNA	5.5	5.5		1	99	70-130	11/30/2021 1539
PFOA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFPeA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTeDA	5.5	5.7		1	104	70-130	11/30/2021 1539
PFTrDA	5.5	4.8		1	88	70-130	11/30/2021 1539
PFUdA	5.5	5.0		1	92	70-130	11/30/2021 1539
PFOS	5.1	5.7		1	112	70-130	11/30/2021 1539

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		118	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-002
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		99	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		112	50-150
13C8_PFOA		105	50-150
13C8_PFOS		96	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		102	50-150
d-EtFOSA		102	50-150
d5-EtFOSAA		120	50-150
d9-EtFOSE		105	50-150
d-MeFOSA		105	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		117	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	51	51		1	100	70-130	11/30/2021 1550
11Cl-PF3OUdS	52	56		1	107	70-130	11/30/2021 1550
8:2 FTS	53	49		1	94	70-130	11/30/2021 1550
6:2 FTS	52	50		1	95	70-130	11/30/2021 1550
4:2 FTS	51	44		1	85	70-130	11/30/2021 1550
GenX	110	100		1	95	70-130	11/30/2021 1550
ADONA	52	49		1	96	70-130	11/30/2021 1550
EtFOSA	55	45		1	82	70-130	11/30/2021 1550
EtFOSAA	55	54		1	98	70-130	11/30/2021 1550
EtFOSE	55	49		1	90	70-130	11/30/2021 1550
MeFOSA	55	56		1	101	70-130	11/30/2021 1550
MeFOSAA	55	49		1	89	70-130	11/30/2021 1550
MeFOSE	55	45		1	83	70-130	11/30/2021 1550
PFBS	49	48		1	98	70-130	11/30/2021 1550
PFDS	53	54		1	101	70-130	11/30/2021 1550
PFHpS	52	47		1	89	70-130	11/30/2021 1550
PFNS	53	49		1	93	70-130	11/30/2021 1550
PFOSA	55	51		1	93	70-130	11/30/2021 1550
PFPeS	52	52		1	101	70-130	11/30/2021 1550
PFDOS	53	55		1	103	70-130	11/30/2021 1550
PFHxS	50	48		1	96	70-130	11/30/2021 1550
PFBA	55	53		1	97	70-130	11/30/2021 1550
PFDA	55	52		1	95	70-130	11/30/2021 1550
PFDoA	55	52		1	95	70-130	11/30/2021 1550
PFHpA	55	56		1	103	70-130	11/30/2021 1550
PFHxA	55	51		1	93	70-130	11/30/2021 1550
PFNA	55	51		1	93	70-130	11/30/2021 1550
PFOA	55	55		1	100	70-130	11/30/2021 1550
PFPeA	55	55		1	99	70-130	11/30/2021 1550
PFTeDA	55	54		1	99	70-130	11/30/2021 1550
PFTrDA	55	54		1	99	70-130	11/30/2021 1550
PFUdA	55	55		1	100	70-130	11/30/2021 1550
PFOS	51	52		1	102	70-130	11/30/2021 1550

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		119	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		115	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-102
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		96	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		107	50-150
13C9_PFNA		103	50-150
d-EtFOSA		103	50-150
d5-EtFOSAA		111	50-150
d9-EtFOSE		103	50-150
d-MeFOSA		88	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		107	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RSD	%Rec Limit	% RSD Limit	Analysis Date
9Cl-PF3ONS	140	140		1	99	4.3	70-130	20	11/30/2021 1600
11Cl-PF3OUdS	140	150		1	103	2.6	70-130	20	11/30/2021 1600
8:2 FTS	140	120		1	83	6.3	70-130	20	11/30/2021 1600
6:2 FTS	140	120		1	81	12	70-130	20	11/30/2021 1600
4:2 FTS	140	130		1	96	6.1	70-130	20	11/30/2021 1600
GenX	300	300		1	99	2.0	70-130	20	11/30/2021 1600
ADONA	140	140		1	99	3.5	70-130	20	11/30/2021 1600
EtFOSA	150	130		1	89	8.9	70-130	20	11/30/2021 1600
EtFOSAA	150	150		1	102	2.7	70-130	20	11/30/2021 1600
EtFOSE	150	150		1	99	5.1	70-130	20	11/30/2021 1600
MeFOSA	150	160		1	106	7.6	70-130	20	11/30/2021 1600
MeFOSAA	150	140		1	94	3.1	70-130	20	11/30/2021 1600
MeFOSE	150	120		1	83	3.0	70-130	20	11/30/2021 1600
PFBS	130	130		1	98	1.6	70-130	20	11/30/2021 1600
PFDS	140	140		1	99	7.7	70-130	20	11/30/2021 1600
PFHpS	140	140		1	97	4.5	70-130	20	11/30/2021 1600
PFNS	140	130		1	90	9.2	70-130	20	11/30/2021 1600
PFOSA	150	130		1	89	3.4	70-130	20	11/30/2021 1600
PFPeS	140	150		1	103	3.4	70-130	20	11/30/2021 1600
PFDOS	150	140		1	99	5.1	70-130	20	11/30/2021 1600
PFHxS	140	130		1	98	2.7	70-130	20	11/30/2021 1600
PFBA	150	150		1	97	1.2	70-130	20	11/30/2021 1600
PFDA	150	160		1	104	4.8	70-130	20	11/30/2021 1600
PFDoA	150	140		1	91	4.5	70-130	20	11/30/2021 1600
PFHpA	150	150		1	100	2.4	70-130	20	11/30/2021 1600
PFHxA	150	140		1	93	4.8	70-130	20	11/30/2021 1600
PFNA	150	140		1	94	3.6	70-130	20	11/30/2021 1600
PFOA	150	150		1	100	2.3	70-130	20	11/30/2021 1600
PFPeA	150	150		1	99	2.8	70-130	20	11/30/2021 1600
PFTeDA	150	140		1	96	4.0	70-130	20	11/30/2021 1600
PFTrDA	150	140		1	95	6.2	70-130	20	11/30/2021 1600
PFUdA	150	150		1	97	4.4	70-130	20	11/30/2021 1600
PFOS	140	140		1	99	6.3	70-130	20	11/30/2021 1600

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		103	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ23612-202
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		91	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		111	50-150
13C9_PFNA		98	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		103	50-150
d9-EtFOSE		98	50-150
d-MeFOSA		91	50-150
d3-MeFOSAA		115	50-150
d7-MeFOSE		114	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	48	41		1	85	70-130	11/30/2021 1653
11Cl-PF3OUdS	ND	49	45		1	91	70-130	11/30/2021 1653
8:2 FTS	ND	50	37		1	75	70-130	11/30/2021 1653
6:2 FTS	ND	49	41		1	83	70-130	11/30/2021 1653
4:2 FTS	ND	49	38		1	79	70-130	11/30/2021 1653
GenX	ND	100	96		1	92	70-130	11/30/2021 1653
ADONA	ND	49	43		1	88	70-130	11/30/2021 1653
EtFOSA	ND	52	41		1	80	70-130	11/30/2021 1653
EtFOSAA	ND	52	43		1	83	70-130	11/30/2021 1653
EtFOSE	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSA	ND	52	52		1	99	70-130	11/30/2021 1653
MeFOSAA	ND	52	40		1	77	70-130	11/30/2021 1653
MeFOSE	ND	52	40		1	78	70-130	11/30/2021 1653
PFBS	ND	46	41		1	89	70-130	11/30/2021 1653
PFDS	5.5	50	49		1	86	70-130	11/30/2021 1653
PFHpS	1.4	50	45		1	87	70-130	11/30/2021 1653
PFNS	2.0	50	42		1	81	70-130	11/30/2021 1653
PFOSA	20	52	60		1	76	70-130	11/30/2021 1653
PFPeS	ND	49	42		1	87	70-130	11/30/2021 1653
PFDOS	9.1	50	51		1	83	70-130	11/30/2021 1653
PFHxS	16	47	54		1	81	70-130	11/30/2021 1653
PFBA	ND	52	46		1	88	70-130	11/30/2021 1653
PFDA	ND	52	42		1	81	70-130	11/30/2021 1653
PFDoA	1.1	52	45		1	86	70-130	11/30/2021 1653
PFHpA	ND	52	45		1	87	70-130	11/30/2021 1653
PFHxA	2.4	52	49		1	89	70-130	11/30/2021 1653
PFNA	ND	52	47		1	90	70-130	11/30/2021 1653
PFOA	2.3	52	45		1	83	70-130	11/30/2021 1653
PFPeA	ND	52	46		1	89	70-130	11/30/2021 1653
PFTeDA	ND	52	46		1	88	70-130	11/30/2021 1653
PFTrDA	ND	52	48		1	93	70-130	11/30/2021 1653
PFUdA	ND	52	42		1	80	70-130	11/30/2021 1653
PFOS	150	48	180	N	1	52	70-130	11/30/2021 1653

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		108	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK15017-004MS
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		95	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		106	50-150
13C8_PFOA		98	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		114	50-150
13C9_PFNA		91	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		112	50-150
d9-EtFOSE		99	50-150
d-MeFOSA		81	50-150
d3-MeFOSAA		125	50-150
d7-MeFOSE		100	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	47	41		1	86	1.8	70-130	30	11/30/2021 1704
11Cl-PF3OUdS	ND	48	40		1	84	11	70-130	30	11/30/2021 1704
8:2 FTS	ND	49	36		1	74	3.5	70-130	30	11/30/2021 1704
6:2 FTS	ND	48	42		1	87	2.6	70-130	30	11/30/2021 1704
4:2 FTS	ND	47	39		1	83	2.3	70-130	30	11/30/2021 1704
GenX	ND	100	84		1	83	13	70-130	30	11/30/2021 1704
ADONA	ND	48	40		1	84	6.6	70-130	30	11/30/2021 1704
EtFOSA	ND	51	39		1	77	6.5	70-130	30	11/30/2021 1704
EtFOSAA	ND	51	46		1	91	6.8	70-130	30	11/30/2021 1704
EtFOSE	ND	51	43		1	85	8.3	70-130	30	11/30/2021 1704
MeFOSA	ND	51	48		1	95	7.3	70-130	30	11/30/2021 1704
MeFOSAA	ND	51	41		1	81	2.6	70-130	30	11/30/2021 1704
MeFOSE	ND	51	38		1	76	5.2	70-130	30	11/30/2021 1704
PFBS	ND	45	40		1	88	3.2	70-130	30	11/30/2021 1704
PFDS	5.5	49	48		1	87	0.97	70-130	30	11/30/2021 1704
PFHpS	1.4	48	42		1	84	5.5	70-130	30	11/30/2021 1704
PFNS	2.0	49	43		1	85	2.7	70-130	30	11/30/2021 1704
PFOSA	20	51	64		1	86	6.1	70-130	30	11/30/2021 1704
PFPeS	ND	48	42		1	89	0.49	70-130	30	11/30/2021 1704
PFDOS	9.1	49	54		1	91	4.9	70-130	30	11/30/2021 1704
PFHxS	16	46	55		1	83	0.36	70-130	30	11/30/2021 1704
PFBA	ND	51	43		1	85	5.8	70-130	30	11/30/2021 1704
PFDA	ND	51	47		1	94	13	70-130	30	11/30/2021 1704
PFDoA	1.1	51	46		1	90	1.6	70-130	30	11/30/2021 1704
PFHpA	ND	51	45		1	89	0.064	70-130	30	11/30/2021 1704
PFHxA	2.4	51	45		1	85	7.8	70-130	30	11/30/2021 1704
PFNA	ND	51	43		1	85	7.7	70-130	30	11/30/2021 1704
PFOA	2.3	51	46		1	87	1.7	70-130	30	11/30/2021 1704
PFPeA	ND	51	45		1	89	3.2	70-130	30	11/30/2021 1704
PFTeDA	ND	51	46		1	90	0.77	70-130	30	11/30/2021 1704
PFTrDA	ND	51	45		1	90	6.2	70-130	30	11/30/2021 1704
PFUdA	ND	51	38		1	75	8.9	70-130	30	11/30/2021 1704
PFOS	150	47	190		1	82	7.3	70-130	30	11/30/2021 1704

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		102	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: WK15017-004MD
Batch: 23612
Analytical Method: PFAS by ID SOP (3M)

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/24/2021 1322

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		93	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		87	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		101	50-150
13C9_PFNA		88	50-150
d-EtFOSA		99	50-150
d5-EtFOSAA		100	50-150
d9-EtFOSE		97	50-150
d-MeFOSA		83	50-150
d3-MeFOSAA		105	50-150
d7-MeFOSE		101	50-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

3M EHS Laboratory Managed Outsourced Testing

Chain of Custody / Request for Laboratory Analytical Services

3M EHS Lab Project # (For Internal Use Only): E21-2079

Shipping Address: Pace Analytical Services, LLC, 106 Vantage Point Drive, West Columbia, SC 29172 — **Telephone:** Pace Project Manager: Cally Dover

Project ID/Project Name: 3M Menomonie Environmental Release	
Template #: NA	Final Report Due Date: Standard TAT
Project Lead: Sue Wolf	Internal Due Date: NA
Dept. # (main): 125962	Class/Job/Project #: NA

Report Results To:
Contact Name: Brad Luedtke
Company: 3M Menomonie
Mailing Address:
City, State, Zip:
Telephone #: FAX #:

Date Available:
Date Due:
Contract Lab:

Special Instructions and/or Specific Regulatory Requirements: Questions regarding the analysis of these samples should be directed to the 3M Project Lead: Susan Wolf 651-733-8851, slwolf@mmm.com

For water samples, collect: 2, 250-mL bottles.

Preservatives: HNO_3, H_2SO_4, VOCs, None, Other

Total Number of Containers

Analysis Requested: Complete below. Attach any associated information.

Contact 3M EHS Lab project lead for target analytes, reporting limit and reporting units

(Enter an 'X' in the box below to indicate request)

Item #	Client Sample Identification	3M LIMS #	Date Sampled	Time Sampled	Matrix/ media	Enter the number of containers of each					Total Number of Containers	
1.	P01		11/8/21	10:45					X			
2.	P02		11/8/21	10:48					X			
3.	P03		11/8/21	11:00					X			
4.	P04		11/8/21	12:03					X			
5.												
6.												
7.												
8.												
9.												
10.												

WK15017

Chain of Custody

Collected by (print): Brad Luedtke — Collector's signature: Brad Luedtke

Item #	Relinquished by/Affiliation	Time	Date	Shipped Via:	Received By/ Affiliation	Time	Date
1-4	Brad Luedtke/3M	11:30	11/9/21	UPS			
	UPS	1000	11/10/21			1000	11/10/21

Sample Condition Upon Receipt: O Acceptable O Other:

Temperature: °C O Received on Ice

Other Associated CoCs:

Copies to:

Comments: TC 6.4°C

Page 1 Of 1 — Original - Accompanying Samples — Last Page - Originator — See Reverse Side for Instructions

PACE ANALYTICAL SERVICES, LLC

PaceAnalytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: 3M

Cooler Inspected by/date: KSC / 10/15/2021

Lot #: WK15017

Means of receipt: ☐ Pace ☐ Client ☑ UPS ☐ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-266

6.4 / 6.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☑ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KSC Date: 10/15/2021

Comments: ice was melted

Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WID078673084	1	(800) 483-3718	010502241 FLE

GENERATOR

5. Generator's Name and Mailing Address
3M Corp
1425 Stokke Pkwy Dept 128 Attn Karen Donnelly
Menomonie, WI 54751
Generator's Phone: (715) 578-2415 ATTN David Cotts

Generator's Site Address (if different than mailing address)
1425 Stokke Pkwy Dept 128
Menomonie, WI 54751
OKL000314492

6. Transporter 1 Company Name
~~Clean Harbors Environmental Services, Inc~~ BA508
U.S. EPA ID Number
~~MAD039322250~~

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Environmental Services Inc
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number
NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-REGULATED SOLID, (LITE WATER)	1	CM	DRC 22,100	DRC Lbs	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
David R. Cotts	David R. Cotts	01	11	2022

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

	Printed/Typed Name	Signature	Month	Day	Year
Transporter 1	Ron Murphy	Ron Murphy	1	11	22
Transporter 2					

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **GENERATOR'S INITIAL COPY**